

ELEMENTARY CORE Academy

UTAH STATE OFFICE OF EDUCATION & UTAH STATE UNIVERSITY



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KINDERGARTEN

PARTICIPANT HANDBOOK

2005



UtahState UNIVERSITY

ELEMENTARY CORE ACADEMY

6517 Old Main Hill
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Dear CORE Academy Teachers:

Thank you for your investment in children and in building your own expertise as you participate in the CORE Academy. I hope your involvement helps you to sustain a laser-like focus on student achievement.

Teachers in Utah are superb. By participating in the Academy, you join a host of teachers throughout the state who understand that teaching targeted on the core curricula, across a spectrum of subjects, will produce results of excellence. The research is quite clear: the closer the match of explicit instruction to core standards, the better the outcome on core assessments.

I personally appreciate your excellence and your desire to create wonderful classrooms of learning for students. Thank you for your dedication. I feel honored to associate with you and pledge my support to lead education in ways that benefit all of our children.

Sincerely,



Patti Harrington, Ed.D.
State Superintendent
of Public Instruction

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Major funding for the Academy comes from the following sources:

Federal/State Funds:

- Utah State Office of Education
 - Staff Development Funds
 - Special Education Services Unit
- ESEA Title II
- Utah Math Science Partnership
- WestED Eisenhower Regional Consortium

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Various sources including Quality Teacher Block, Federal ESEA Title II, and District Professional Development Funds

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- Trust land, ESEA Title II, and other school funds
- Utah State Office of Education Special Education Services

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Additionally, numerous school districts, individual schools, and principals in Utah have sponsored teachers to attend the Academy. Other educational groups such as the Utah Division of Water Resources, National Energy Foundation, Utah Energy Office, and the Utah Mining Association have assisted in the development and delivery of resources in the Academy.

Most important is the thousands of teachers who take time from their summer to attend these professional development workshops. It is these teachers who make this program possible.

Goals of the Elementary CORE Academy

Overall

The purpose of the Elementary CORE Academy is to create high quality teacher instruction and improve student achievement through the delivery of professional development opportunities and experiences for teachers across Utah.

The Academy will provide elementary teachers in Utah with:

1. Models of exemplary and innovative instructional strategies, tools, and resources to meet newly adopted Core Curriculum standards, objectives, and indicators.
2. Practical models and diverse methods of meeting the learning needs of all children, with instruction implementation aligned to the Core Curriculum.
3. Meaningful opportunities for collaboration, self-reflection, and peer discussion specific to innovative and effective instructional techniques, materials, teaching strategies, and professional practices in order to improve classroom instruction.

Learning a limited set of facts will no longer prepare a student for real experiences encountered in today's world. It is imperative that educators have continued opportunities to obtain instructional skills and strategies that provide methods of meeting the needs of all students. Participants of the Academy experience will be better equipped to meet the challenges faced in today's classrooms.

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***Kindergarten
Core Curriculum***

K-2 Core Curriculum

Introduction

Most students enter school confident in their own abilities; they are curious and eager to learn more. They make sense of the world by reasoning and problem solving. Young students are active, resourceful individuals who construct, modify, and integrate ideas by interacting with the physical world as well as with peers and adults. They learn by doing, collaborating, and sharing their ideas. Students' abilities to communicate through language, pictures, sound, movement, and other symbolic means develop rapidly during these years.

Literacy requires an understanding of listening, speaking, reading, writing, and viewing in many forms including print and electronic images. Today, more than ever, students must have the ability to think critically while applying new information to existing knowledge. Therefore, school literacy programs need to involve students in learning to read and write in situations that foster critical thinking and the use of literacy for independent learning in all content areas.

Young students are building beliefs about what mathematics is, about what it means to know and do mathematics, and about themselves as mathematical learners. Mathematics instruction needs to include more than short-term learning of rote procedures. Students must use technology and other mathematical tools, such as manipulative materials, to develop conceptual understanding and solve problems as they do mathematics. Students, as mathematicians, learn best with hands-on, active experiences throughout the instruction of the mathematics curriculum.

Language Arts and Mathematics are the tools for doing work in other areas. These content areas need to be integrated into other curriculum areas to provide students with optimal learning. The curriculum becomes more relevant when content areas are connected rather than taught in strict isolation. For this reason, the content areas of the Fine Arts, Health Education, Physical Education, Science, and Social Studies have been combined to enable teachers to teach more efficiently and students to learn in a real-life context that enhances lifelong learning.

The Kindergarten through Second Grade Core describes what students should know and be able to do at the end of each of the kindergarten, first, and second grade levels. It has been developed, critiqued, and revised by a community of Utah teachers, university

- **Young children learn by doing, collaborating, and sharing their ideas.**



educators, State Office of Education specialists, and an advisory committee representing a wide variety of people from the community. The Core reflects the current philosophy of education that is expressed in national documents developed by the International Reading Association, National Council of the Teachers of Mathematics, National Standards for Arts Education, Information Power, National Association for Sport and Physical Education, American Association for the Advancement of Science, National Council for the Social Studies, International Society for Technology and Education, and Early Childhood Standards.

**Organization of the
K-2 Core:**

- **Intended Learning Outcomes**
- **Standard**
- **Objective**
- **Indicator**

Organization of the K-2 Core

The Core is designed to help teachers organize and deliver instruction.

- Each grade level begins with a brief course description.
- The Kindergarten, First, and Second Grade INTENDED LEARNING OUTCOMES describe the goals for students to gain knowledge and understand their world. They are found at the beginning of each grade level, are an integral part of the Core, and should be included as part of instruction.
- The first Core area consists of the Language Arts curriculum.
- The second Core area consists of the Mathematics curriculum.
- The third Core area consists of the subject areas of the Fine Arts, Health Education, Physical Education, Science, and Social Studies.
- A STANDARD is a broad statement of what students are expected to understand. Several Objectives are listed under each Standard.
- An OBJECTIVE is a more focused description of what students need to know and be able to do at the completion of instruction. If students have mastered the Objectives associated with a given Standard, they have mastered that Standard at that grade level. Several Indicators are described for each Objective.
- An INDICATOR is a measurable or observable student action that enables one to assess whether a student has mastered a particular Objective. Indicators are not meant to be classroom activities, but they can help guide classroom instruction.

Guidelines Used in Developing the K-2 Core

The Core is:

Consistent With the Nature of Learning

The main intent in the early grades is for students to value learning and develop the skills to gain knowledge and understand their world. The Core is designed to produce an integrated set of Kindergarten, First, and Second Grade Intended Learning Outcomes for students, with specific goals in all content areas.

Coherent

The Core has been designed so that, wherever possible, the ideas taught within a particular grade level have a logical and natural connection with each other and with those of earlier grades. Efforts have also been made to select topics and skills that integrate well with one another appropriate to grade level. In addition, there is an upward articulation of concepts, skills, and content. This spiraling is intended to prepare students to understand and use more complex concepts and skills as they advance through the learning process.

Developmentally Appropriate

The Core takes into account the psychological and social readiness of students. It builds from concrete experiences to more abstract understandings. The Core focuses on providing experiences with concepts that students can explore and understand in depth to build the foundation for future learning experiences.

Reflective of Successful Teaching Practices

Learning through play, movement, and adventure is critical to the early development of the mind and body. The Core emphasizes student exploration. The Kindergarten, First, and Second Grade Intended Learning Outcomes are central in each standard. The Core is designed to encourage instruction with students working in cooperative groups. Instruction should recognize the importance of each Core area in the classroom, school, and community.

Comprehensive

The Kindergarten, First, and Second Grade Core does not cover all topics that have traditionally been in the Kindergarten, First, and Second Grade curriculum; however, it provides a basic foundation of knowledge and skills in all content areas. By emphasizing depth rather than breadth, the Core seeks to empower students rather than intimidate them with a collection of

- **By emphasizing depth rather than breadth, the Core seeks to empower students.**

- **Student achievement of the standards and objectives in this Core is best assessed using a variety of assessment instruments.**

isolated and eminently forgettable facts. Teachers are free to add related concepts and skills, but they are expected to teach all the standards and objectives specified in the Core for their grade level.

Feasible

Teachers and others who are familiar with Utah students, classrooms, teachers, and schools have designed the Core. It can be taught with easily obtained resources and materials. A Teacher Handbook is also available for teachers and has sample lessons on each topic for each grade level. The Teacher Handbook is a document that will grow as teachers add exemplary lessons aligned with the new Core.

Useful and Relevant

This curriculum relates directly to student needs and interests. Relevance of content areas to other endeavors enables students to transfer skills gained from one area of instruction into their other school subjects and into their lives outside the classroom.

Reliant Upon Effective Assessment Practices

Student achievement of the standards and objectives in this Core is best assessed using a variety of assessment instruments. Performance tests are particularly appropriate to evaluate student mastery of thinking processes and problem-solving skills. A variety of classroom assessment approaches should be used by teachers in conjunction with the Criterion Referenced Tests (CRT) that are administered to first and second grade students in Language Arts and Mathematics, and with the pre- and post-tests administered in kindergarten. Observation of students engaged in instructional activities is highly recommended as a way to assess students' skills as well as attitudes toward learning. The nature of the questions posed by students provides important evidence of their understanding.

Engaging

In the early grades, children are forming attitudes and habits for learning. It is important that instruction maximizes students' potential and gives them understanding of the intertwined nature of learning. Effective elementary instruction engages students actively in enjoyable learning experiences. Instruction should be as thrilling an experience for a child as seeing a rainbow, growing a flower, or describing a toad. In a world of rapidly expanding knowledge and technology, all students must gain the skills they will need to understand and function responsibly and successfully in the world. The Core provides skills in a context that enables students to experience the joy of learning.

The Kindergarten Core Curriculum

In kindergarten, core concepts should be integrated across all curriculum areas. Reading, writing, and mathematical skills should be emphasized as integral to the instruction in all other areas. Personal relevance of content is always an important part of helping students to value learning and should be emphasized.

Kindergarten students engage in many activities that help them develop oral language and literacy. Kindergarten students take part in language activities that extend their vocabulary, conceptual knowledge, and phonological awareness. Students learn to follow directions and develop the language of schooling.

Within a well-balanced mathematics curriculum, the primary focal points for kindergarten are developing whole-number concepts and using patterns and sorting to explore number, data, and shape. While learning mathematics, students will be actively engaged in using concrete materials and appropriate technologies such as calculators and computers.

In kindergarten, students learn about themselves and their relationship to the classroom, school, family, and community. Students are expected to develop skills in posing simple questions, measuring, sorting, classifying, and communicating information about the natural world. Students learn about their bodies and the behaviors necessary to protect them and keep them healthy. They learn basic body control while beginning to develop motor skills and moving in a variety of settings. Students become aware of strength, endurance, and flexibility in different parts of their bodies. They express their thoughts and ideas creatively, while challenging their imagination, fostering reflective thinking, and developing disciplined effort and problem-solving skills.

- **Reading, writing, and mathematical skills should be emphasized as integral to the instruction in all other areas.**



K-2 Intended Learning Outcomes

- **Intended learning outcomes provide a direction for general classroom instruction, management, culture, environment, and inclusion.**

The main intent at the early grades is for students to value learning and develop the skills to gain knowledge and understand their world.

The Intended Learning Outcomes described below reflect the belief that kindergarten, first, and second grade education should address the intellectual, social, emotional, physical, and ethical development of children. While the Kindergarten, First, and Second Grade Core Curriculum focuses primarily on content and the intellectual development of children, it is important to create a classroom culture that fosters development of many aspects of a person. By nurturing development in these interrelated human domains, young people will be healthy and discover varied and exciting talents and dreams. They will be socially and civically competent and able to express themselves effectively.

The outcomes identified below are to provide a direction for general classroom instruction, management, culture, environment, and inclusion. These outcomes should be interwoven throughout the Kindergarten, First, and Second Grade Core Curriculum, which offers more specific and measurable standards for instruction.

Beginning in kindergarten and by the end of second grade students will be able to:

1. Demonstrate a positive learning attitude.

- a. Display a sense of curiosity.
- b. Practice personal responsibility for learning.
- c. Demonstrate persistence in completing tasks.
- d. Apply prior knowledge and processes to construct new knowledge.
- e. Voluntarily use a variety of resources to investigate topics of interest.

2. Develop social skills and ethical responsibility.

- a. Respect similarities and differences in others.
- b. Treat others with kindness and fairness.
- c. Follow classroom and school rules.
- e. Include others in learning and play activities.
- f. Participate with others when making decisions and solving problems.
- g. Function positively as a member of a family, class, school, and community.



3. Demonstrate responsible emotional and cognitive behaviors.

- a. Recognize own values, talents, and skills.
- b. Express self in positive ways.
- c. Demonstrate aesthetic awareness.
- d. Demonstrate appropriate behavior.
- e. Express feelings appropriately.
- f. Meet and respect needs of self and others.

4. Develop physical skills and personal hygiene.

- a. Respect physical similarities and differences in self and others.
- b. Learn proper care of the body for health and fitness.
- c. Develop knowledge that enhances participation in physical activities.
- d. Display persistence in learning motor skills and developing fitness.
- e. Use physical activity for self-expression.

5. Understand and use basic concepts and skills.

- a. Develop phonological and phonemic awareness.
- b. Decode, read, and comprehend written text and symbols.
- c. Develop vocabulary.
- d. Develop reasoning and sequencing skills.
- e. Demonstrate problem-solving skills.
- f. Observe, sort, and classify objects.
- g. Make and interpret representations, graphs, and models.
- h. Recognize how content ideas interconnect.
- i. Make connections from content areas to application in real life.

6. Communicate clearly in oral, artistic, written, and nonverbal form.

- a. Share ideas using communication skills.
- b. Predict an event or outcome based on evidence.
- c. Use appropriate language to describe events, objects, people, ideas, and emotions.
- d. Listen attentively and respond to communication.
- e. Use mathematical concepts to communicate ideas.
- f. Use visual art, dance, drama, and music to communicate.

Kindergarten Language Arts Core Curriculum

Standard I:
Oral Language—
Students develop
language for the
purpose of
effectively
communicating
through listening,
speaking, viewing,
and presenting.

Standard I: *Oral Language—*Students develop language for the purpose of effectively communicating through listening, speaking, viewing, and presenting.

Objective 1: Develop language through listening and speaking.

- a. Listen attentively.
- b. Listen and demonstrate understanding by responding appropriately (e.g., follow two-step directions).
- c. Speak clearly and audibly with expression in communicating ideas.
- d. Speak in complete sentences.

Objective 2: Develop language through viewing media and presenting.

- a. View a variety of media presentations attentively.
- b. Use a variety of formats (e.g., show and tell, drama, sharing of books) in presenting with various forms of media.



Standard II: *Concepts of Print*—Students develop an understanding of how printed language works.

Objective 1: Demonstrate an understanding that print carries “the” message.

- a. Recognize that print carries different messages.
- b. Identify messages in common environmental print (e.g., signs, boxes, wrappers).

Objective 2: Demonstrate knowledge of elements of print within a text.

- a. Identify front/back, top/bottom, left/right of text/book.
- b. Discriminate between upper- and lower-case letters, numbers, and words in text.
- c. Show the sequence of print by pointing left to right with return sweep.
- d. Identify where text begins and ends on a page.
- e. Identify punctuation in text (i.e., periods, question marks, exclamation points).

Standard II:
***Concepts of Print*—**
Students develop an
understanding of
how printed
language works.

Standard III:
Phonological and Phonemic Awareness—
Students develop phonological and phonemic awareness.

Standard III: *Phonological and Phonemic Awareness—Students develop phonological and phonemic awareness.*

Objective 1: Demonstrate phonological awareness.

- a. Count the number of words in a sentence.
- b. Identify and create a series of rhyming words orally (e.g., cat, bat, sat, _____).
- c. Recognize words beginning with the same initial sound in an alliterative phrase or sentence (e.g., Six snakes sold snacks and sodas.).

Objective 2: Recognize like and unlike word parts (oddy tasks).

- a. Identify the word that does not rhyme in a series of words (e.g., bat, cat, sat, pig).
- b. Identify the words with same beginning consonant sound in a series of words (e.g., man, sat, sick) and ending consonant sound (e.g., man, sat, then).

Objective 3: Orally blend word parts (blending).

- a. Blend syllables to make words (e.g., /ta.../ble/, table).
- b. Blend onset and rimes to make words (e.g., /p.../an/, pan).
- c. Blend individual phonemes to make words (e.g., /s.../a.../t/, sat).

Objective 4: Orally segment words into word parts (segmenting).

- a. Segment words into syllables (e.g., table, /ta.../ble/).
- b. Segment words into onset and rime (e.g., pan, /p...an).
- c. Segment words into individual phonemes (e.g., sat, /s.../a.../t/).

Objective 5: Orally manipulate phonemes in words and syllables (manipulation).

- a. Substitute initial sound (e.g., replace the first sound in mat to /s/, say sat).
- b. Substitute initial sound to create new words (e.g., replace the first sound in mat with letters of the alphabet).

Standard IV: *Phonics and Spelling*—Students use phonics and other strategies to decode and spell unfamiliar words while reading and writing.

Objective 1: Demonstrate an understanding of the relationship between letters and sounds.

- a. Name all upper-and lower-case letters of the alphabet in random order.
- b. Match consonant and short vowel sounds to the correct letter.
- c. Blend simple cvc sounds into one-syllable words.

Objective 2: Use knowledge of structural analysis to decode words.

- a. Identify and read grade level contractions and compound words.
- b. Identify sound patterns and apply knowledge to decode words (e.g., blends, digraphs, vowel patterns, r-controlled vowels).
- c. Demonstrate an understanding of representing the same sound with different patterns by decoding these patterns accurately in isolation and in text (e.g., ee, ea, ei, e).
- d. Use knowledge of root words and prefixes (e.g., re, un, mis) and suffixes (e.g., s, es, ed, ing, est, ly) to decode words.
- e. Use letter and syllable patterns to pronounce multisyllabic words.

Objective 3: Spell words correctly.

- a. Hear and write letters to represent single sounds in words.
- b. Spell a small number of grade level words (e.g., you, the, to, is).
- c. Spell first name correctly.

Objective 4: Use spelling strategies to achieve accuracy (e.g., prediction, visualization, association).

- a. Use knowledge about spelling to predict the spelling of new words.
- b. Associate the spelling of new words with that of known words.

Standard IV:
***Phonics and Spelling*—Students use phonics and other strategies to decode and spell unfamiliar words while reading and writing.**

Standard V:
Fluency—Students develop reading fluency to read aloud grade level text effortlessly without hesitation.

Standard V: *Fluency—Students develop reading fluency to read aloud grade level text effortlessly without hesitation.*

Objective 1: Read aloud grade level text with appropriate speed and accuracy.

- a. Read alphabet letters in random order with automaticity.
- b. Read numerals from zero to ten in random order with automaticity.

Objective 2: Read aloud grade level text effortlessly with clarity.

- a. Use appropriate intonation and expression during unison oral reading with the teacher.
- b. Read with automaticity approximately 25 high-frequency/sight words.

Standard VI: Vocabulary—Students learn and use grade level vocabulary to increase understanding and read fluently.

Objective 1: Learn new words through listening and reading widely.

- a. Use new vocabulary learned by listening, reading, and discussing a variety of genres.
- b. Learn the meaning of a variety of grade level words (e.g., words from literature, social studies, science, math).
- c. Use resources to learn new words by relating them to known words (e.g., books, charts, word walls).

Objective 2: Use multiple resources to learn new words by relating them to known words and/or concepts. See second, third, fourth, fifth, and sixth grades.

Objective 3: Use structural analysis and context clues to determine meanings of words.

- a. Identify meanings of words by looking at the root word and using known endings (e.g., car, cars; jump, jumped, jumping).
- b. Monitor reading using context to explain the meanings of unknown key words from text read aloud.

**Standard VI:
Vocabulary—
Students learn and
use grade level
vocabulary to
increase
understanding and
read fluently.**

Standard VII:
Comprehension—
Students
understand,
interpret, and
analyze narrative
and informational
grade level text.

Standard VII: *Comprehension—*Students understand, interpret, and analyze narrative and informational grade level text.

Objective 1: Identify purposes of text.

- a. Discuss purpose for reading.
- b. Discuss author’s purpose.

Objective 2: Apply strategies to comprehend text.

- a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).
- b. Ask questions about text.
- c. Make predictions using picture clues, title, and prior knowledge.
- d. Make inferences and draw conclusions from text.
- e. Retell identifying key ideas.
- f. Compile information from text.

Objective 3: Recognize and use features of narrative and informational text.

- a. Identify beginning, middle, and ending of text.
- b. View a variety of simple genres: nursery rhymes, fairy tales, poems, realistic fiction, fantasy.
- c. Identify information from pictures.
- d. Recognize information as real/make believe.
- e. View a variety of informational texts (e.g., picture books).

Standard VIII: Writing—Students write daily to communicate effectively for a variety of purposes and audiences.

Objective 1: Prepare to write by gathering and organizing information and ideas (pre-writing).

- a. Generate ideas for writing by listening, talking, drawing, looking at literature and informational text, being read to, and reflecting on personal experiences.
- b. Select topics from generated ideas.

Objective 2: Compose a written draft.

- a. Draft ideas on paper, utilizing pictures with labels/words.
- b. Select appropriate words to convey meaning.

Objective 3: Revise by elaborating and clarifying a written draft. See first, second, third, fourth, fifth, and sixth grades.

Objective 4: Edit written draft for conventions.

- a. Edit writing of first name for appropriate capital and lower-case letters.
- b. Edit writing for the spelling of a key word.

Objective 5: Use fluent and legible handwriting to communicate.

- a. Print all upper- and lower-case letters of the alphabet and numerals 0-9 using proper form, proportions, and spacing.
- b. Write with increasing fluency in forming manuscript letters and numerals.
- c. Write name legibly using correct manuscript form.

Objective 6: Write in different forms and genres.

- a. Produce personal writing (e.g., All About Me books, notes).
- b. Produce traditional and imaginative stories, narrative and formula poetry as a shared writing activity.
- c. Produce functional text (e.g., ABC books, labels, signs).
- d. Share illustrations and writing with others.
- e. Take part in producing group products.

**Standard VIII:
Writing—Students write daily to communicate effectively for a variety of purposes and audiences.**

Kindergarten Mathematics

Core Curriculum

Standard I:
Students will understand simple number concepts and relationships.

Standard I: Students will understand simple number concepts and relationships.

Objective 1: Identify and use whole numbers.

- a. Relate a *numeral* to the number of objects in a set (e.g., □ □ □ = 3).
- b. Construct models of numbers to 10 with physical objects or manipulatives.
- c. Make pictorial representations of numbers to 10 (e.g., draw four circles, draw six squares).
- d. Recognize and write numerals from 0 to 10.
- e. Manipulate objects to demonstrate and describe multiple ways of representing a number (e.g., 5 can be 3 and 2 more, 5 can also be 2 and 2 and 1).

Objective 2: Identify simple relationships among whole numbers.

- a. Develop strategies for *one-to-one correspondence* and keeping track of quantities.
- b. Compare two sets of objects to determine whether they have the same, fewer, or more elements.
- c. Order sets of objects from 1 to 9.
- d. Estimate quantities less than 10.

Objective 3: Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.

- a. Demonstrate the joining and separating of sets with objects to solve problems.
- b. Describe the joining or separating of sets with informal language when using models.
- c. Record pictorially the results from the joining or separating of sets.

Standard II: Students will identify and use patterns to represent mathematical situations.

Objective 1: Identify and sort objects according to common attributes.

- a. Sort objects into groups by color, shape, size, number, or other *attributes*.
- b. Identify which attribute was used to sort objects into a group.
- c. Find multiple ways to sort and classify a group of objects.

Objective 2: Identify and use patterns to describe numbers or objects.

- a. Use patterns to count orally from 1 to 20 and backward from 10 to 0.
- b. Identify simple patterns in the environment.
- c. Predict what comes next in an established pattern and justify thinking.
- d. Duplicate, extend, and create simple patterns using objects and pictorial representations.

**Standard II:
Students will identify
and use patterns to
represent
mathematical
situations.**



**Standard III:
Students will
identify and create
simple geometric
shapes and
describe spatial
relationships.**

Standard III: Students will identify and create simple geometric shapes and describe spatial relationships.

Objective 1: Identify and create simple geometric shapes.

- a. Identify circles, triangles, rectangles, and squares.
- b. Combine shapes to create *two-dimensional* objects.
- c. Draw circles, triangles, rectangles, and squares.
- d. Recognize circles, triangles, rectangles, and squares in the students' environment.

Objective 2: Describe simple spatial relationships.

- a. Visualize how to fit a shape into a design.
- b. Use and demonstrate words to describe position with objects (i.e., on, over, under, above, below, top, bottom, up, down, in front of, behind, next to, beside).
- c. Use and demonstrate words to describe distance with objects (i.e., far, near).

Standard IV: Students will understand and use simple measurement tools and techniques.

Objective 1: Identify measurable attributes of objects and units of measurement.

- a. Identify clocks and calendars as tools that measure time.
- b. Identify a day, week, and month on a calendar.
- c. Identify pennies, nickels, dimes, and quarters as units of money.

Objective 2: Use appropriate techniques and tools to determine measurements.

- a. Compare two objects (e.g., shorter/longer, heavier/lighter, larger/smaller, more/less).
- b. Find the length of an object using nonstandard units (e.g., pencils, paper clips).
- c. Name the days of the week in order.
- d. Sort pennies, nickels, dimes, and quarters.

**Standard IV:
Students will
understand and use
simple measurement
tools and techniques.**

Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 1: Collect, organize, and display simple data.

- a. Collect, organize, and record data using objects and pictures.
- b. Represent data in a variety of ways (e.g., graphs made from people, *pictographs*, bar graphs) and interpret the data (e.g., more people like red than blue).

Objective 2: Determine the likelihood of events.

- a. Describe events encountered in books read as possible or not possible.
- b. Describe events as likely or unlikely (e.g., It is likely to snow today. It is unlikely an elephant will be in school).

**Standard V:
Students will
collect and draw
conclusions from
data and
understand basic
concepts of
probability.**

Kindergarten Fine Arts, Health, Physical Education, Science, and Social Studies Core Curriculum

Standard I: Students will develop a sense of self.

Objective 1: Describe and practice responsible behaviors for health and safety.

- a. Describe proper care of the body (e.g., proper brushing of teeth, eating a variety of foods, proper hand washing, sneezing into sleeve).
- b. Recognize that food is fuel for the body.
- c. Recognize signs of physical activity (e.g., heart rate, breathing, sweat).
- d. Identify helpful and harmful substances to the body.
- e. Recall basic safety (e.g., follow rules, maintain personal space/boundaries, know phone number, address, emergency number).

Objective 2: Develop skills in gross and fine motor movement.

- a. Participate in regular physical activity that requires exertion (e.g., walk, jog, jump rope).
- b. Explore a variety of fundamental and manipulative gross motor skills (e.g., hop, skip, twirl, dance, throw, catch, kick, strike).
- c. Perform a variety of fine motor skills (e.g., draw, cut, paste, mold, write).
- d. Maintain personal space and boundaries while moving.
- e. Create and perform simple dance movements that express who one is, knowledge of the body, feelings, senses, and ideas in time and space.

Objective 3: Develop and use skills to communicate ideas, information, and feelings.

- a. Identify and express ideas, information, and feelings in a variety of ways (e.g., draw, paint, tell stories, play, make believe, dance, sing).
- b. Recognize similar colors as being members of the family of reds, blues, and yellows and shapes as being similar to squares, circles, and triangles.

**Standard I:
Students will
develop a sense of
self.**

- c. Describe sounds in terms of dynamics (loud/soft), pitch (high/low), duration (long/short; fast/slow), and timbre (tone of an animal, human, musical instrument, or machine).
- d. Develop competency in beat accuracy and respond to an understanding of beat as a life force through moving, singing, chanting, or playing instruments.
- e. Express emotions by selecting and playing a variety of simple rhythm instruments.

Standard II: Students will develop a sense of self in relation to families and community.

Objective 1: Describe factors that influence relationships with family and friends.

- a. Identify ways individuals are alike and different.
- b. Identify contributions of family members.
- c. Describe how children change over time.
- d. Identify behaviors to initiate play and develop friendships.
- e. Demonstrate positive interactions with peers and adults.

Objective 2: Identify important aspects of community and culture that strengthen relationships.

- a. Recognize and follow family and classroom rules.
- b. Describe the school community (e.g., students, teachers, secretary, custodian, principal).
- c. Describe resources in the community (e.g., police officer, firefighter, library, museum).
- d. Describe cultural traditions in family and community.
- e. Recognize national symbols and recite the Pledge of Allegiance.

Objective 3: Express relationships in a variety of ways.

- a. Recognize traditions, music, dances, artwork, poems, rhymes, and stories that distinguish cultures.
- b. Develop skills in storytelling through moving the body and making sounds while pretending to be characters in a familiar story.
- c. Create and perform/exhibit dances, visual art, music, and dramatic stories from various cultures.

**Standard II:
Students will develop
a sense of self in
relation to families
and community.**

**Standard III:
Students will
develop an
understanding of
their environment.**

Standard III: Students will develop an understanding of their environment.

Objective 1: Investigate changes in the seasons.

- a. Identify the seasons and represent each with pictures and songs.
- b. Observe and describe typical weather for each of the seasons.
- c. Describe the information each of the five senses provides with the changing of seasons.
- d. Observe and describe changes in behavior of animals as the seasons change.
- e. Describe how people change their behavior as the seasons change.

Objective 2: Observe and describe animals in the local environment.

- a. Observe, describe, draw, and compare familiar animals.
- b. Describe how young animals are different from adult animals.
- c. Describe how animals care for their young.
- d. Observe and imitate the sounds and movements of animals with songs, dances, and storytelling.
- e. Distinguish between real and make-believe animal behaviors.

Objective 3: Recognize symbols and models used to represent features of the environment.

- a. Recognize that maps and globes are symbols for actual places.
- b. Identify items on a map of the classroom.
- c. Explore basic map and globe directions and characteristics (e.g., top, bottom, right, left, land, water, Arctic Ocean, Antarctica).
- d. Make representations of things observed in the environment (e.g., drawing, painting, building structures with blocks, making models with clay).

K-6 Elementary Mathematics Core Curriculum in Table Format

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Standard I: Students will understand simple number concepts and relationships.</p> <p>Objective I: Identify and use whole numbers.</p> <ol style="list-style-type: none"> Relate a <i>numeral</i> to the number of objects in a set (e.g., $\square \square \square = 3$). Construct models of numbers to 10 with physical objects or manipulatives. Make pictorial representations of numbers to 10 (e.g., draw four circles, draw six squares). Recognize and write numerals from 0 to 10. Manipulate objects to demonstrate and describe multiple ways of representing a number (e.g., 5 can be 3 and 2 more, 5 can also be 2 and 2 and 1). 	<p>Standard I: Students will acquire number sense and perform simple operations with whole numbers.</p> <p>Objective I: Represent whole numbers in a variety of ways.</p> <ol style="list-style-type: none"> Relate number words to the <i>numerals</i> that represent the quantities 0 to 10. Sort objects into groups of tens and ones and write the numeral representing the set. Represent <i>whole numbers</i> up to 100 in groups of tens and ones using objects. Write a numeral when given the number of tens and ones. Write a numeral to 99 in <i>expanded form</i> (e.g., 39 is 3 tens and 9 ones or 30+9). Use zero to represent the number of elements in the empty set or as a placeholder in a two-digit numeral. 	<p>Standard I: Students will acquire number sense and perform operations with whole numbers.</p> <p>Objective I: Represent whole numbers in a variety of ways.</p> <ol style="list-style-type: none"> Relate number words to the <i>numerals</i> that represent the quantities 0-100. Represent <i>whole numbers</i> up to 1,000 in groups of hundreds, tens, and ones using base ten models, and write the numeral representing the set. Read and write a three-digit numeral, relating it to a set of objects and a pictorial representation. Write a numeral to 999 in <i>expanded form</i> (e.g., 539 is 5 hundreds, 3 tens, 9 ones or 500+30+9). Identify the place and the value of a given digit in a three-digit numeral (e.g., the two in 281 means 2 hundreds or 200). Demonstrate multiple ways to represent numbers using symbolic representations (e.g., thirty is the same as two groups of 15, the number of pennies in three dimes, or 58-28). 	<p>Standard I: Students will acquire number sense and perform operations with whole numbers, and simple fractions.</p> <p>Objective I: Represent whole numbers in a variety of ways.</p> <ol style="list-style-type: none"> Model, read, and write <i>whole numbers</i> up to 10,000 using base ten models, pictures, and symbols. Write a <i>numeral</i> when given the number of thousands, hundreds, tens, and ones. Write a number up to 9,999 in expanded form (e.g., 6,539 is 6 thousands, 5 hundreds, 3 tens, 9 ones or 6000+500+30+9). Identify the place and the value of a given digit in a four-digit numeral. Demonstrate multiple ways to represent numbers using models and symbolic representations (e.g., fifty is the same as two groups of 25, the number of pennies in five dimes, or 75-25). 	<p>Standard I: Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.</p> <p>Objective I: Represent whole numbers and decimals in a variety of ways.</p> <ol style="list-style-type: none"> Model, read, and write numerals from tenths hundredths to one millions. Write a <i>whole number</i> up to 99,999 in <i>expanded form</i> (e.g., 876,539 = 8 hundred-thousands, 7 ten-thousands, 6 thousands, 3 tens, 9 ones or 70,000+6,000+500+30+9). Identify the place and the value of a given digit in a five-digit numeral, including decimals to tenths. Demonstrate multiple ways to represent whole numbers by using models and symbolic representations (e.g., 108=2x50+8; 108=10² + 8). Classify whole numbers from 2 to 20 as <i>prime</i> or <i>composite</i> and 0 and 1 as neither prime nor composite, using models. Represent repeated factors using <i>exponents</i> up to three (e.g., 8=2x2x2=2³). 	<p>Standard I: Students will acquire number sense and perform operations with rational numbers.</p> <p>Objective I: Represent whole numbers and decimals in a variety of ways.</p> <ol style="list-style-type: none"> Change <i>whole numbers</i> with <i>exponents</i> to <i>standard form</i> (e.g., 2⁴=16) and recognize that 10⁰ = 1. Read and write <i>numerals</i> from thousandths to one billion. Write a whole number to 999,999 in <i>expanded form</i> using <i>exponents</i> (e.g., 876,539 = 8 x 10⁵ + 7 x 10⁴ + 6 x 10³ + 5 x 10² + 3 x 10¹ + 9 x 10⁰). Express numbers in <i>scientific notation</i> using positive powers of ten. Classify whole numbers to 100 as <i>prime</i>, <i>composite</i>, or neither. Determine the <i>prime factorization</i> for a whole number up to 50. 	

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Objective 2: Identify simple relationships among whole numbers.</p> <p>a. Develop strategies for <i>one-to-one</i> correspondence and keeping track of quantities.</p> <p>b. Compare two sets of objects to determine whether they have the same, fewer, or more elements.</p> <p>c. Order sets of objects from 1 to 9.</p> <p>d. Estimate quantities less than 10.</p>	<p>Objective 2: Identify simple relationships among whole numbers.</p> <p>a. Identify the number that is one more or one less than any <i>whole number</i> from 1 to 99.</p> <p>b. Use the vocabulary "greater than," "less than," and "equal to" when comparing sets of objects or numbers.</p> <p>c. Order sets of objects and numbers from 0 to 20.</p> <p>d. Use ordinal numbers 1st through 5th (i.e., 1st, 2nd, 3rd, 4th, 5th).</p>	<p>Objective 2: Identify simple relationships among whole numbers.</p> <p>a. Identify the number that is one more, one less, ten more, or ten less than any <i>whole number</i> up to 100.</p> <p>b. Write number sentences using the terms "greater than," "less than," or "equal to," to compare numbers.</p> <p>c. Order four whole numbers less than 100 from least to greatest and from greatest to least.</p> <p>d. Use <i>ordinal numbers</i> 1st through 10th.</p>	<p>Objective 2: Identify relationships among whole numbers.</p> <p>a. Use a variety of strategies to determine whether a number is even or odd.</p> <p>b. Identify the number that is ten more, ten less, 100 more, or 100 less than any <i>whole number</i> up to 1,000.</p> <p>c. Compare the relative size of numbers (e.g., 100 is small compared to a million, but large compared to 5).</p> <p>d. Compare whole numbers up to five digits using the symbols $<$, $>$, and $=$.</p> <p>e. Order and compare whole numbers on a number line.</p>	<p>Objective 2: Identify relationships among whole numbers and decimals.</p> <p>a. Identify the number that is 100 more, 100 less, 1,000 more, or 1,000 less than any <i>whole number</i> up to 10,000.</p> <p>b. Compare the relative size of numbers (e.g., 100 is small compared to a million, but large compared to 5).</p> <p>c. Compare whole numbers up to five digits using the symbols $<$, $>$, and $=$.</p> <p>d. Identify a whole number that is between two given whole numbers.</p> <p>e. Order and compare whole numbers and decimals to tenths on a number line.</p>	<p>Objective 2: Identify relationships among whole numbers, fractions, decimals, and percents.</p> <p>a. Order and compare <i>whole numbers</i>, fractions (including mixed numbers), and decimals using a variety of methods and symbols.</p> <p>b. Rewrite mixed numbers and improper fractions from one form to the other.</p> <p>c. Find the least common denominator for two fractions.</p> <p>d. Represent commonly used fractions as decimals and percents in various ways (e.g., objects, pictures, calculators).</p>	<p>Objective 2: Identify relationships among whole numbers, fractions, decimals, and percents.</p> <p>a. Find the <i>greatest common factor</i> and <i>least common multiple</i> for two numbers using a variety of methods (e.g., list of multiples, prime factorization).</p> <p>b. Order and compare <i>rational numbers</i>, including mixed numbers, using a variety of methods and symbols.</p> <p>c. Locate positive rational numbers on a number line.</p> <p>d. Convert common fractions, decimals, and percents from one form to another (e.g., $3/4 = 0.75 = 75\%$).</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Objective 3: Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.</p> <p>a. Demonstrate the joining and separating of sets of objects to solve problems.</p> <p>b. Describe the joining or separating of sets with informal language when using models.</p> <p>c. Record pictorially the results from the joining or separating of sets.</p>	<p>Objective 3: Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.</p> <p>a. Demonstrate the joining and separating of sets with twelve or fewer objects and record the results with pictures or symbols.</p> <p>b. Model two meanings of subtraction: separating of sets ("take away") and comparison of sets ("how many more/fewer") using objects, pictorial representations, and symbols.</p> <p>c. Use correct vocabulary and symbols to describe addition (i.e., add, "and," plus, +, sum), subtraction (i.e., subtract, minus, -, take away, how many more/fewer), and equals (i.e., =, same as).</p> <p>d. Use zero in addition and subtraction sentences.</p>	<p>Objective 3: Model and illustrate meanings of the operations of addition, subtraction, and multiplication, and describe how they relate.</p> <p>a. Demonstrate the joining and separating of sets with eighteen or fewer objects and record the results with pictures or symbols.</p> <p>b. Model three meanings of subtraction: separating of sets ("take away"), comparison of sets ("how many more/fewer"), and missing addends using objects, pictorial representations, and symbols.</p> <p>c. Separate a given set of objects into two, three, five, or ten groups of equal size.</p> <p>d. Model addition and subtraction of two-digit whole numbers in a variety of ways.</p> <p>e. Select an addition or subtraction sentence to solve a problem involving joining or separating of sets with eighteen or fewer objects.</p> <p>f. Recognize that addition number sentences have related subtraction sentences (e.g., $8-5=3$, $3+5=8$).</p>	<p>Objective 3: Model and illustrate meanings of the operations of addition, subtraction, and multiplication, and describe how they relate.</p> <p>a. Use models to represent multiplication of a one- or two-digit factor by a two-digit factor (up to 30) using a variety of methods (e.g., rectangular arrays, manipulatives, pictures) and connect the representation to an algorithm.</p> <p>b. Recognize that division by zero is not possible (e.g., $6\div 0$ is undefined).</p> <p>c. Select and write a multiplication or division sentence to solve a problem related to the students' environment and write a story problem that relates to a given equation.</p> <p>d. Represent division of a two-digit dividend by a one-digit divisor, including whole number remainders, using various methods (e.g., rectangular arrays, manipulatives, pictures) and connect the representation to an algorithm.</p> <p>e. Demonstrate that multiplication and division are inverse operations (e.g., $3\times 4=12$; $12\div 3=4$).</p> <p>f. Describe the effect of place value when multiplying whole numbers by 10.</p>	<p>Objective 3: Model and illustrate meanings of the four operations and describe how they relate.</p> <p>a. Use models to represent multiplication of a one- or two-digit factor by a two-digit factor (up to 30) using a variety of methods (e.g., rectangular arrays, manipulatives, pictures) and connect the representation to an algorithm.</p> <p>b. Recognize that division by zero is not possible (e.g., $6\div 0$ is undefined).</p> <p>c. Select and write a multiplication or division sentence to solve a problem related to the students' environment and write a story problem that relates to a given equation.</p> <p>d. Represent division of a two-digit dividend by a one-digit divisor, including whole number remainders, using various methods (e.g., rectangular arrays, manipulatives, pictures) and connect the representation to an algorithm.</p> <p>e. Demonstrate that multiplication and division are inverse operations (e.g., $3\times 4=12$; $12\div 3=4$).</p> <p>f. Describe the effect of place value when multiplying whole numbers by 10 and 100.</p>	<p>Objective 3: Model and illustrate meanings of operations and describe how they relate.</p> <p>a. Identify the <i>dividend</i>, <i>divisor</i>, and <i>quotient</i> regardless of the division symbol used.</p> <p>b. Determine whether a whole number is divisible by 2, 3, 5, 9, and/or 10, using the <i>rules of divisibility</i>.</p> <p>c. Represent remainders as <i>whole numbers</i>, decimals, or fractions and describe the meaning of remainders as they apply to problems from the students' environment (e.g., If there are 53 people, how many vans are needed if each van holds 8 people?).</p> <p>d. Model addition, subtraction, and multiplication of fractions and decimals in a variety of ways (e.g., using objects and a number line).</p> <p>e. Select or write the number sentences that can be used to solve a two-step problem.</p> <p>f. Model different strategies for whole number multiplication (e.g., partial product, lattice) and division (e.g., partial quotient).</p> <p>g. Describe the effect on place value when multiplying and dividing whole numbers and decimals by 10, 100, and 1,000.</p>	<p>Objective 3: Model and illustrate meanings of operations and describe how they relate.</p> <p>a. Represent division of a multi-digit dividend by two-digit divisors, including decimals, using models, pictures, and symbols.</p> <p>b. Model addition, subtraction, and division of fractions and decimals in a variety of ways (e.g., objects, a number line).</p> <p>c. Apply <i>rules of divisibility</i>.</p> <p>d. Select or write a number sentence that can be used to solve a multi-step problem and write a word problem when given a two-step expression or equation.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
	<p>Objective 4: Use fractions to identify parts of the whole.</p> <p>a. Share sets of up to ten objects between two students and identify each part as half.</p> <p>b. Divide geometric shapes into equal parts, identifying halves and fourths.</p>	<p>Objective 4: Use fractions to identify parts of the whole.</p> <p>a. Separate geometric shapes and sets of objects into halves, thirds, and fourths using a variety of models and illustrations.</p> <p>b. Specify a region of a geometric shape (e.g., as “$\frac{1}{4}$ out of $\frac{1}{2}$ equal parts” when given four or fewer equal parts).</p> <p>c. Represent the unit fractions $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ with objects, pictures, and symbols.</p>	<p>Objective 4: Use fractions to communicate parts of the whole.</p> <p>a. Identify the denominator of a fraction as the number of equal parts in the whole region or set.</p> <p>b. Identify the numerator of a fraction as the number of equal parts being considered.</p> <p>c. Divide regions and sets of objects into equal parts using a variety of models and illustrations.</p> <p>d. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, sixths, and eighths.</p> <p>e. Determine which of two fractions is greater using models or illustrations.</p>	<p>Objective 4: Use fractions to communicate parts of the whole.</p> <p>a. Divide regions and sets of objects into equal parts using a variety of models and illustrations.</p> <p>b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths.</p> <p>c. Represent the simplest form of a fraction in various ways (e.g., objects, pictorial representations, symbols).</p> <p>d. Represent mixed numbers and improper fractions in various ways (e.g., rulers, objects, number lines, symbols).</p> <p>e. Rename whole numbers as fractions with different denominators (e.g., $5=5/1$, $3=6/2$, $1=7/7$).</p> <p>f. Model and calculate equivalent forms of a fraction and describe the process used.</p>	<p>Objective 4: Use fractions to communicate parts of the whole.</p> <p>a. Divide regions, sets of objects, and line segments into equal parts using a variety of models and illustrations.</p> <p>b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths, and sixteenths.</p> <p>c. Write a fraction or ratio in simplest form.</p> <p>d. Name equivalent forms for fractions (halves, thirds, fourths, fifths, tenths), ratios, percents, and decimals, including repeating or terminating decimals.</p> <p>e. Relate percents less than 1% or greater than 100% to equivalent fractions, decimals, whole numbers, and mixed numbers.</p>	<p>Objective 4: Use fractions and percents to communicate parts of the whole.</p> <p>a. Divide regions, sets of objects, and line segments into equal parts using a variety of models and illustrations.</p> <p>b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths, and sixteenths.</p> <p>c. Write a fraction or ratio in simplest form.</p> <p>d. Name equivalent forms for fractions (halves, thirds, fourths, fifths, tenths), ratios, percents, and decimals, including repeating or terminating decimals.</p> <p>e. Relate percents less than 1% or greater than 100% to equivalent fractions, decimals, whole numbers, and mixed numbers.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
	<p>Objective 5: Solve whole number problems using addition and subtraction in horizontal and vertical notation.</p> <p>a. Compute addition and subtraction facts to twelve.</p> <p>b. Add three whole numbers with sums to twelve.</p>	<p>Objective 5: Solve whole number problems using addition and subtraction in vertical and horizontal notation.</p> <p>a. Use a variety of methods and tools to facilitate computation (e.g., estimation, mental math strategies, paper and pencil, calculator).</p> <p>b. Compute accurately with basic number combinations for addition and subtraction facts to eighteen.</p> <p>c. Add three <i>whole numbers</i> with <i>sums</i> to eighteen.</p> <p>d. Find the sum of two-digit whole numbers and describe the process used.</p>	<p>Objective 5: Solve whole number problems using addition, subtraction, multiplication, and division in vertical and horizontal notation.</p> <p>a. Use a variety of methods and tools to facilitate computation (e.g., estimation, mental math strategies, paper and pencil, calculator).</p> <p>b. Find the sum of any two <i>addends</i> with three or fewer digits, including monetary amounts, and describe the process used.</p> <p>c. Find the <i>difference</i> of two-digit <i>whole numbers</i> and describe the process used.</p> <p>d. Find the <i>product</i> for multiplication facts through ten times ten and describe the process used.</p>	<p>Objective 5: Solve whole number problems using addition, subtraction, multiplication, and division in vertical and horizontal notation.</p> <p>a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator.</p> <p>b. Find the sum and difference of four-digit numbers, including monetary amounts, and describe the process used.</p> <p>c. Multiply two- and three-digit <i>factors</i> by a one-digit <i>factor</i> and describe the process used.</p> <p>d. Divide a two-digit <i>whole number dividend</i> by a one-digit <i>divisor</i>, with a <i>remainder</i> of zero and describe the process used.</p>	<p>Objective 5: Solve problems using the four operations with whole numbers, decimals, and fractions.</p> <p>a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator.</p> <p>b. Use estimation strategies to determine whether results obtained using a calculator are reasonable.</p> <p>c. Multiply up to a three-digit <i>whole number</i> by a one- or two-digit whole number.</p> <p>d. Divide up to a three-digit whole number <i>dividend</i> by a one-digit <i>divisor</i>.</p> <p>e. Add and subtract decimals with digits to the hundredths place (e.g., $35.42+7.2$; $75.2-13.45$).</p> <p>f. Add, subtract, and multiply fractions.</p> <p>g. Simplify <i>expressions</i>, without <i>exponents</i>, using the <i>order of operations</i>.</p>	<p>Objective 5: Solve problems using the four operations with whole numbers, decimals, and fractions.</p> <p>a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator.</p> <p>b. Use estimation strategies to determine whether results obtained using a calculator are reasonable.</p> <p>c. Multiply up to a three-digit <i>factor</i> by a one- or two-digit factor including decimals.</p> <p>d. Divide up to a three-digit <i>dividend</i> by a one- or two-digit <i>divisor</i> including decimals.</p> <p>e. Add and subtract decimals to the thousandths place (e.g., $34.567+3.45$; $65.3-5.987$).</p> <p>f. Add, subtract, multiply, and divide fractions and mixed numbers.</p> <p>g. Solve problems using ratios and proportions.</p> <p>h. Simplify <i>expressions</i>, with <i>exponents</i>, using the <i>order of operations</i>.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Standard II: Students will identify and use patterns to represent mathematical situations.</p> <p>Objective 1: Identify and sort objects according to common attributes.</p> <p>a. Sort objects into groups by color, shape, size, number, or other attributes.</p> <p>b. Identify which attribute was used to sort objects into a group.</p> <p>c. Find multiple ways to sort and classify a group of objects.</p>	<p>Standard II: Students will identify and use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize and represent patterns with one or two attributes.</p> <p>a. Sort and classify objects by one or two attributes.</p> <p>b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB... , $\square \bigcirc \square \bigcirc \triangle \dots$).</p> <p>c. Identify patterns in the environment.</p> <p>d. Identify horizontal and vertical patterns on hundreds charts.</p> <p>e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100.</p> <p>f. Count backward from 10 to 0 and identify the pattern.</p>	<p>Standard II: Students will identify and use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize and create patterns with given attributes.</p> <p>a. Create and extend repeating and growing patterns using objects, numbers, and tables.</p> <p>b. Record results of manipulatives, pictures, and numeric representations and describe how they are extended.</p>	<p>Standard II: Students will use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize, describe, and use patterns and identify the attributes.</p> <p>a. Represent and analyze repeating and growing patterns using objects, pictures, numbers, and tables.</p> <p>b. Recognize and extend multiples and other number patterns using a variety of methods.</p>	<p>Objective 6: Model and illustrate integers.</p> <p>a. Identify, read, and locate integers on a number line.</p> <p>b. Describe situations where integers are used in the students' environment.</p>	<p>Objective 1: Recognize, analyze, and use patterns and describe their attributes.</p> <p>a. Analyze and make predictions about patterns involving whole numbers, decimals, and fractions using a variety of tools including organized lists, tables, objects, and variables.</p> <p>b. Extend patterns and describe a rule for predicting the next element.</p>	<p>Objective 6: Model, illustrate, and perform the operations of addition and subtraction of integers.</p> <p>a. Recognize that the sum of an integer and its opposite is zero.</p> <p>b. Model addition and subtraction of integers using manipulatives and a number line.</p> <p>c. Add and subtract integers.</p>
<p>Standard II: Students will identify and use patterns to represent mathematical situations.</p> <p>Objective 1: Identify and sort objects according to common attributes.</p> <p>a. Sort objects into groups by color, shape, size, number, or other attributes.</p> <p>b. Identify which attribute was used to sort objects into a group.</p> <p>c. Find multiple ways to sort and classify a group of objects.</p>	<p>Standard II: Students will identify and use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize and represent patterns with one or two attributes.</p> <p>a. Sort and classify objects by one or two attributes.</p> <p>b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB... , $\square \bigcirc \square \bigcirc \triangle \dots$).</p> <p>c. Identify patterns in the environment.</p> <p>d. Identify horizontal and vertical patterns on hundreds charts.</p> <p>e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100.</p> <p>f. Count backward from 10 to 0 and identify the pattern.</p>	<p>Standard II: Students will use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize, describe, and use patterns and identify the attributes.</p> <p>a. Represent and analyze repeating and growing patterns using objects, pictures, numbers, and tables.</p> <p>b. Recognize and extend multiples and other number patterns using a variety of methods.</p>	<p>Standard II: Students will use patterns and relations to represent mathematical situations.</p> <p>Objective 1: Recognize, analyze, and use patterns and describe their attributes.</p> <p>a. Analyze and make predictions about patterns involving whole numbers, decimals, and fractions using a variety of tools including organized lists, tables, objects, and variables.</p> <p>b. Extend patterns and describe a rule for predicting the next element.</p>	<p>Objective 6: Model and illustrate integers.</p> <p>a. Identify, read, and locate integers on a number line.</p> <p>b. Describe situations where integers are used in the students' environment.</p>	<p>Objective 1: Recognize, analyze, and use patterns and describe their attributes.</p> <p>a. Analyze patterns on graphs and tables and write a generalization to predict how the patterns will continue.</p> <p>b. Create tables and graphs to represent given patterns and algebraic expressions.</p> <p>c. Draw a graph from a table of values or to represent an equation.</p> <p>d. Write an algebraic expression from a graph or a table of values.</p>	<p>Objective 6: Model, illustrate, and perform the operations of addition and subtraction of integers.</p> <p>a. Recognize that the sum of an integer and its opposite is zero.</p> <p>b. Model addition and subtraction of integers using manipulatives and a number line.</p> <p>c. Add and subtract integers.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Objective 2: Identify and use patterns to describe numbers or objects.</p> <p>a. Use patterns to count orally from 1 to 20 and backward from 10 to 0.</p> <p>b. Identify simple patterns in the environment.</p> <p>c. Predict what comes next in an established pattern and justify thinking.</p> <p>d. Duplicate, extend, and create simple patterns using objects and pictorial representations.</p>	<p>Objective 2: Recognize and represent relations using mathematical symbols.</p> <p>a. Recognize that “=” indicates a relationship in which the quantities on each side of an equation are equal.</p> <p>b. Recognize that symbols such as \square, \triangle, or \diamond in an addition or subtraction equation represent a missing value that will make the statement true (e.g., $\square + 3 = 6$, $5 + 7 = \triangle$, $4 = 5 - \diamond$).</p> <p>c. Demonstrate that changing the order of addends does not change the sum (e.g., $3+2=5$ and $2+3=5$).</p>	<p>Objective 2: Recognize and represent mathematical patterns using symbols.</p> <p>a. Recognize that symbols such as \square, \triangle, or \diamond in an addition, subtraction, or multiplication equation, represent a value that will make the statement true (e.g., $5+7=\triangle$, $\square-3=6$, $\diamond=2\times4$).</p> <p>b. Solve equations involving equivalent expressions (e.g., $6+4 = \square+7$).</p> <p>c. Use the $>$, $<$, and $=$ symbols to compare two expressions involving addition and subtraction (e.g., $4+6 \square 3+2$; $3+5 \diamond 16-9$).</p> <p>d. Demonstrate that grouping three or more addends does not change the sum (e.g., $(2+3)+7=12$, $2+(3+7)=12$).</p>	<p>Objective 2: Recognize, represent, and solve mathematical patterns and symbols.</p> <p>a. Solve equations involving equivalent expressions (e.g., $6\times2 = \square \times 3$ or $6 \square = 9 \div 3$).</p> <p>b. Use the $<$, $>$, $=$ symbols to compare two expressions involving addition, subtraction, multiplication, and division (e.g., $5 \times 4 \diamond 9 \div 3$).</p> <p>c. Recognize that a given variable maintains the same value throughout an equation or expression (e.g., $\square + \square = 8$; $\square = 4$).</p> <p>d. Demonstrate that changing the order of factors does not change the product (e.g., $2 \times 3 = 6$, $3 \times 2 = 6$) and that the grouping of three or more factors does not change the product (e.g., $(2 \times 3) \times 1 = 6$; $2 \times (3 \times 1) = 6$).</p> <p>e. Demonstrate the distribution of multiplication over addition using a rectangular array (e.g., $8 \times 14 = 8$ rows of 10 plus 8 rows of 4).</p>	<p>Objective 2: Represent, solve, and analyze mathematical situations using algebraic symbols.</p> <p>a. Recognize a variety of symbols for multiplication and division including \times, \div, \cdot, and $*$ as symbols for multiplication and \div, Γ, and a fraction bar ($/$ or $-$) as division symbols.</p> <p>b. Recognize that a variable (\diamond, n, x) represents an unknown quantity.</p> <p>c. Solve one-step equations involving whole numbers and a single variable (e.g., $n+7=3$).</p> <p>d. Recognize that the answer to a multiplication problem involving a factor of zero is equal to zero (e.g., $0 \times 45 = 0$).</p> <p>e. Use expressions or one-step equations to represent real-world situations.</p> <p>f. Use the associative, commutative, and distributive properties to compute with whole numbers.</p>	<p>Objective 2: Represent, solve, and analyze mathematical situations using algebraic symbols.</p> <p>a. Recognize that a number in front of a variable indicates multiplication (e.g., $3y$ means 3 times the quantity y).</p> <p>b. Solve two-step equations involving whole numbers and a single variable (e.g., $3x+4=19$).</p> <p>c. Recognize that “\approx” indicates a relationship in which the quantities on each side are approximately of equal value (e.g., $\pi \approx 3.14$).</p> <p>d. Recognize that an exponent can be represented in the following ways: 4^3 or $4 \cdot 3$.</p> <p>e. Evaluate expressions and formulas, substituting given values for the variables (e.g., $2x+4$; $x=2$; therefore, $2(2)+4=8$).</p> <p>f. Recognize that if the product is zero, then one or more factors equal zero (i.e., if $ab=0$ then either $a=0$ or $b=0$ or a and $b=0$).</p>	

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Standard III: Students will identify and create simple geometric shapes and describe spatial relationships.</p> <p>Objective 1: Identify and create simple geometric shapes.</p> <ol style="list-style-type: none"> Identify circles, triangles, rectangles, and squares. Combine shapes to create <i>two-dimensional</i> objects. Draw circles, triangles, rectangles, and squares. Recognize circles, triangles, rectangles, and squares in the students' environment. 	<p>Standard III: Students will describe, identify, and create and simple geometric shapes and describe spatial relationships.</p> <p>Objective 1: Describe, identify, and create simple geometric shapes.</p> <ol style="list-style-type: none"> Identify, name, draw, create, and sort circles, triangles, rectangles, and squares. Identify circles, triangles, rectangles, and squares in the students' environment. Recognize that combining simple geometric shapes can create more complex geometric shapes. 	<p>Standard III: Students will describe, identify, and create geometric shapes and describe spatial relationships.</p> <p>Objective 1: Describe, identify, and create geometric shapes.</p> <ol style="list-style-type: none"> Identify, name, draw, sort, and compare circles, triangles, and <i>parallelograms</i>. Identify and name spheres, cones, and cylinders. Find and identify familiar geometric shapes in the students' environment. Determine whether a circle, triangle, square, or rectangle has a <i>line of symmetry</i>. 	<p>Standard III: Students will use spatial reasoning to describe, identify, and create geometric shapes.</p> <p>Objective 1: Describe, identify, and create geometric shapes.</p> <ol style="list-style-type: none"> Identify and draw <i>points, lines, line segments</i>, and <i>endpoints</i>. Identify and draw <i>lines of symmetry</i> on triangles, squares, circles, and rectangles. Determine whether an angle is <i>right, obtuse</i>, or <i>acute</i> by comparing the angle to the corner of a rectangle. Classify polygons (e.g., <i>quadrilaterals</i>, pentagons, hexagons, octagons) by the number of sides and corners. Identify, make, and describe cubes (e.g., a cube has 6 square <i>faces</i>, 8 <i>vertices</i>, and 12 <i>edges</i>). 	<p>Standard III: Students will use spatial reasoning to recognize, describe, and identify geometric shapes.</p> <p>Objective 1: Describe, identify, and analyze characteristics and properties of geometric shapes.</p> <ol style="list-style-type: none"> Identify and draw <i>parallel lines</i> and <i>intersecting lines</i>. Identify and draw lines of symmetry on a variety of <i>polygons</i>. Identify and describe <i>quadrilaterals</i> (i.e., rectangles, squares, <i>rhombuses</i>, <i>trapezoids</i>, kites). Identify <i>right, obtuse</i>, and <i>acute</i> angles. Compare two polygons to determine whether they are <i>congruent</i> or <i>similar</i>. Identify and describe <i>cylinders</i> and <i>rectangular prisms</i>. 	<p>Standard III: Students will use spatial reasoning to recognize, describe, and identify geometric shapes and principles.</p> <p>Objective 1: Describe, identify, and analyze characteristics and properties of geometric shapes.</p> <ol style="list-style-type: none"> Identify and draw <i>perpendicular lines</i>. Draw, label, and describe rays and describe an angle as two rays sharing a common endpoint. Label an angle as acute, <i>obtuse</i>, <i>right</i>, or <i>straight</i>. Identify and describe <i>equilateral, isosceles, scalene, right, acute</i>, and <i>obtuse</i> triangles. Identify the <i>vertex</i> of an angle or the <i>vertices</i> of a polygon. Compare <i>corresponding angles</i> of two triangles and determine whether the triangles are <i>similar</i>. Identify and describe <i>pyramids</i> and <i>prisms</i>. 	<p>Standard III: Students will use spatial and logical reasoning to recognize, describe, and identify geometric shapes and principles.</p> <p>Objective 1: Identify and analyze characteristics and properties of geometric shapes.</p> <ol style="list-style-type: none"> Identify the <i>midpoint</i> of a <i>line segment</i>. Identify concave and <i>convex polygons</i>. Identify the center, <i>radius, diameter</i>, and <i>circumference</i> of a circle. Identify the number of <i>faces, edges</i>, and <i>vertices</i> of <i>pyramids</i> and <i>prisms</i>.

<p>Kindergarten</p> <p>Objective 2: Describe simple spatial relationships.</p> <p>a. Visualize how to fit a shape into a design.</p> <p>b. Use and demonstrate words to describe position with objects (i.e., on, over, under, above, below, top, bottom, up, down, in front of, behind, next to, beside).</p> <p>c. Use and demonstrate words to describe distance with objects (i.e., far, near).</p> <th data-bbox="191 1430 662 1669"> <p>1st Grade</p> <p>Objective 2: Describe simple spatial relationships.</p> <p>a. Use and demonstrate words to describe position (i.e., between, before, after, middle, left, right).</p> <p>b. Use and demonstrate words to describe distance (i.e., closer, farther).</p> <th data-bbox="191 1190 662 1430"> <p>2nd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Create and use verbal or written instructions to move within the environment.</p> <p>b. Find and name locations using coordinates (A, 1).</p> <p>c. Identify shapes in various orientations (e.g., Δ and ∇).</p> <th data-bbox="191 951 662 1190"> <p>3rd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Give directions to reach a location.</p> <p>b. Use coordinates (A, 1) or regions to locate positions on a map.</p> <p>c. Demonstrate and use horizontal and vertical lines.</p> <th data-bbox="191 711 662 951"> <p>4th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using grids and maps.</p> <p>a. Locate positions on a map of Utah using coordinates or regions.</p> <p>b. Give the <i>coordinates</i> or <i>regions</i> of a position on a map of Utah.</p> <th data-bbox="191 472 662 711"> <p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th></th></th></th></th></th>	<p>1st Grade</p> <p>Objective 2: Describe simple spatial relationships.</p> <p>a. Use and demonstrate words to describe position (i.e., between, before, after, middle, left, right).</p> <p>b. Use and demonstrate words to describe distance (i.e., closer, farther).</p> <th data-bbox="191 1190 662 1430"> <p>2nd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Create and use verbal or written instructions to move within the environment.</p> <p>b. Find and name locations using coordinates (A, 1).</p> <p>c. Identify shapes in various orientations (e.g., Δ and ∇).</p> <th data-bbox="191 951 662 1190"> <p>3rd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Give directions to reach a location.</p> <p>b. Use coordinates (A, 1) or regions to locate positions on a map.</p> <p>c. Demonstrate and use horizontal and vertical lines.</p> <th data-bbox="191 711 662 951"> <p>4th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using grids and maps.</p> <p>a. Locate positions on a map of Utah using coordinates or regions.</p> <p>b. Give the <i>coordinates</i> or <i>regions</i> of a position on a map of Utah.</p> <th data-bbox="191 472 662 711"> <p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th></th></th></th></th>	<p>2nd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Create and use verbal or written instructions to move within the environment.</p> <p>b. Find and name locations using coordinates (A, 1).</p> <p>c. Identify shapes in various orientations (e.g., Δ and ∇).</p> <th data-bbox="191 951 662 1190"> <p>3rd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Give directions to reach a location.</p> <p>b. Use coordinates (A, 1) or regions to locate positions on a map.</p> <p>c. Demonstrate and use horizontal and vertical lines.</p> <th data-bbox="191 711 662 951"> <p>4th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using grids and maps.</p> <p>a. Locate positions on a map of Utah using coordinates or regions.</p> <p>b. Give the <i>coordinates</i> or <i>regions</i> of a position on a map of Utah.</p> <th data-bbox="191 472 662 711"> <p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th></th></th></th>	<p>3rd Grade</p> <p>Objective 2: Describe spatial relationships.</p> <p>a. Give directions to reach a location.</p> <p>b. Use coordinates (A, 1) or regions to locate positions on a map.</p> <p>c. Demonstrate and use horizontal and vertical lines.</p> <th data-bbox="191 711 662 951"> <p>4th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using grids and maps.</p> <p>a. Locate positions on a map of Utah using coordinates or regions.</p> <p>b. Give the <i>coordinates</i> or <i>regions</i> of a position on a map of Utah.</p> <th data-bbox="191 472 662 711"> <p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th></th></th>	<p>4th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using grids and maps.</p> <p>a. Locate positions on a map of Utah using coordinates or regions.</p> <p>b. Give the <i>coordinates</i> or <i>regions</i> of a position on a map of Utah.</p> <th data-bbox="191 472 662 711"> <p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th></th>	<p>5th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Locate points defined by ordered pairs in the first <i>quadrant</i>.</p> <p>b. Write an ordered pair for a point in the first quadrant.</p> <p>c. Specify possible paths between locations on a <i>coordinate grid</i> and compare distances of the various paths.</p> <th data-bbox="191 237 662 472"> <p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p> </th>	<p>6th Grade</p> <p>Objective 2: Specify locations and describe spatial relationships using coordinate geometry.</p> <p>a. Graph points defined by ordered pairs in all four quadrants.</p> <p>b. Write the ordered pair for a point in any quadrant.</p>
			<p>Objective 3: Visualize and identify geometric shapes after applying transformations.</p> <p>a. Demonstrate the effect of a slide (translation) or flip (reflection) on a figure, using manipulatives.</p> <p>b. Determine whether two polygons are <i>congruent</i> by sliding, flipping, or turning to physically fit one object on top of the other.</p> <p>c. Identify <i>two-dimensional</i> shapes (nets) that will fold to make a cube.</p> <p>d. Create a <i>polygon</i> that results from combining other polygons.</p>	<p>Objective 3: Visualize and identify geometric shapes after applying transformations.</p> <p>a. Identify a <i>slide</i> (<i>translation</i>) or <i>flip</i> (<i>reflection</i>) on a figure using manipulatives.</p> <p>b. Relate <i>cubes</i>, <i>cylinders</i>, <i>cones</i>, and <i>rectangular prisms</i> to the <i>two-dimensional</i> shapes (<i>nets</i>) from which they were created.</p>	<p>Objective 3: Visualize and identify geometric shapes after applying transformations.</p> <p>a. Identify a <i>slide</i> (<i>translation</i>) or <i>flip</i> (<i>reflection</i>) on a figure across a line.</p> <p>b. Demonstrate the effect of a <i>turn</i> (<i>rotation</i>) on a figure using manipulatives.</p> <p>c. Relate <i>pyramids</i> and <i>prisms</i> to the <i>two-dimensional</i> shapes (<i>nets</i>) from which they were created.</p>	<p>Objective 3: Visualize and identify geometric shapes after applying transformations.</p> <p>a. <i>Turn</i> (<i>rotate</i>) a shape around a point and identify the location of the new vertices.</p> <p>b. <i>Slide</i> (<i>translate</i>) a polygon either horizontally or vertically on a coordinate grid and identify the location of the new vertices.</p> <p>c. <i>Flip</i> (<i>reflect</i>) a shape across either the x- or y-axis and identify the location of the new vertices.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Standard IV: Students will understand and use simple measurement tools and techniques.</p> <p>Objective 1: Identify measurable attributes of objects and units of measurement.</p> <p>a. Identify clocks and calendars as tools that measure time.</p> <p>b. Identify a day, week, and month on a calendar.</p> <p>c. Identify pennies, nickels, dimes, and quarters as units of money.</p>	<p>Standard IV: Students will understand and use simple measurement tools and techniques.</p> <p>Objective 1: Identify measurable attributes of objects and units of measurement.</p> <p>a. Identify the appropriate tools for measuring length, weight, capacity, temperature, and time.</p> <p>b. Identify the values of a penny, nickel, dime, and quarter.</p> <p>c. Estimate the length of an object by comparing to a nonstandard unit (e.g., How many new pencils wide is your desk?).</p>	<p>Standard IV: Students will understand and use measurement tools and techniques.</p> <p>Objective 1: Identify measurable attributes of objects and units of measurement.</p> <p>a. Sequence a series of events of a day in order by time (e.g., breakfast at 7:00, school begins at 9:00).</p> <p>b. Identify the name and value of a penny, nickel, dime, quarter, and dollar.</p> <p>c. Estimate length, capacity, and weight using customary units.</p>	<p>Standard IV: Students will understand and use measurement tools and techniques.</p> <p>Objective 1: Identify and describe measurable attributes of objects and units of measurement.</p> <p>a. Recognize the two systems of measurement: <i>metric</i> and <i>customary</i>.</p> <p>b. Describe the relationship between metric units of length (i.e., centimeter, meter).</p> <p>c. Describe the relationship among customary units of length (i.e., inch, foot, yard) and the relationship between customary units of capacity (i.e., cup, quart).</p> <p>d. Estimate length, capacity, and weight using metric and customary units.</p>	<p>Standard IV: Students will understand and use measurement tools and techniques.</p> <p>Objective 1: Identify and describe measurable attributes of objects and units of measurement.</p> <p>a. Describe the relationship among <i>metric</i> units of length (i.e., millimeter, centimeter, meter), between metric units of capacity (i.e., milliliter, liter), and between metric units of weight (i.e., gram, kilogram).</p> <p>b. Identify a mile as a measure of distance and its relationship to other <i>customary</i> units of length.</p> <p>c. Describe the relationship among <i>customary</i> units of capacity (i.e., cup, pint, quart, gallon).</p> <p>d. Estimate length, capacity, and weight using metric and customary units.</p>	<p>Standard IV: Students will understand and use measurement tools and techniques.</p> <p>Objective 1: Identify and describe measurable attributes of objects and units of measurement.</p> <p>a. Describe the relationship among <i>metric</i> units of length (i.e., millimeter, centimeter, meter, kilometer).</p> <p>b. Describe the relationship among <i>customary</i> units of weight (i.e., ounce, pound).</p> <p>c. Identify the correct units of measurement for <i>volume</i>, <i>area</i>, and <i>perimeter</i> in both metric and customary systems.</p> <p>d. Estimate length, volume, weight, and area using <i>metric</i> and customary units.</p> <p>e. Convert units of measurement within the metric system and convert units of measurement within the customary system.</p>	<p>Standard IV: Students will understand and apply measurement tools and techniques.</p> <p>Objective 1: Identify and describe measurable attributes of objects and units of measurement.</p> <p>a. Compare a meter to a yard, a liter to a quart, and a kilometer to a mile.</p> <p>b. Identify <i>pi</i> as the ratio of the <i>circumference</i> to <i>diameter</i> of a circle.</p> <p>c. Explain how the size of the unit used in measuring affects the precision.</p> <p>d. Estimate length, volume, weight, and area using <i>metric</i> and customary units.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Objective 2: Use appropriate techniques and tools to determine measurements.</p> <p>a. Compare two objects (e.g., shorter/longer, heavier/lighter, larger/smaller, more/less).</p> <p>b. Find the length of an object using nonstandard units (e.g., pencils, paper clips).</p> <p>c. Name the days of the week in order.</p> <p>d. Sort pennies, nickels, dimes, and quarters.</p>	<p>Objective 2: Use appropriate techniques and tools to determine measurements.</p> <p>a. Compare objects, using nonstandard units, according to their length, weight, or volume (e.g., pencils/length, books/weight, boxes/volume).</p> <p>b. Read and tell time to the nearest hour.</p> <p>c. Name the days of the week, months of the year, and seasons in order.</p> <p>d. Determine the value of a set of the same coins that total 25¢ or less (e.g., a set of 14 pennies equals 14¢, a set of 5 nickels equals 25¢, a set of 2 dimes equals 20¢).</p>	<p>Objective 2: Use appropriate techniques and tools to determine measurements.</p> <p>a. Compare and order objects, using nonstandard units, according to their length, weight, or capacity.</p> <p>b. Measure length using inches and feet, weight using pounds, and capacity using cups.</p> <p>c. Determine the value of a set of up to five coins that total \$1.00 or less (e.g., two quarters and one dime equals 60¢; three dimes, one nickel, and one penny equals 36¢).</p> <p>d. Read, tell, and write time to the hour and half-hour.</p> <p>e. Use a calendar to determine the day of the week and date.</p> <p>f. Determine the perimeter of a square, triangle, and rectangle by measuring with nonstandard units.</p>	<p>Objective 2: Use appropriate techniques and tools to determine measurements.</p> <p>a. Measure the length of objects to the nearest centimeter, meter, half-inch, foot, and yard.</p> <p>b. Measure capacity using cups and quarts, and measure weight using pounds.</p> <p>c. Determine the value of a combination of coins and bills that total \$5.00 or less and write the monetary amounts using the dollar sign and decimal notation.</p> <p>d. Identify the number of hours in a day, the number of days in a year, and the number of weeks in a year.</p> <p>e. Read, tell, and write time to the quarter-hour.</p> <p>f. Identify any given day of the month (e.g., the third Wednesday of the month is the 18th).</p> <p>g. Read and record the temperature to the nearest ten degrees using a Fahrenheit thermometer.</p> <p>h. Estimate and measure the perimeter and area of rectangles by measuring with nonstandard units.</p>	<p>Objective 2: Determine measurements using appropriate tools and formulas.</p> <p>a. Measure the length of objects to the nearest centimeter, meter, quarter-inch, foot, and yard.</p> <p>b. Measure capacity using milliliters, liters, cups, pints, quarts, and gallons and measure weight using grams, kilograms, and pounds.</p> <p>c. Read, tell, and write time to the nearest minute, identifying a.m. and p.m.</p> <p>d. Read and record the temperature to the nearest degree, in Fahrenheit, using a thermometer.</p> <p>e. Determine the value of a combination of coins and bills that total \$20.00 or less.</p> <p>f. Count back change for a single-item purchase and determine the amount of change to be received from a multiple-item purchase.</p> <p>g. Determine possible perimeters, in whole units, for a rectangle with a fixed area and determine possible areas when given a rectangle with a fixed perimeter.</p>	<p>Objective 2: Determine measurements using appropriate tools and formulas.</p> <p>a. Measure length to the nearest 1/8 of an inch and to the nearest centimeter.</p> <p>b. Measure volume and weight using metric and customary units.</p> <p>c. Measure angles using a protractor.</p> <p>d. Calculate elapsed time within a.m. or p.m. time periods.</p> <p>e. Read and record the temperature to the nearest degree (above and below zero) when using a thermometer with a Celsius or Fahrenheit scale.</p> <p>f. Calculate the perimeter of rectangles and triangles.</p> <p>g. Calculate the area of squares and rectangles using a formula.</p>	<p>Objective 2: Determine measurements using appropriate tools and formulas.</p> <p>a. Measure length to the nearest one-sixteenth of an inch and to the nearest millimeter.</p> <p>b. Estimate and measure an angle to the nearest degree.</p> <p>c. Calculate the circumference of a circle using a given formula.</p> <p>d. Calculate elapsed time across a.m. and p.m. time periods.</p> <p>e. Calculate the areas of triangles, rectangles, and parallelograms using given formulas.</p> <p>f. Calculate the surface area and volume of right, rectangular prisms using given formulas.</p>

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.</p> <p>Objective 1: Collect, organize, and display simple data. a. Collect, organize, and record data using objects and pictures. b. Represent data in a variety of ways (e.g., graphs made from people, <i>pictographs</i>, bar graphs) and interpret the data (e.g., more people like red than blue).</p>	<p>Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.</p> <p>Objective 1: Collect, organize, and display simple data. a. Collect physical objects to use as data. b. Collect, represent, and interpret data using tables, tally marks, <i>pictographs</i>, and bar graphs.</p>	<p>Standard V: Students will collect and organize data to make predictions and identify basic concepts of probability.</p> <p>Objective 1: Collect, organize, and display data to make predictions. a. Collect, read, represent, and interpret data using tables, graphs, and charts, including keys (e.g., <i>pictographs</i>, bar graphs). b. Make predictions based on a data display.</p>	<p>Standard V: Students will collect and organize data to make predictions and use basic concepts of probability.</p> <p>Objective 1: Collect, organize, and display data to make predictions and answer questions. a. Identify a question that can be answered by collecting data. b. Collect, read, and interpret data from tables, graphs, charts, surveys, and observations. c. Represent data using tables, line plots, line graphs, and bar graphs. d. Identify and distinguish between <i>clusters</i> and <i>outliers</i> of a data set.</p>	<p>Standard V: Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.</p> <p>Objective 1: Formulate and answer questions using statistical methods to compare data. a. Formulate a question that can be answered by collecting data. b. Collect, compare, and display data using an appropriate format (i.e., <i>line plots</i>, bar graphs, <i>pictographs</i>, circle graphs, line graphs). c. Identify minimum and <i>maximum</i> values for a set of data. d. Identify or calculate the <i>mean</i>, <i>mode</i>, and <i>range</i>. e. Propose and justify inferences based on data.</p>	<p>Standard V: Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.</p> <p>Objective 1: Design investigations to reach conclusions using statistical methods to make inferences based on data. a. Design investigations to answer questions by collecting and organizing data in a variety of ways (e.g., bar graphs, line graphs, frequency tables, stem and leaf plots). b. Collect, compare, and display data using an appropriate format (i.e., <i>line plots</i>, circle graphs, line graphs, bar graphs, line graphs, scatter plots). c. Compare two similar sets of data on the same graph and compare two graphs representing the same set of data. d. Recognize that changing the scale influences the appearance of a display of data. e. Develop and evaluate inferences and predictions based on data.</p>	

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
<p>Objective 2: Determine the likelihood of events. a. Describe events encountered in books read as possible or not possible. b. Describe events as likely or unlikely (e.g., It is likely to snow today. It is unlikely an elephant will be in school).</p>	<p>Objective 2: Determine the likelihood of an event. a. Compare events to decide which are more likely, less likely, and equally likely. b. Relate past events to future events (e.g., The sun set about 6:00 last night, so it will set about the same time tonight).</p>	<p>Objective 2: Determine the likelihood of an event. a. Predict events that will be the same in one day or one week. b. Predict the outcome when there are only two possible outcomes (e.g., tossing a coin).</p>	<p>Objective 2: Identify basic concepts of probability. a. Describe the results of events using the terms “certain,” “equally likely,” and “impossible.” b. Predict outcomes of simple activities (e.g., a bag contains three red marbles and five blue marbles. If one marble is selected, is it more likely to be red or blue?).</p>	<p>Objective 2: Use basic concepts of probability. a. Describe the results of investigations involving random outcomes as simple ratios (e.g., 4 out of 9, 4/9). b. Predict outcomes of simple experiments, including with and without replacement, and test the predictions.</p>	<p>Objective 2: Apply basic concepts of probability. a. Describe the results of investigations involving random outcomes using a variety of notations (e.g., 4 out of 9, 4/9, 4:9). b. Recognize that outcomes of experiments and samples are fractions between 0 and 1. c. Predict the probability of an outcome in a simple experiment.</p>	<p>Objective 2: Apply basic concepts of probability. a. Write the results of a probability experiment as a fraction, ratio, or percent between zero and one. b. Compare experimental results with anticipated results (e.g., experimental: 7 out of 10 tails; whereas, anticipated 5 out of 10 tails). c. Compare individual, small group, and large group results for a probability experiment.</p>

K-2 Mathematics Glossary

addend	Any number being added. In $32+4=36$, 32 and 4 are <i>addends</i> .
capacity	The maximum amount that can be contained by an object. Often refers to measurement of a liquid.
cylinder	A three-dimensional figure with two circular bases that are <i>parallel</i> and <i>congruent</i> .
difference	The amount that remains after one quantity is subtracted from another.
e.g.	This abbreviation means “for example.” When used in the Core, <i>e.g.</i> is not limited to the examples given.
expanded form	A way to write numbers that shows the place value of each digit. $263 = 200 + 60 + 3$ or 263 is 2 hundreds, 60 tens, and 3 ones.
growing pattern	A pattern that grows or increases.
i.e.	This abbreviation means “that is to say.” When used in the Core, <i>i.e.</i> is limited to the specific examples given.
line of symmetry	A line that divides a figure into two <i>congruent</i> halves that are mirror images of each other.
numeral	A symbol used to represent a number.
obtuse angle	An angle with a measure greater than 90° and less than 180° .
obtuse triangle	A triangle with one <i>obtuse angle</i> .
one-to-one correspondence	The relationship between the spoken word and the written symbol.
ordinal number	A <i>whole number</i> that names the position of an object in sequence. First, second, and third are <i>ordinal numbers</i> .
parallelogram	A <i>quadrilateral</i> with two pairs of <i>parallel</i> and <i>congruent</i> sides.
perimeter	The distance around a figure.
pictograph	A graph that uses pictures to show data.

repeating pattern	A pattern of a group of items that repeats over and over.
sum	The answer to an addition problem. In $32+4=36$, 36 is the <i>sum</i> .
two-dimensional	A figure that has length and width, but not height. Having <i>area</i> , but not <i>volume</i> . The image on a movie screen is <i>two-dimensional</i> .
whole number	Any of the numbers 0, 1, 2, 3, 4, 5, and so on.

Facilitated Activities

Throw and Tell

Background Information

An important part of the kindergarten experience is to learn to communicate effectively by speaking and listening in turn and responding appropriately to others. This activity provides an opportunity to validate the ideas and feelings of other classmates while students share their own ideas and feelings. The format of a physical game played with a ball allows students with different learning styles to communicate successfully in a nontraditional setting.

This game may be adapted to any situation or learning experience and can also serve as an assessment opportunity for the teacher as student verbal responses are measured. Giving each individual learner the opportunity to respond orally to a learning situation provides a valuable evaluative tool for the teacher.

Instructional Procedures

1. Students stand in a circle with about one arm's length between them. You may want to divide the group into two teams if the group numbers more than 15-20 participants.
2. For this activity, participants are asked to share something when the ball is bounced or gently thrown to them.
3. After they respond, they say someone's name across the circle and bounce or throw the ball to that person.
4. The game continues until everyone has had a turn to share.
5. For assessment or summary purposes, the topic may be to tell something they learned, something they liked, something they will look at in a new way, or something they want to think more about from the lesson or activity just completed. Students could also share:
 - something that makes you smile or something that makes you sad
 - something you like to share or ways to help someone else
 - a kind thing you did for someone or something kind someone did for you
 - why you like someone or how you know someone likes you

Materials

- Inflatable beach ball

- qualities of a friend or how you were a good friend to someone else
- share a joke or a funny story
- or any other topic to facilitate discussion of a lesson or experience

***Math
Standard
I-1 & 2
Activities***

Pigs in a Pen

Standard I:

Students will understand simple number concepts and relationships.

Objective 1:

Identify and use whole numbers.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

Math Standard I

Objective 1

Connections

Background Information

Numbers (3, 6, 7, etc.) are *adjectives*. They are and should be used to describe something, to tell how many objects or things there are. When we do not use them in their complete sense, with their complete label, we are not using them correctly. Teachers, and most importantly kindergarten teachers, must insist students speak in complete sentences so students hear and say the number with the label that the number represents.

Kindergarten teachers are the first math teacher students ever have and therefore the most important math teacher! Kindergarten teachers set the foundation that *all* math concepts are then built upon. We cannot afford or allow sloppy, incomplete, or hurried foundations to be built!

Kindergarten students need to be taught and allowed to explore “numbers.” They need to see that the quantity (the number) gets larger and smaller depending on how many items are being counted because that is what numbers do. Just because a student can count to ten does not mean they fully understand numbers.

Rote counting does not mean a child has the understanding and skill to count objects. It is *so* important for teachers to give children opportunities to practice one-to-one-correspondence.

“Pigs in the Pen” allows students to become conscious of the importance of the *label*. It also enables them to realize how many objects they are counting and what the numbers actually represent.

Research Basis

National Council of Teachers of Mathematics (NCTM), Commission on Standards for School Mathematics. (1989). Curriculum and evaluation standards for school mathematics, Reston, VA

<http://www.ncrel.org/sdrs/areas/issues/content/ntareas/math/ma0nctmg.htm>

The NCTM is finding that students are failing to see the relationship between mathematics learned in school and real-life situations. They stress the importance of using realistic contexts and applications, as well as concrete pictorial models when teaching math concepts.

Assessment Suggestions

- Assessment is an integral part of instruction. Ongoing assessment is the best foundation for instruction. Teachers must plan ahead and know what questions they are going to ask.
- As you are doing the activity, keep track of students who respond incorrectly. Write on a clipboard immediately so you do not forget which students struggle with the concept.
- After the activity, call on individual students to come and participate in the activity with just you. Listen to the words they use. Record and provide feedback if they use the words correctly.

Invitation to Learn

Listen carefully! What animal makes this sound? “Oink” Yes, a pig! Look at the pig I’ve brought with me today. What if it was real? What would it do? Yes, it would run all over the room. What would I need so it wouldn’t make a mess of our room? Yes, I’d need a pen.

Materials

- Tray
- Plastic pigs

Instructional Procedures

1. Here is my pig pen (show tray).
2. Place the pig in the pen and ask, “How many pigs are in the pen?”
3. Call on a student. If they say, “One pig.” Say, “Yes, exactly!” If they just say, “One.” Ask, “One what? One cookie? One bike?” (The student should then self-correct by saying the complete answer, “There is 1 pig in the pen.” If they do not, then tell them, “There is 1 pig in the pen.”)
4. Add 3 more pigs to the pen. Ask, “How many pigs are in the pen now?” (Continue with the same questioning, leading students to respond correctly, “There are 4 pigs in the pen.”)

5. Once you have worked up to 6 pigs, ask, “Is there 1 pig in the pen?” Students will probably say, “No, there are 6 pigs in the pen.” Continue to ask if there is 1 pig in the pen. Point to 1 pig and say, “There is 1 pig in the pen.”
6. Now ask, “Are there 2 pigs in the pen?” Again, students will probably say no. Continue to ask. Finally point, or have a student point, and say, “There are 2 pigs in the pen.” Do not skip this part!
7. This may seem ridiculous, but... it is teaching number concept. When you have 6 pigs, you also have 1 pig, 2 pigs, 3 pigs, 4 pigs, and 5 pigs. A lack of this knowledge creates a faulty math foundation. This is why we find fourth graders still thinking that $24 - 16 = 2$ in the one’s column. They do not understand that if you have 4 you do not have 6, therefore you cannot subtract 6 from 4.
8. On other days... continue this same activity using a variety of items: fish in a fish bowl (use goldfish crackers), cheerios in a bowl (use real cheerios), Unifix® cubes on a mat, shoes on the rug (use their shoes), students on the rug, books on the table, etc. The more you do this, the more students will become familiar and sure of this number concept that if you have 9 you also have 8, 7, 6, 5, 4, 3, 2, and 1.

Curriculum Extensions/Adaptations/Integration

- Have students create their own pens (use four strips of brown paper glued on the perimeter of a white paper) and color and cut out their own pigs (use pink circles). Have them repeat this activity in small groups.
- Have students put different items in their pens and count each others’ items.
- Make an *In Our Classroom Booklet*. As a class, draw pictures of items in your classroom for each number. Be explicit that they are counting the *total* amount of items. Copy this book for all students to take home and read.
- Make an *In My House Notebook* for students to make at home with their parents.
- After you have made a classroom book and the take-home book, have students make their own *I Would Like Booklet*.

Materials

- In Our Classroom Booklet*
- In My House Notebook*
- I Would Like Booklet*
- Self-Correcting Cards*
- Self-Correcting Outline*

- Practice counting items with *Self-Correcting Cards*. Add objects to the cards using stickers, stamps, or drawings. Write four different numbers at the bottom of the card. Punch holes below each number. Decide if you want your students to count the *total* amount of objects or just identify numbers that would be in that set. Remember, if there are 4 pigs, there are also 3 pigs, 2 pigs, and 1 pig. On the back of the card, use a magic marker and circle the hole that matches the total amount or any number that would apply.

Resources

Book

The Gummy Candy Counting Book, by Amy and Richard Hutchings;
ISBN 0-590-34127-8

Web site

www.funbrain.com

Family Connections

- Send a pig pen home with the students. Have them test their family. Have them repeat the “Pigs in a Pen” activity at home. Have them put 5 paper cut-out pigs in their pen. Have them ask their families, “How many pigs are in my pen?” Then ask if there is 1 pig in their pen.
- Send home the *In Our Classroom Booklet* for students to read to their family.
- Make a family *In My House Notebook*. Students work with their families by drawing pictures for, “In my house we have...” Students work with a family member to complete their book and return it to school where other students can check it out to take home and read.

In Our Classroom Booklet

In our classroom we have 

In our classroom we have 

In My House Notebook

In my house we have

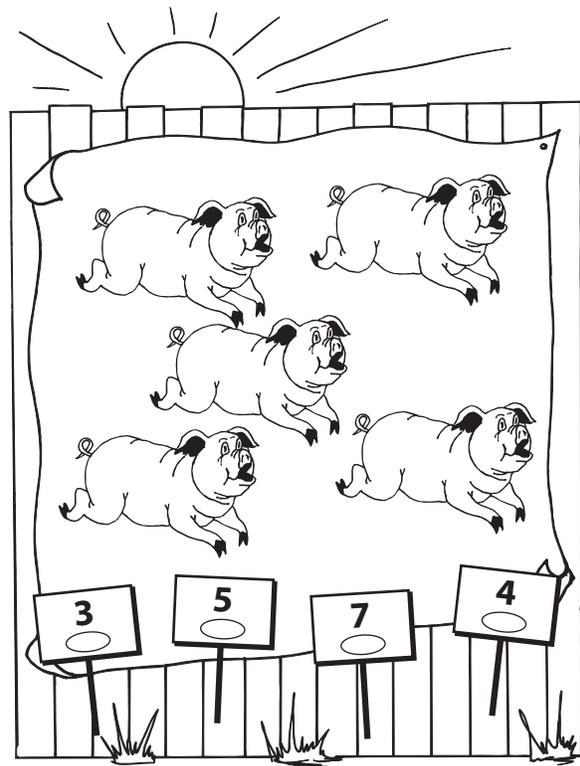
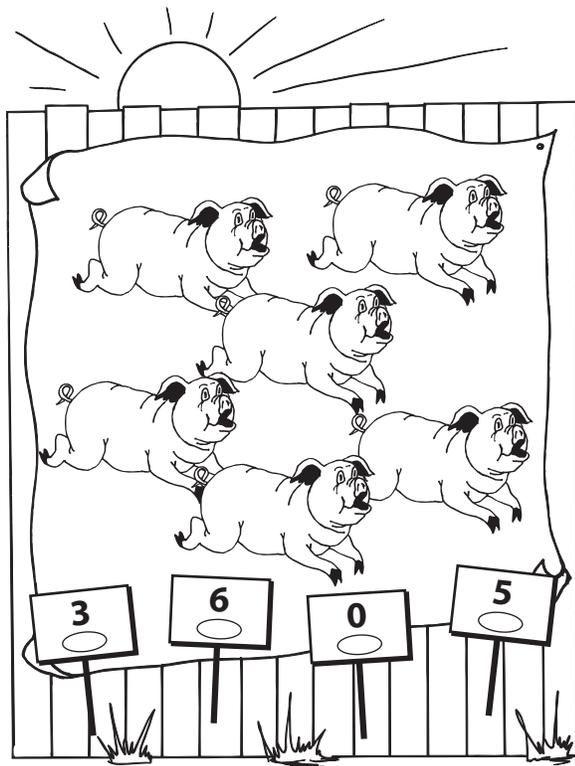
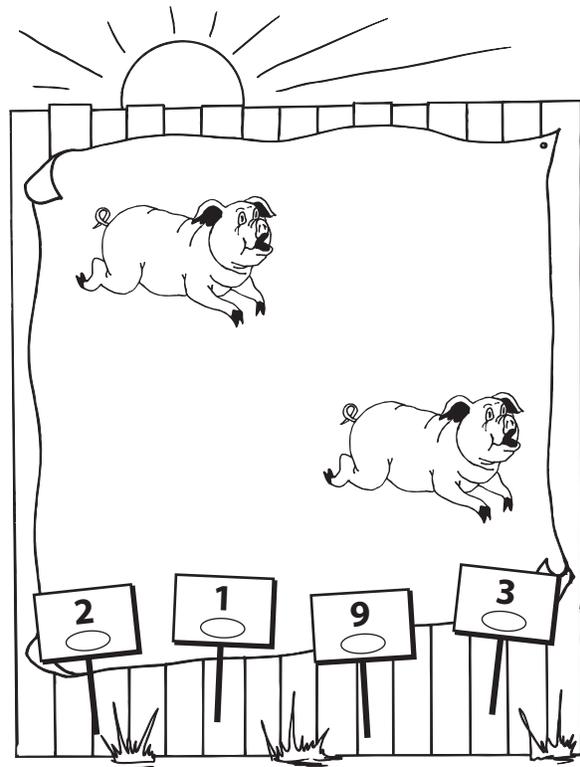
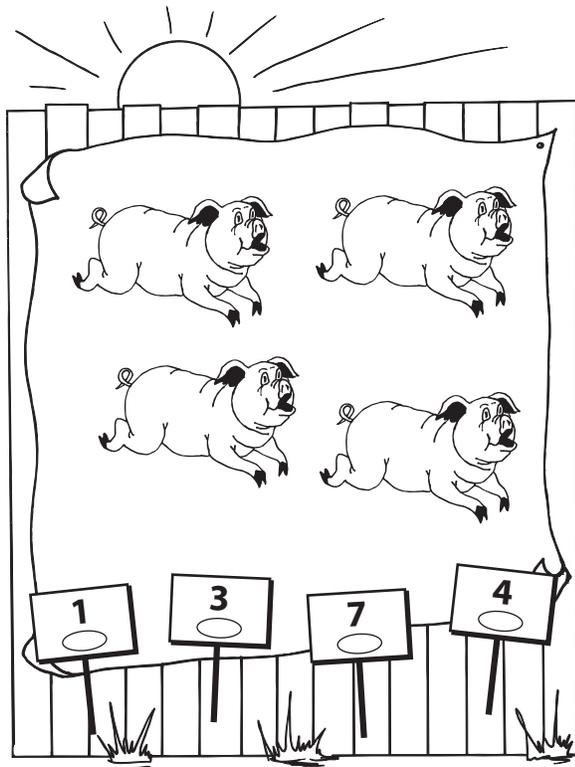
In my house we have

I Would Like Booklet

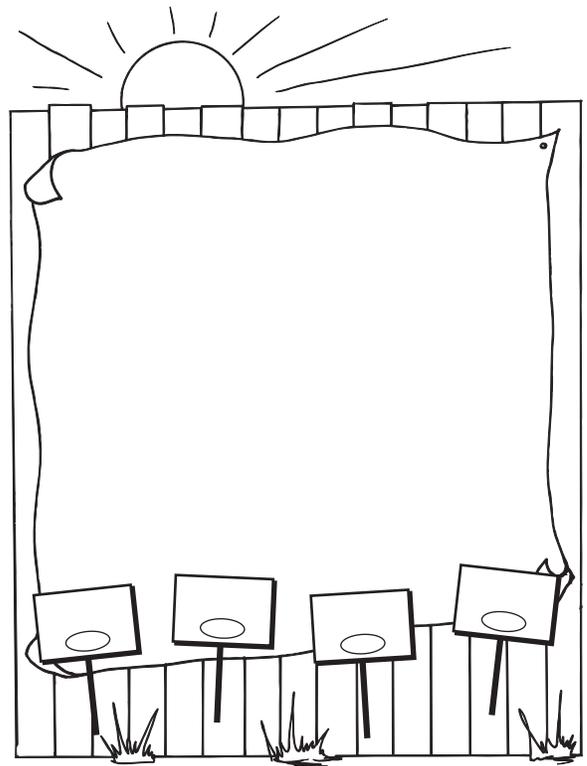
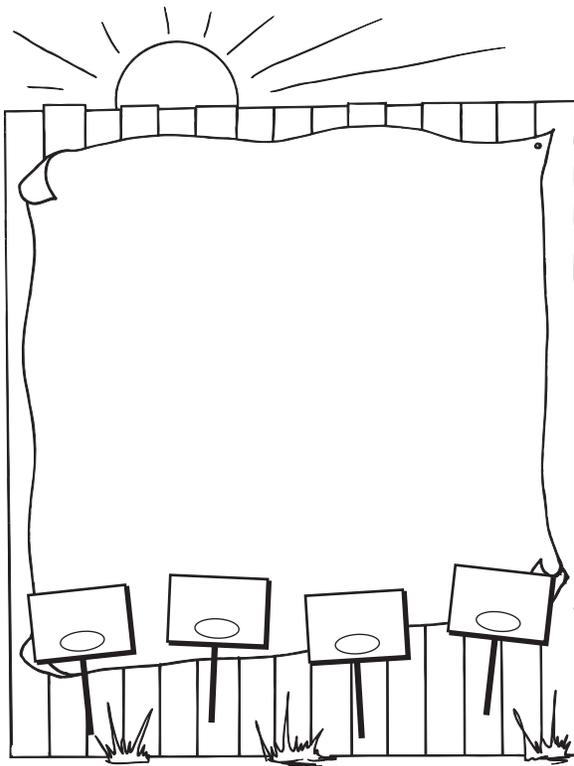
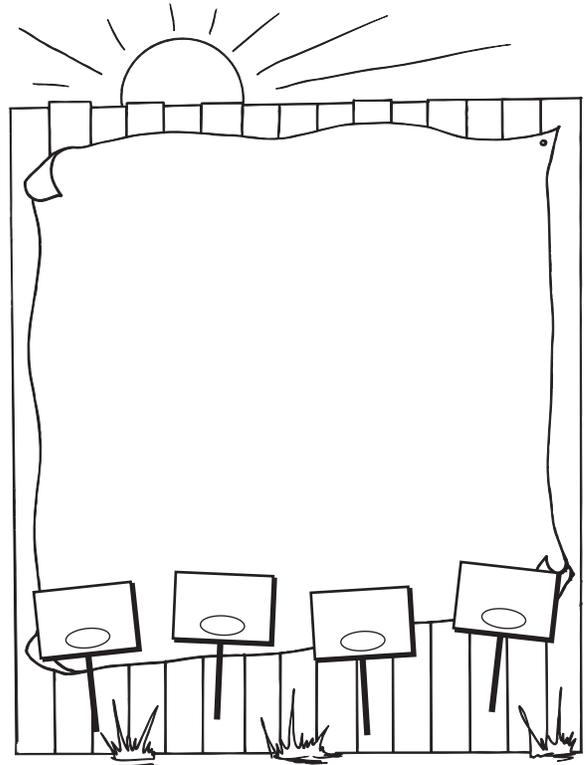
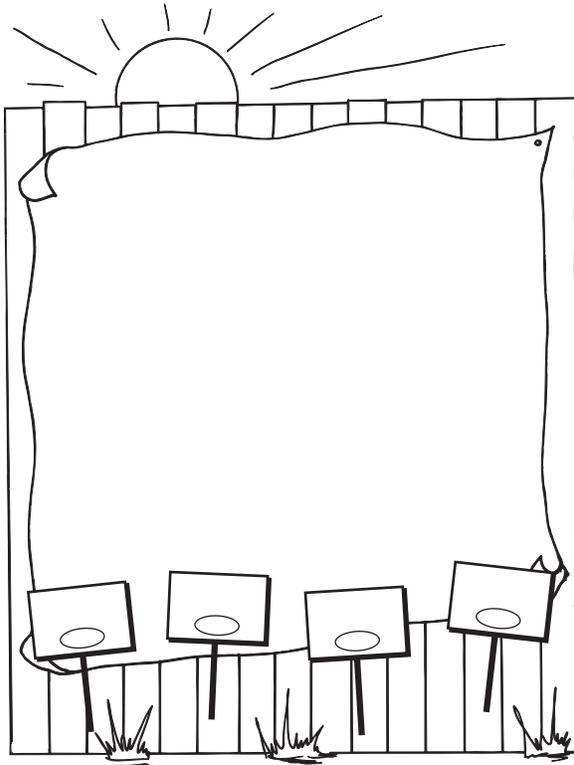
I would like to have

I would like to have

Self-Correcting Cards



Self-Correcting Outline



What's This Number?

Math
Standard
I

Objective
1

Connections

Standard I: Students will understand simple number concepts and relationships.
Objective 1: Identify and use whole numbers.
Intended Learning Outcomes: 5. Understand and use basic concepts and skills.
Content Connections:

Background Information

Kindergarten teachers *must* insist on some basics! Students must be taught to hold their pencils correctly. Is there a “correct” way? Yes! (Use your district’s adopted writing curriculum.) Kindergarten students need be told on the first day of school that since they are now in school they need to do things the “school way.” They must hold their pencils the “school way.” Whew! This is a hard one, but so critical! A left-handed student should hold their pencil as if a mirror image of the right-handed student. If kindergarten teachers do not insist on this, students will struggle with writing for the rest of their educational careers. A helpful hint is to have students gently hold a wadded up tissue in their fingers as they are writing.

Is there a correct way to “write” numbers? Yes! Check with your school district first and then be firm! Demand that your students follow the basic moves so that all other writing will be uniform and correct. Remember, we are not farmers when we write, our letters do not grow *up* out of the bottom line! We always start at the top of numbers (and letters for that matter). Students’ writing strokes will eventually lead into cursive writing strokes, so why not give your students the best opportunities possible to be successful at writing. Remember you are their *first* teacher! You set their course! If you allow your students to write numbers any way they choose, you are allowing their bad habits to become solidified. We all know how hard it is to change a habit!

Studies show that having students “say and write” numerals is not enough. This does not guarantee that students understand what numerals are and what amount they actually represent.

Research Basis

Fischer, F.E., (1989). A Comparison of Curricula Used in Kindergarten for the Development of Number Concept.

Fischer studied two curricula for teaching number concepts to kindergarten children. She found that using a curriculum where students simply “counted, said, and wrote” numbers did not improve a child’s number concept, even when this program was upgraded to include many manipulative experiences. She found that where students studied numbers in a part-part-whole curriculum their abilities to solve addition and subtraction word problems were enhanced.

Kamii, C. (2000). Teachers Need More Knowledge of How Children Learn Mathematics. NCTM.org.

Kamii believes that teachers need to allow children more time to explore and manipulate the parts of numbers before prematurely teaching a mathematical “rule” such as “adding on.” When children are not allowed enough time to explore putting together two parts to make a new whole they will never understand that addition creates a “larger” amount. Just as children begin crawling before they are off and running, so it is that children need to count “all” before they count “on.”

Assessment Suggestions

- Assessment is an integral part of instruction. Ongoing assessment is the best foundation for instruction. Teachers must plan ahead and know what questions they are going to ask.
- As you are doing the activity, keep track of students who respond incorrectly. Write on a clipboard immediately so you do not forget which student was struggling with the concept.
- After the activity, call on individual students to come and participate in the activity with just you. Listen to the words they use. Record and provide feedback if they use the words correctly.

Invitation to Learn

What do you think I’ve got in my Magic Bag? Hmmmm... do you think it is a pig? No, I don’t hear any oinking! Do you think it’s a tractor? No, my bag is definitely too small for a tractor.

Look at this! Can you tell what this is? I’m not really sure. I thought it looked like an ice cream cone at first, but then... show just a part of a picture sticking out from your Magic Bag. (Continue to pull the picture out of your bag, letting the students call out what they think it is

Materials

- Magic Bag (draw string fabric bag or brown paper bag!)
- Number Cards

until the whole picture is out of the bag. This should be a picture of something common, maybe even a picture of something in your classroom. Continue to pull out a few more pictures of items they are familiar with.)

You are such a smart class. Now let's see if you can figure out what this is... (Slowly begin to pull out one of the *Number Cards*, allowing students to call out guesses. Tape the numbers to your board in a random fashion after you have pulled them out. Continue until you have pulled out the numbers 0 to 9.)

Instructional Procedures

Materials

- Magic Bag (draw string fabric bag or brown paper bag!)
- Number Cards*
- 2 fly swatters
- Gold star stickers
- Magic Cards*

- Pull pictures of familiar items from your Magic Bag.
- Pull out pictures of the numbers from 0 to 9 (*Number Cards*). Tape them to your board.
- After the numbers are all taped to the board, call on two students. Hand them each a fly swatter. See who can “swat” the number that you call out first!
- Tell students that these are “magic” numbers (*Magic Cards*). There is a magic place where people start when writing each number. Pass out star stickers and guide students where to place them on their *Magic Cards*. This is a magical place to begin!
- Ask students if they can tell where the magic place to start is. It is where the star is.
- Tell students you want them to use their finger and trace each number as you walk around and observe. Tell them you want them to see if they can memorize each number.
- Walk around your classroom to see if students are beginning in the correct place. Keep track of those not starting correctly.
- Have students guess what number you are drawing in the air. Tell them to look at their cards and try to figure it out. Do this several times. Have a student come up and close his/her eyes. Have him/her try to figure out what number s/he is feeling on a fur-embossed card. Guide his/her finger to the star and begin.

Curriculum Extensions/Adaptations/Integration

- Glue Embossed Numbers: Have students work in small groups tracing over glue embossed number cards (felt, sandpaper, fake fur, etc.).

- **Pie Tin Numbers:** Have students work in small groups to trace the numbers in a pie tin of sand. Remember, students must start in the correct place.
- **Shout Out:** Roll large foam dice. Students shout out the number of how many dots are showing. They could also hold up the correct numbered spoon.
- **Dot Flashes:** Show students paper plates with dots on them arranged like on a die. Tell them that you want them to memorize how many dots are on each plate. Flash a plate at different groups or individual students. They must quickly tell you how many dots. Students need to become automatic at this. Why? When they don't know what they're supposed to be counting, then they will have a "picture" to help them remember.
- **Numbered Spoons:** Write the numerals 1 through 10 on the back of 10 spoons. Students use their spoons when they need to quickly count items. Have students use their numbered spoons during Dot Flashes or when you are showing different pictures. (Clip art books and computer programs are great for making "dot cards" out of shapes and characters rather than just dots.) They should start to recognize the order of the dots. Students should not have to continue to count them.
- **Dot Bingo:** Play Dot Bingo to learn to recognize the written numeral, the amount of dots, and the number of fingers representing that numeral.
- Students can practice stringing numbered tiles onto a pipe cleaner in the correct order.
- **12 Cups:** Show students 12 cups and 78 Popsicle sticks. The cups are numbered from 1 to 12. Explain that they must look at the number on the cup and then put the correct number of sticks in each cup. If they put the correct amount in each cup they will not have any sticks left over.
- **Do It All:** Students roll dice, show the number card for the matching number, and then put that amount of items on their *Mini Mat*.

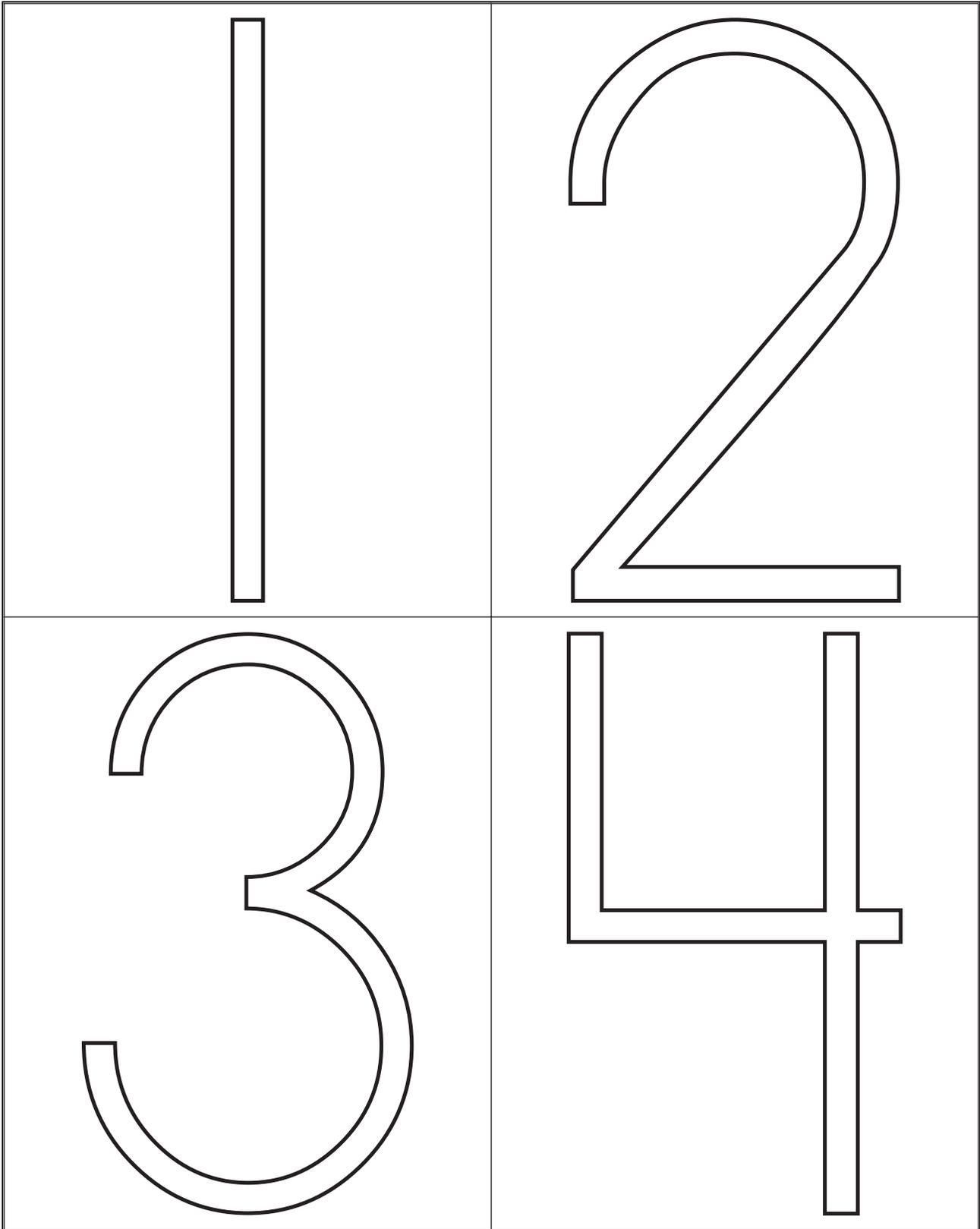
Materials

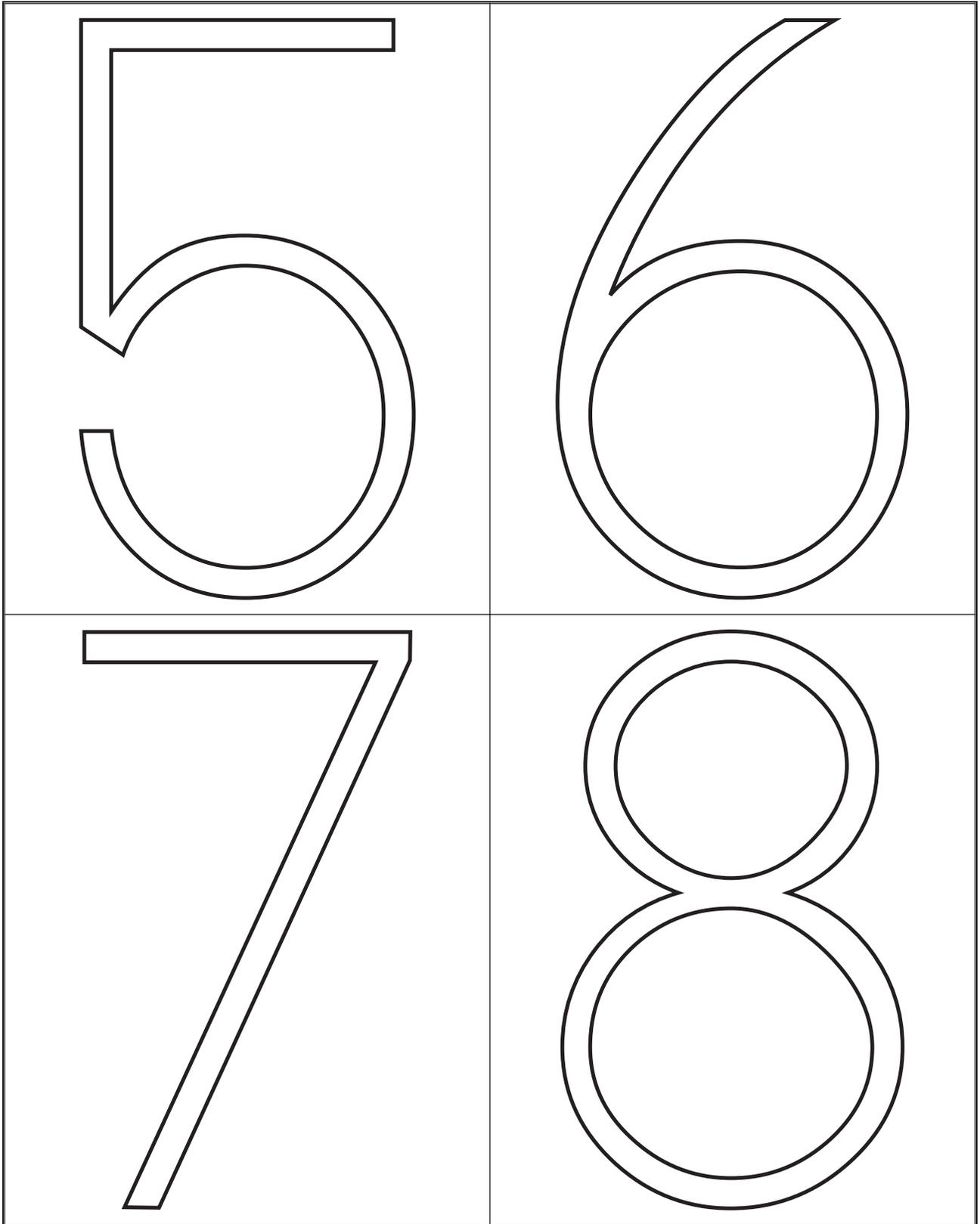
- ☐ *Mini Mat*

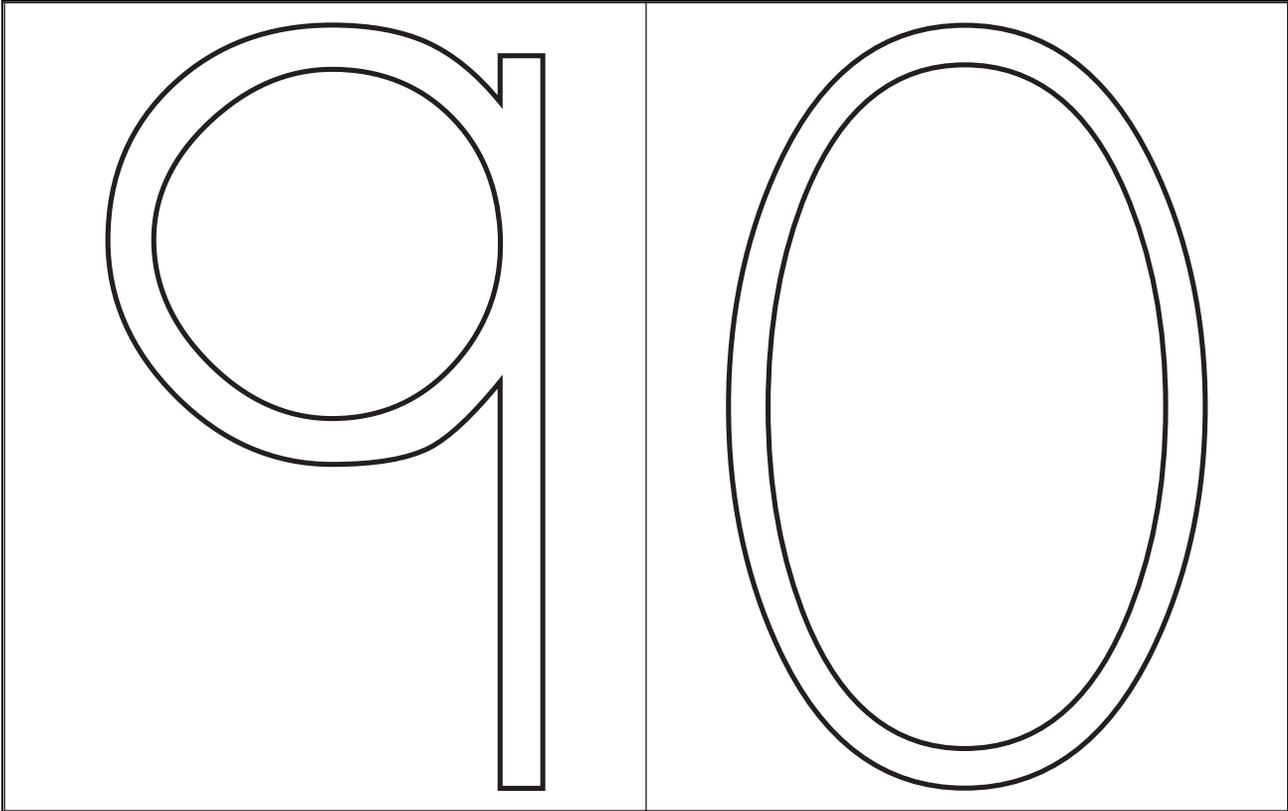
Family Connections

- **12 Toothpicks:** Repeat the 12 Cups activity, but send home 12 squares of paper and 78 toothpicks.

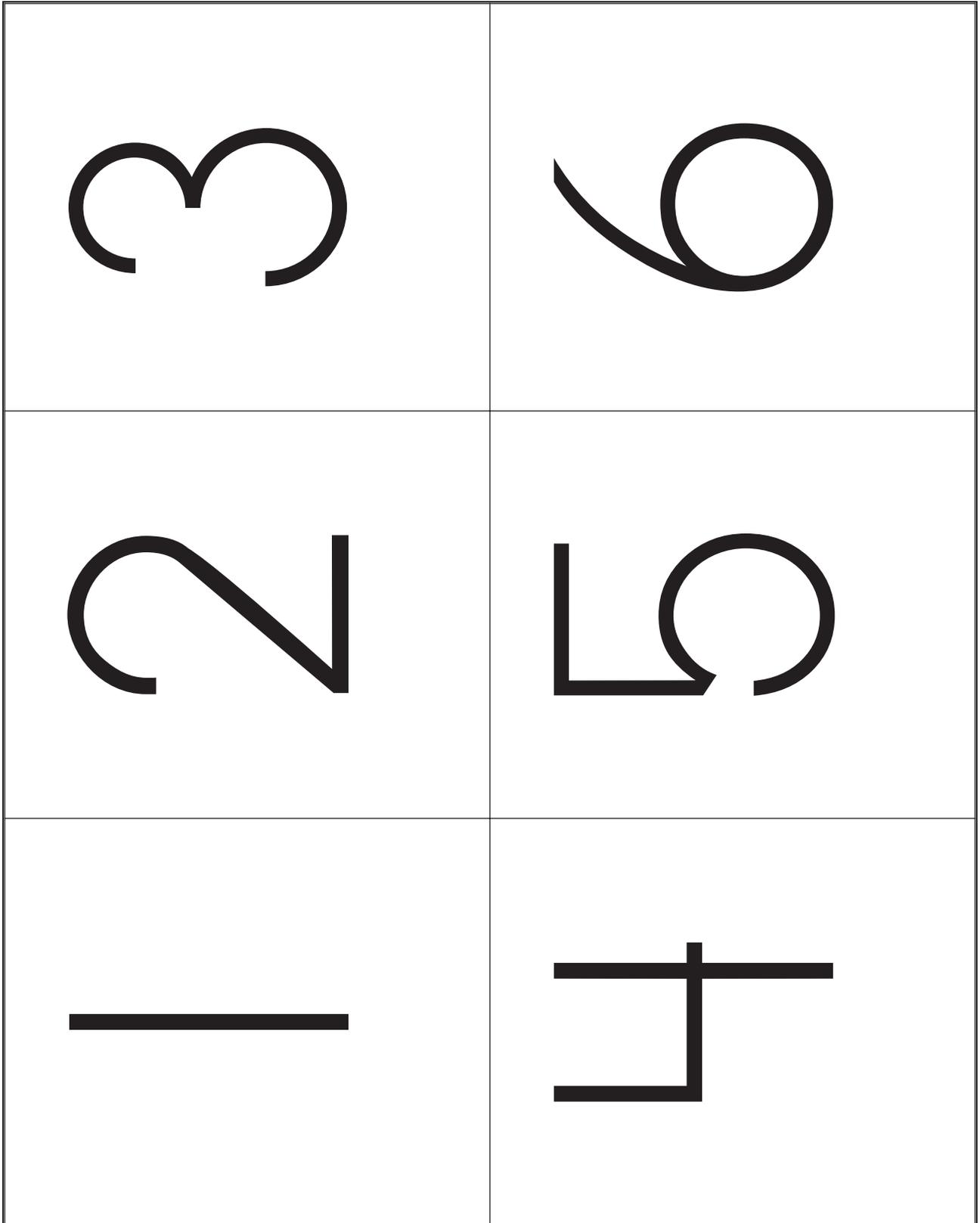
Number Cards

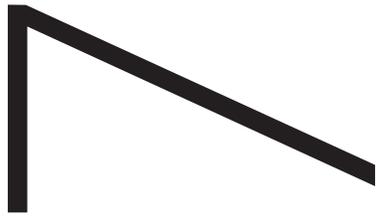
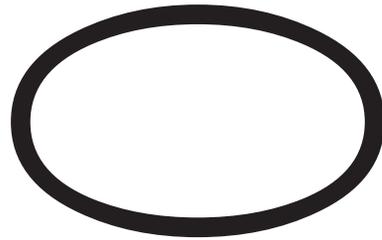
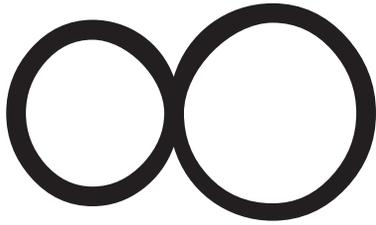




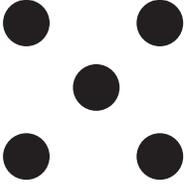
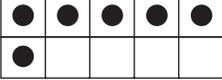
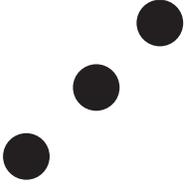
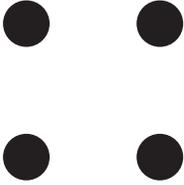
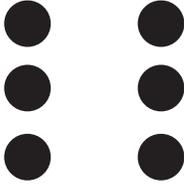
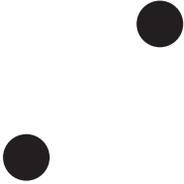
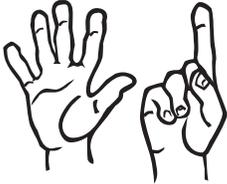


Magic Cards

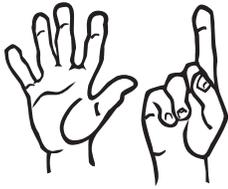
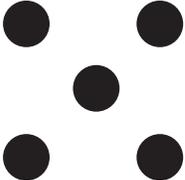
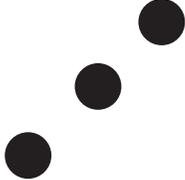
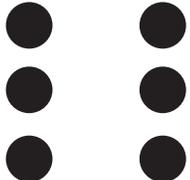
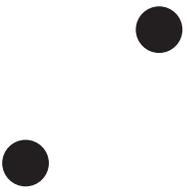
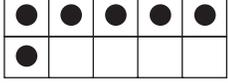
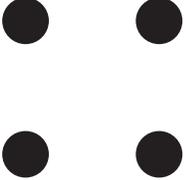




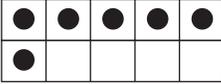
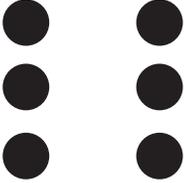
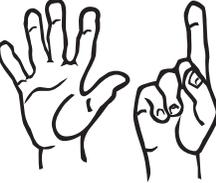
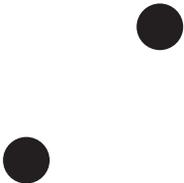
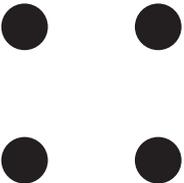
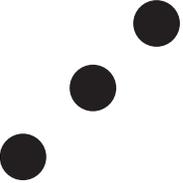
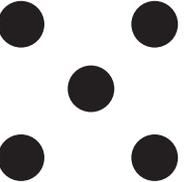
Dot Bingo

	1			
	2			
	6	FREE		4
	3	5		
				

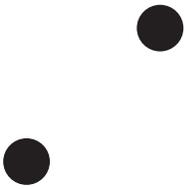
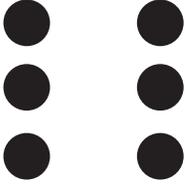
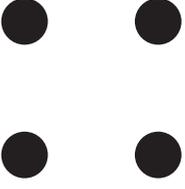
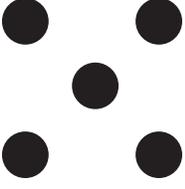
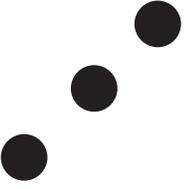
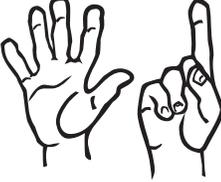
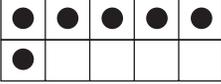
Dot Bingo

	1			
2				
		FREE		6
4				3
			5	

Dot Bingo

3				
				5
		FREE		
	6		2	
1				4

Dot Bingo

			3	
	2		6	
		FREE		4
				
	1		5	

More or Less Pigs in the Pen

Standard I:

Students will understand simple number concepts and relationships.

Objective 2:

Identify simple relationships among whole numbers.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

**Math
Standard
I**

**Objective
2**

Connections

Background Information

Students need to see and talk about the quantity of items as they increase and decrease. They must experience “adding” and “subtracting” before they are required to complete math problems with pencil and paper. When students are required to “find the answer,” that is what they attend to. They do not focus on what is actually happening. They focus on getting an answer even if their answer is incorrect. And they do not learn why their incorrect answer does not make mathematical sense.

Students need time to explore adding and subtracting. They need to see the quantity of items increase, get larger, etc. They need to watch and participate in subtracting items. They need to see the items decrease in quantity. And they need to talk about what is happening.

When we rush right into adding and subtracting without allowing students to explore and become familiar with what actually takes place when you add or subtract, students simply learn the algorithm. They learn the memorized pattern to follow in order to create an answer, even if their answer is incorrect.

When students spend time watching, making, and talking about the quantity of items increasing, they will truly understand the concept of addition. They will understand why the total number (the cardinal number) needs to be larger than the parts that make up that number.

And likewise, when students spend time watching, making, and talking about the quantity of items increasing, they will gain an understanding of why the amount that is left is a smaller amount (a smaller number).

Research Basis

Richardson, K. (1997). Too Easy for Kindergarten and Just Right for First Grade. *Teaching Children Mathematics*, 3(8). 432-7.

Richardson states that children understand math at three levels. Children at level 1 count, and count, and count, and then land on a number. They do not know whether the number they landed on is reasonable. Children at level 2 can decide whether their answer is reasonable. They think about the quantities with which they are working. Children at level 3 take numbers apart and put them back together flexibly. Teachers must observe students and watch what approach they are using to perform the tasks. Level 1 requires the least complex thinking. Students simply count things. Children at level 2 need to estimate. They need to be provided opportunities to adjust their answers as they consider new information. Estimating first and then finding the answer builds number concept. Children at level 3 need to work with smaller numbers in more complex ways. These children need to internalize (not memorize—memorized things can be forgotten!) combinations for numbers.

Assessment Suggestions

- As you are doing the activity keep track of students who count using one-to-one correspondence.
- After the activity, call on individual students to come and participate in the activity with just you. Listen to the words they use. Record and provide feedback if they understand the concept.

Invitation to Learn

Read *Pigs on the Farm*.

“What would your mom and dad say if you took some pigs home with you? What would they do you in your house? Where would they want to sleep?”

I have more pigs that we will be using soon. I’m keeping these pigs in this bag so they don’t escape. We’re going to be using them soon.

Instructional Procedures

Pigs in the Pen

1. Have students sit in a circle.
2. Who remembers what this is? Yes, this is my pig pen. Today I’m going to let you add some pigs to my pen. I’ll go first. (Place 3

Materials

- Pigs on the Farm*

Materials

- Cookie sheet
- Plastic pigs

pigs in the pen.)

3. How many pigs are in my pen? (Make sure students respond using complete sentences, “There are 3 pigs in the pen.”)
4. I’m going to pass the pen and my special pig sack to _____. You may reach into my special pig bag and add some pigs to our pen, or you may take some pigs out of the pen and put them back into the special pig sack.
5. Allow the student to either add pigs to the pen or take some away. At this point you’ll be tempted to count the pigs in the pen. **Don’t** do it. Simply use the words, start building their vocabulary.
6. “Oh, ____ has added some pigs. We have more pigs in our pen now.”
7. “Oh, ____ has taken some pigs away. We have fewer pigs in our pen now.”
8. Continue this activity around the circle letting students add or take pigs away. Remember **do not count** the remaining pigs. This will come later. You may find students doing this on their own. Just let them watch the quantity of pigs increase and decrease.

Musical Pigs

1. Show a pig pen. Show some pigs. Then start singing... (sing to “The Ants Go Marching”)

The Farmer, he has many pigs. Hurrah! Hurrah!

The Farmer, he has many pigs. Hurrah! Hurrah!

The Farmer, he has many pigs.

Put ____ in the pen and touch them all.

Count—one by one!

There sure—are lots!
2. Sing the song aloud as you track the words. Invite the students to sing along with you. Sing a few times until the students become familiar with the song.
3. Using your big pig pen, call on a student to put some pigs in it. Have everyone sing the song while that student touches each pig. Continue this a few times.
4. Pass out individual pig pens and pigs. Call on a student to pick an amount or roll a dice. Have everyone sing the song and count the pigs.

Materials

- Pig Pen (tray)
- Plastic pigs
- Individual student pens
- Cut out pigs for each student
- The Farmer and the Pigs* worksheet

Class Estimation Jar

1. Have a brightly colored decorated jar and tell students, “This is our Class Estimation Jar.”
2. Everyday, students write an estimation on a piece of paper and put it in the box next to the jar.
3. Provide a prize at the end of the week for the person whose estimation is the closest to the number of objects in the jar.

Curriculum Extensions/Adaptations/Integration

- Have students create their own pens. Students put different items in their pen and count each others’ items.
- Three Tall Towers: Students roll a dice. They then have to build three different towers using only Unifix® cubes. Tower 1 = two colors, Tower 2 = three colors, and Tower 3 = four colors.
- Comparing Stacks: Student rolls a dice, then connects that many Unifix® cubes and set out the matching number card. Roll the dice again and build another tower, setting out the matching number card. Roll the dice for the third time, build the tower, and match the number card. Put the towers in order from shortest to tallest with the number cards.
- My Favorite Number Book: Students pick their favorite number. Show all the different ways/combinations to make that number using animal stamps, shapes they draw, or shapes they cut out. A staggered page book works great for this activity!
- Bean Drop: Two students work together. They put a given (you decide) amount of two-sided/colored beans in their cup. Shake the beans out and write down what they have on the *Bean Drop* worksheet. If their combination is different, they both get a point. If their combination is the same, no one gets a point. Play for 9 rounds before they change to another number of beans. (Here is a chance for students to use math. They need to work together in deciding how they will keep track of their turns in order to change numbers.)

Materials

- ☐ *Bean Drop* worksheet

Resources

Book

Pigs on the Farm, by Mari C. Schuh and Gail Saunders-Smith;
ISBN 0736809937

Family Connections

- Send home *The Farmer and the Pigs* handout with a pen and some pigs for the student to repeat the activity with family members.
- Have student make a “My Favorite Number” book at home.
- Send home two-sided/colored beans and have students play *Bean Drop* at home with family members.

The Farmer and the Pigs

(Sing to "The Ants Go Marching")

The Farmer, he has many pigs. Hurrah! Hurrah!

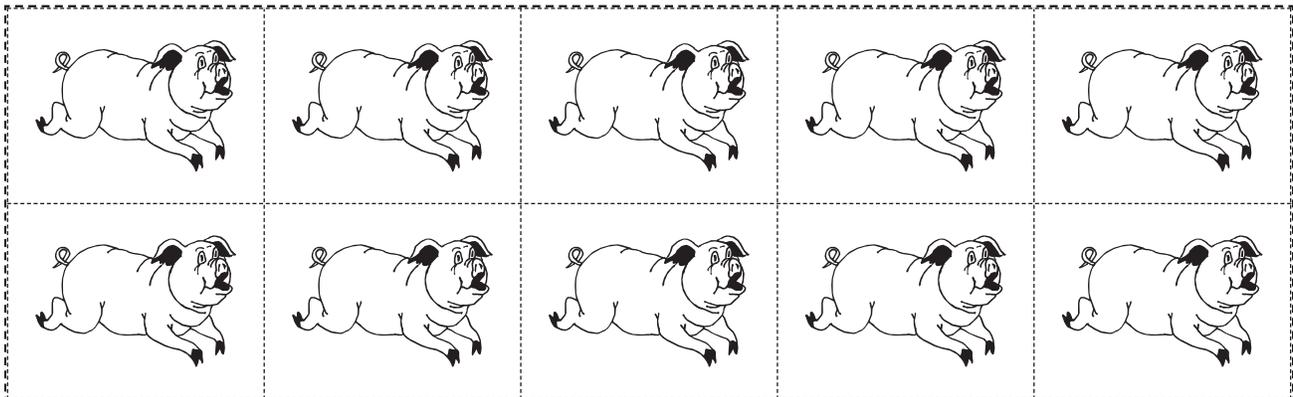
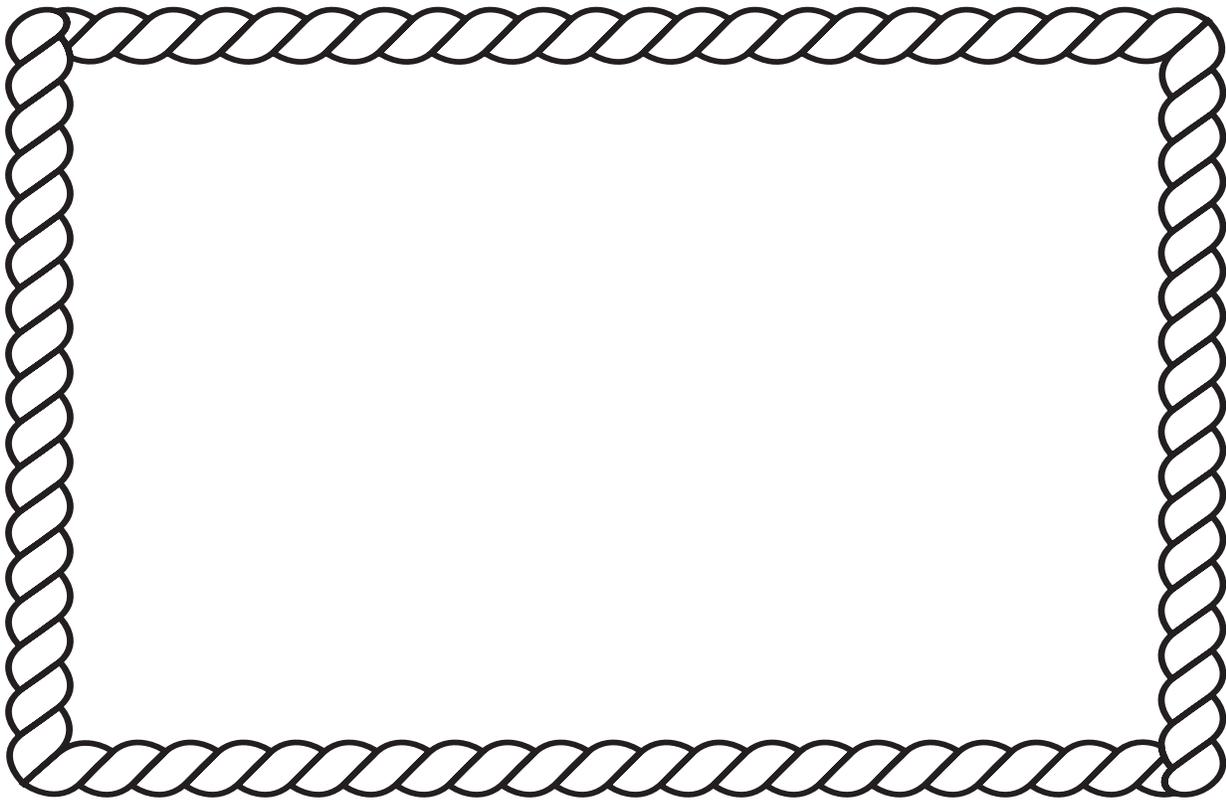
The Farmer, he has many pigs. Hurrah! Hurrah!

The Farmer, he has many pigs.

Put _____ in the pen and touch them all.

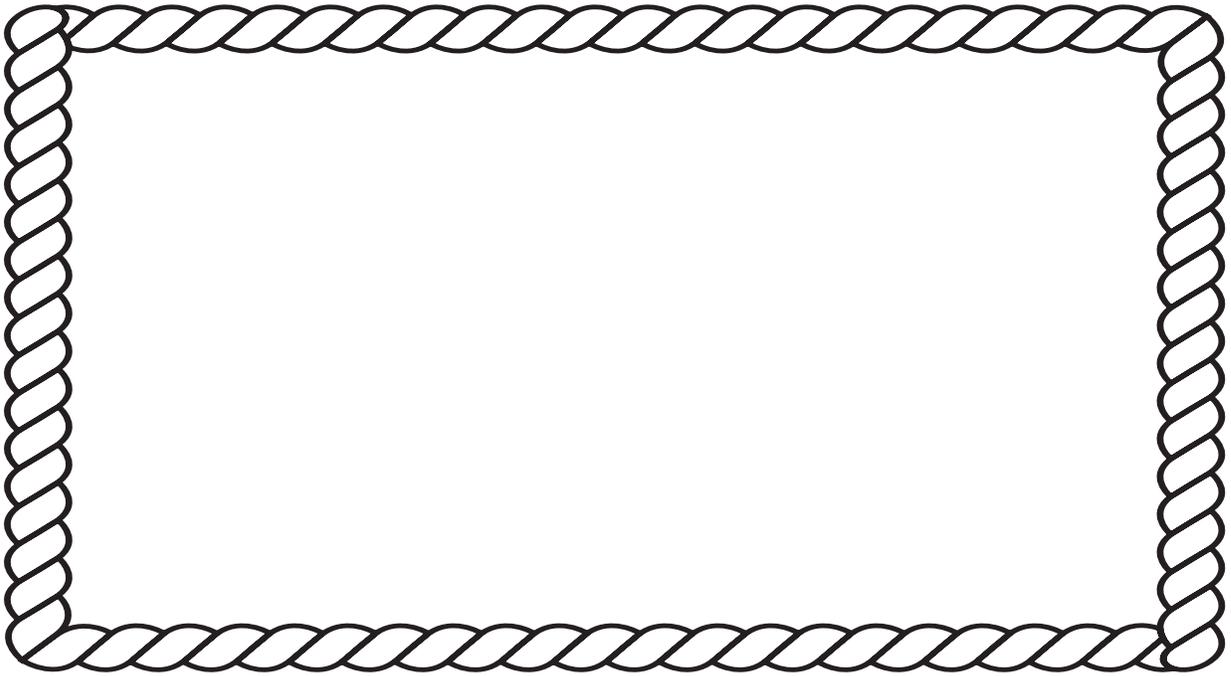
Count—one-by-one!

There sure—are lots!



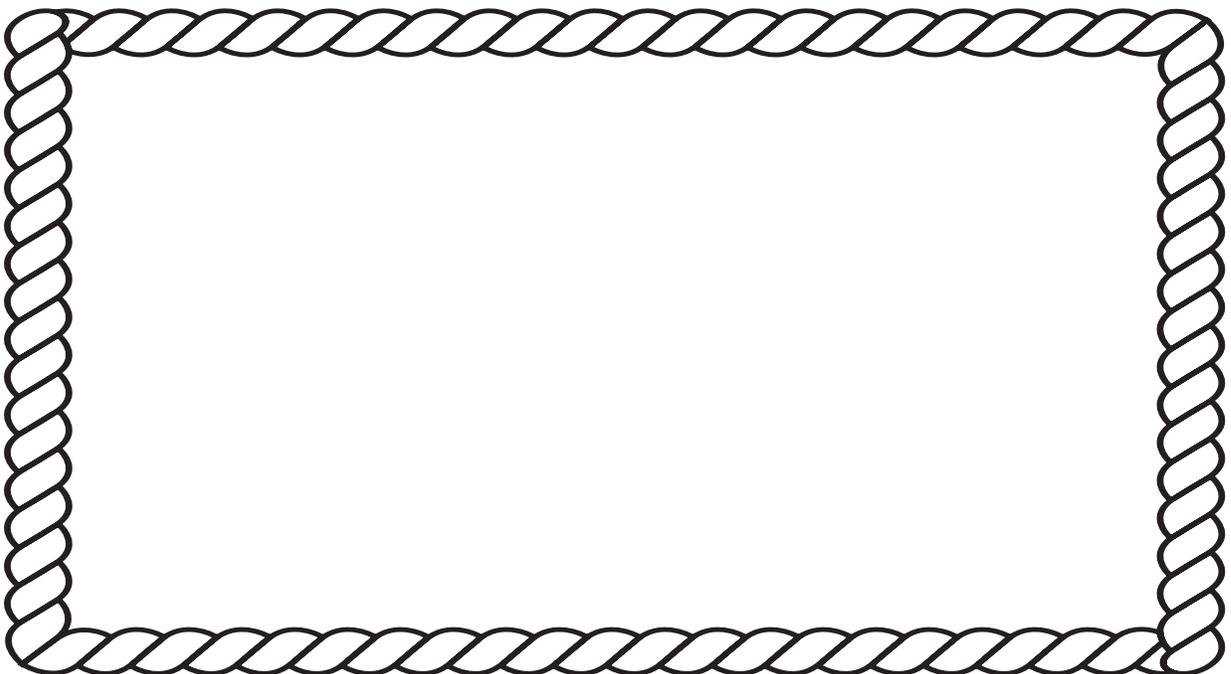
Name _____

Mini Mat



Name _____

Mini Mat



***Content
Standard
I-3
Activities***

Independent Learners

Standard I:

Students will develop a sense of self.

Objective 3:

Develop and use skills to communicate ideas, information, and feelings.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
3. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:

Language Arts IV-4, VIII-6; Math II-2

**Content
Standard
I**

**Objective
3**

Connections

Background Information

There are five basic steps in teaching children to become independent learners:

1. Listen to Speaker
2. Ask Questions
3. Use Cues and Strategies
4. Check and Monitor Work
5. Set and Reach Goals

This activity is designed to help students develop a sense of self through building confidence in their abilities to become independent learners. It will develop those strategies needed to communicate their ideas and knowledge of concepts taught.

An independent learner is one who has developed a schema for learning, or who understands how s/he learns best. An independent learner has the ability to access cognitive and behavior strategies that make it easier to learn, remember, and relate what is learned. Strategic learning improves memories, including the ability to store and retrieve information. It increases student production and behavior, and heightens the level of the child's engagement in the learning process. Strategic learning promotes the development of the independent learner.

Although all children can benefit from this type of educational emphasis, children with learning difficulties will gain the most. Typically, they lack many of the important independent learning skills. They are not strategic in their approach to the learning task and consistently rely on others for help. Learning these strategies will help develop their sense of self.

Research Basis

Beckman, P. & Weller, C (1990). Teaching Exceptional Children, 21/22, 26-29.

Active, independent learning for children with learning disabilities.

Leal, L., Crays, N., & Moely, B.E. (1985). Training Children to Use Self-monitoring Study Strategy in Preparation for Recalls: Maintenance and Generalization Effects. *Child Development*, 56(3). 643-653

Training children to use a self-monitoring study strategy in preparation for recall, maintenance, and generalization effects.

Assessment Suggestions

- Observation of student work on whiteboards is a good assessment of whether they understand the concept of visualization. Students become more proficient at visualizing and verbalizing each time practice activities are done. As observation occurs, record notes on paper to be placed in student portfolios. Evaluations and comparisons of notes taken can be made after each set of activities.

Invitation to Learn

1. Draw part of a picture on the board before class begins, leaving out many details.
2. Have students:
 - Look at the picture on the board.
 - Decide what it might be.
 - Draw the completed picture on their own paper.
3. Have children share in whole group or pair share.

Instructional Procedures

1. Read *The Squiggle*.
2. Discuss the visualizing strategy (ability to see things in one's mind) in connection with *The Squiggle* and the pictures students drew.
3. Give each child a lap whiteboard (chalkboard). Explain that you are going to practice visualizing.
4. Place a transparency of *Visualization Drawing—Picture #1* on the overhead projector.

5. Verbalize what you see and let children verbalize what they see, emphasizing that the way one child verbalizes may be different from another—that’s all right! Say whatever is going to help you make a picture in your mind so you can remember what you are looking at.
6. Close your eyes, verbalize what you see as you visualize the image in your mind, open your eyes, check the teacher’s picture again.
7. Teacher covers the picture on overhead projector.
8. Students draw on their own whiteboard what they saw, verbalizing as they go along.
9. When everyone has finished, look at the picture on the overhead projector. Check to see if it matches student pictures.
10. Continue with the other drawings, noting that each one gets a little more difficult and more detailed. Children need to verbalize more to help them remember.
11. You may want to do a few pictures a day for a week until the children understand.

Materials

One per class:

- The Squiggle*
- Transparencies of *Visualization Drawings*
- Overhead projector

One per student:

- Small lap whiteboard with dry erase marker and eraser or small lap chalkboard with chalk and eraser
- Paper
- Pencil or crayons

Curriculum Extensions/Adaptations/Integration

- Begin to relate visualizing and verbalizing with phonics and spelling skills (chunks), high frequency words, prediction of stories, patterns, and number skills.
- There are more activities that extend the idea of this story inside the front and back cover of the *The Squiggle*.

Resources

Books

Activating and Engaging Habits of Mind, by Arthur Costa and Bena Kallick; ISBN 0-87120-369-3

Nurturing Independent Learners, by Donald Meichenbaum & Andrew Biemiller; ISBN 1-57129-047-8

I Thought I Saw, by Pam Adams and Ceri Jones; ISBN 0-85953-029-9

A Book of Ghosts, by Pam Adams and Ceri Jones; ISBN 0-85953-028-0

There Was A Hill, by Lark Carrier; ISBN 0-907234-70-4

Wing-A-Ding, by Lyn Littlefield Hoopes; ISBN 0-316-37237-4

The Squiggle, by Carole Lexa Schaefer; ISBN 061318193X

Organizations

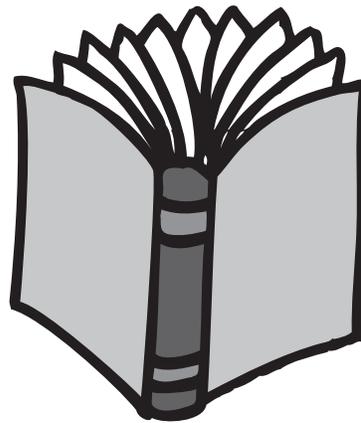
Integrated Strategies Program, Contact Pat Beckman, USOE, beckman@exolo.com 801-255-0791.

Family Connections

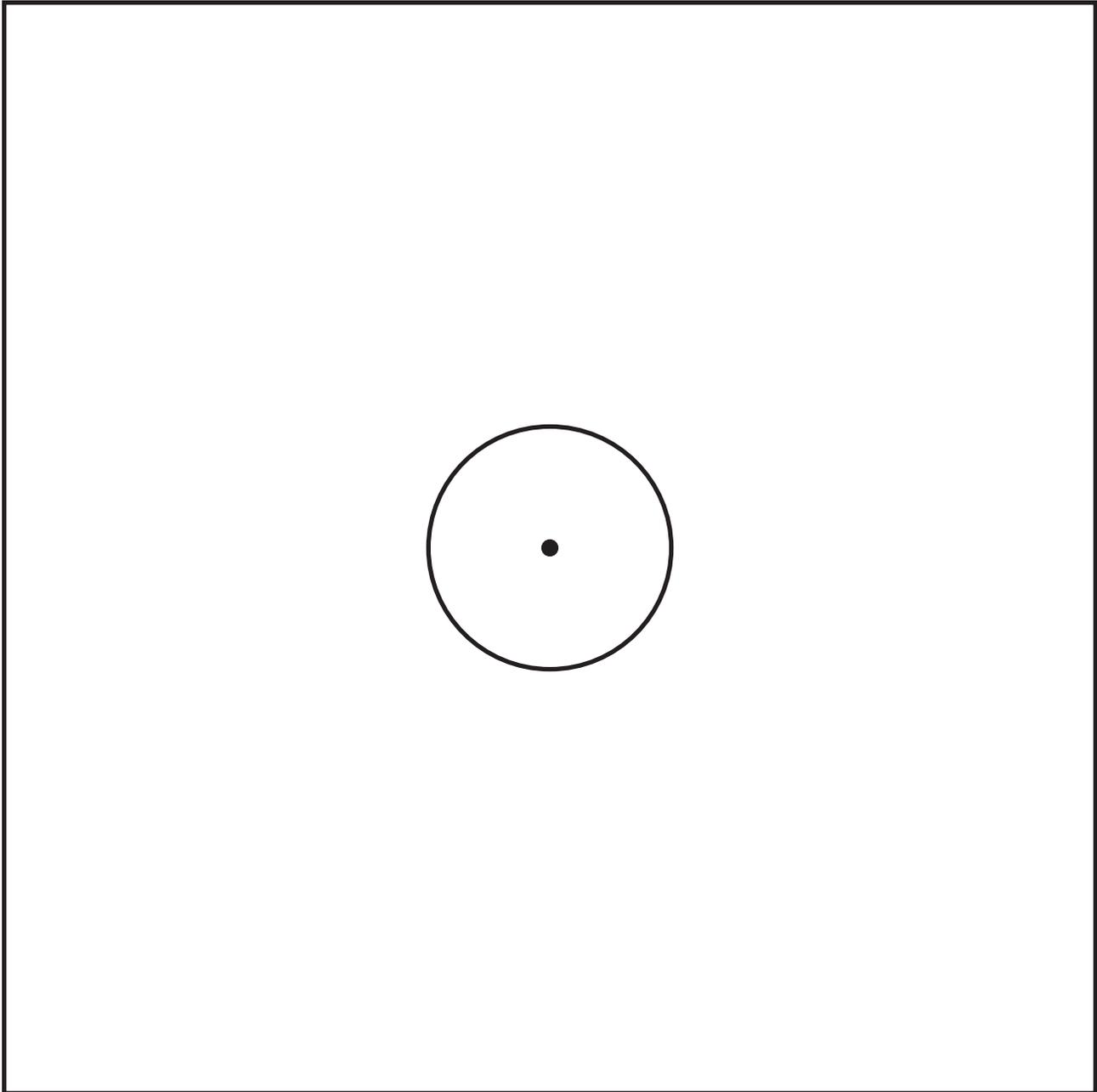
- When given directions at home, students can visualize those directions as they verbalize them to help them complete the tasks. This cognitive strategy keeps children engaged in the listening process and helps them know what to visualize next.
- When parents read stories at home, children can visualize what they are hearing in the story, thus increasing the ability or willingness of the child to listen more purposefully.
- Learning phone numbers and addresses is easier when children visualize and verbalize them.

Be an Independent Learner

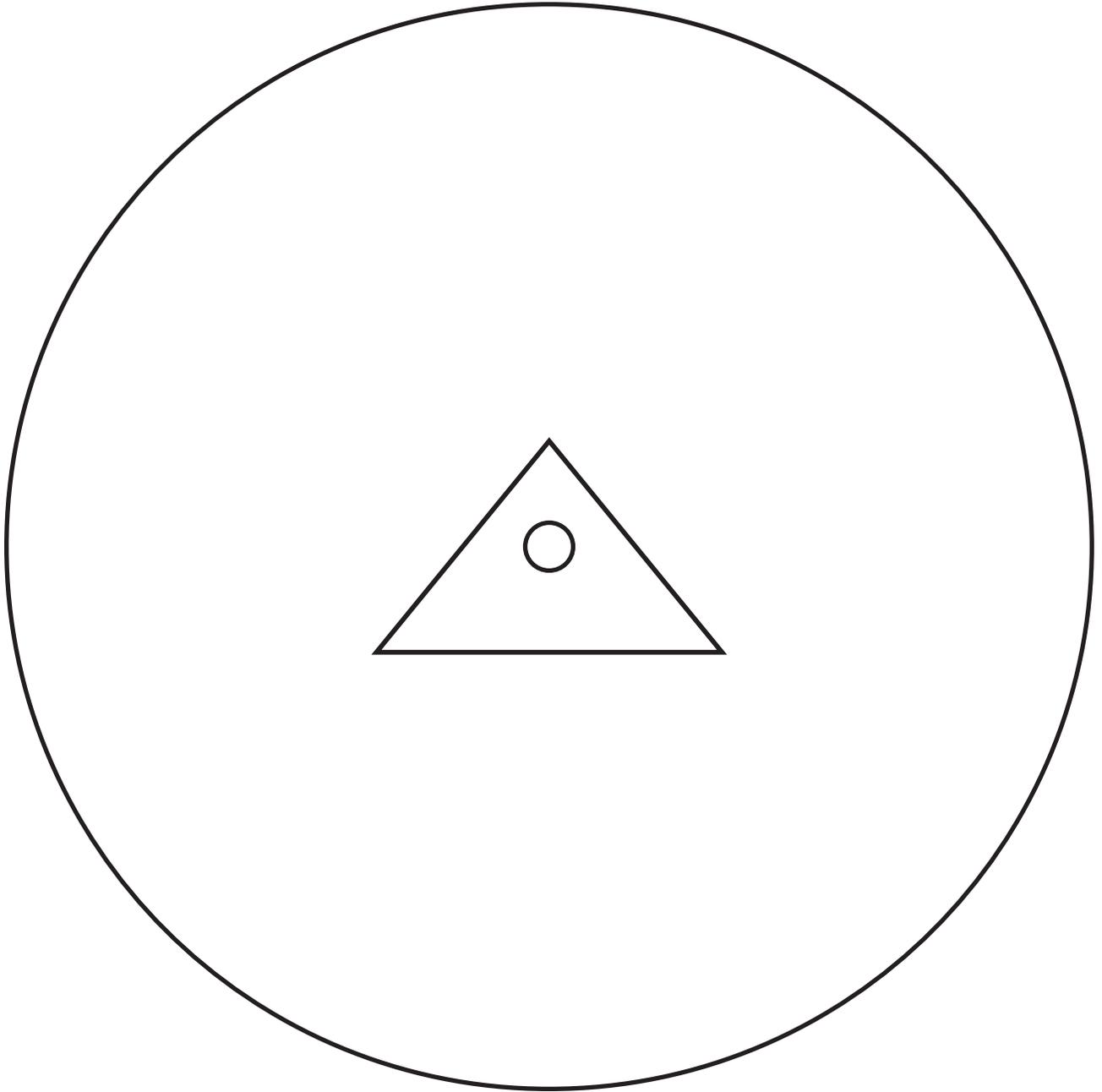
1. Listen to Speaker
2. Ask Questions
3. Use Cues and Strategies
4. Check and Monitor Work and Behavior
5. Set and Reach Goals



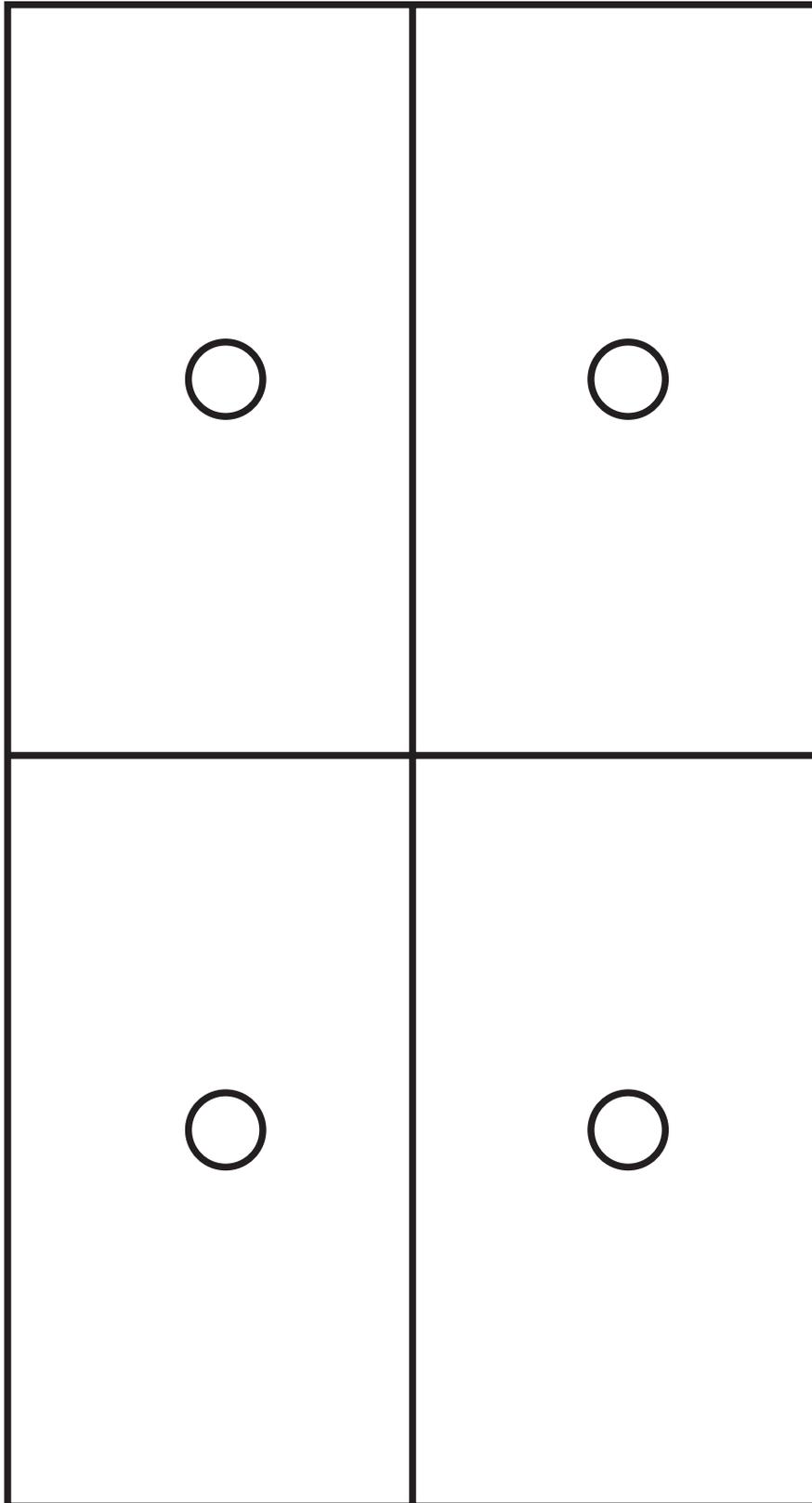
Visualization Drawing–Picture #1



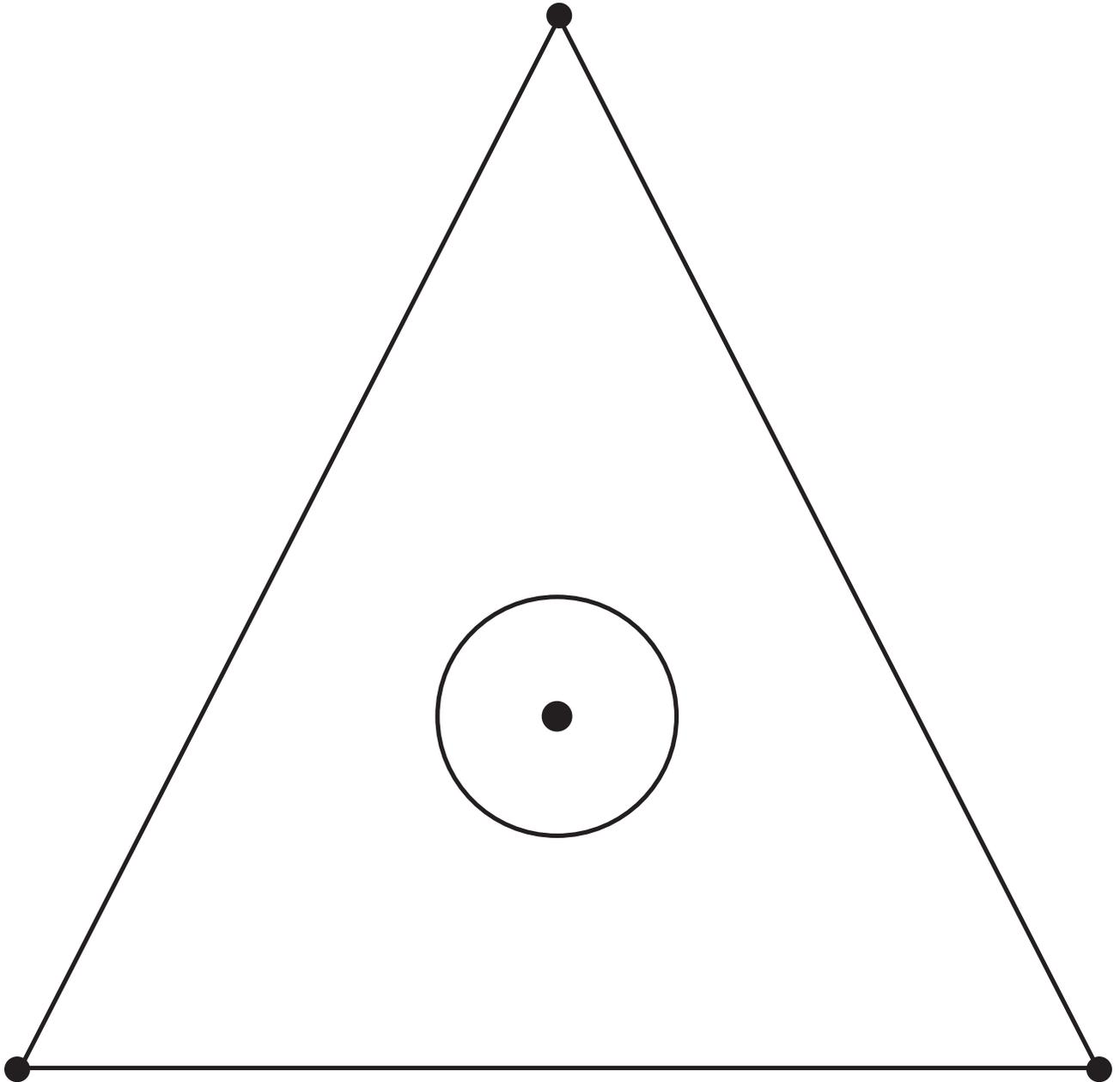
Visualization Drawing—Picture #2



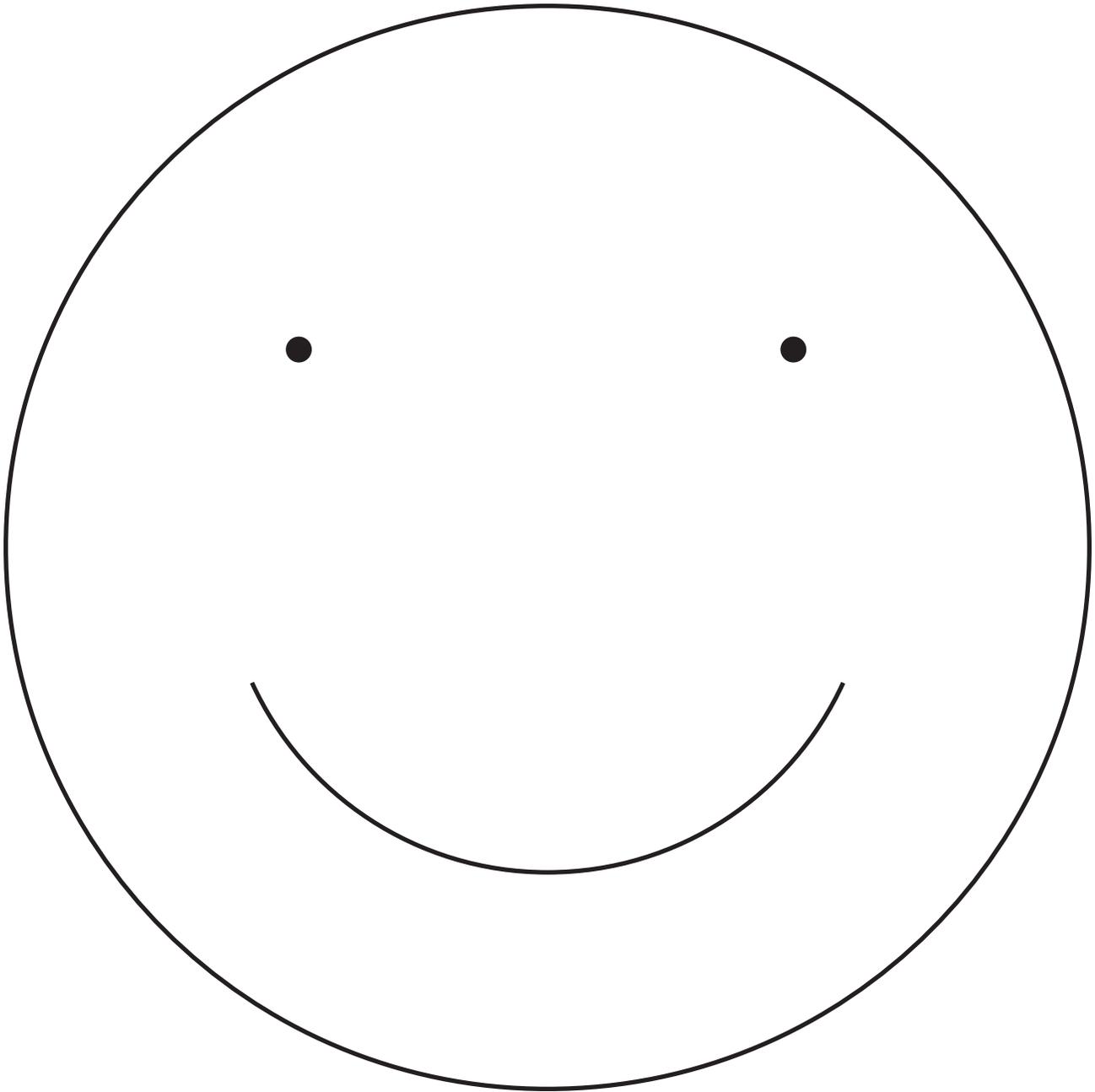
Visualization Drawing–Picture #3



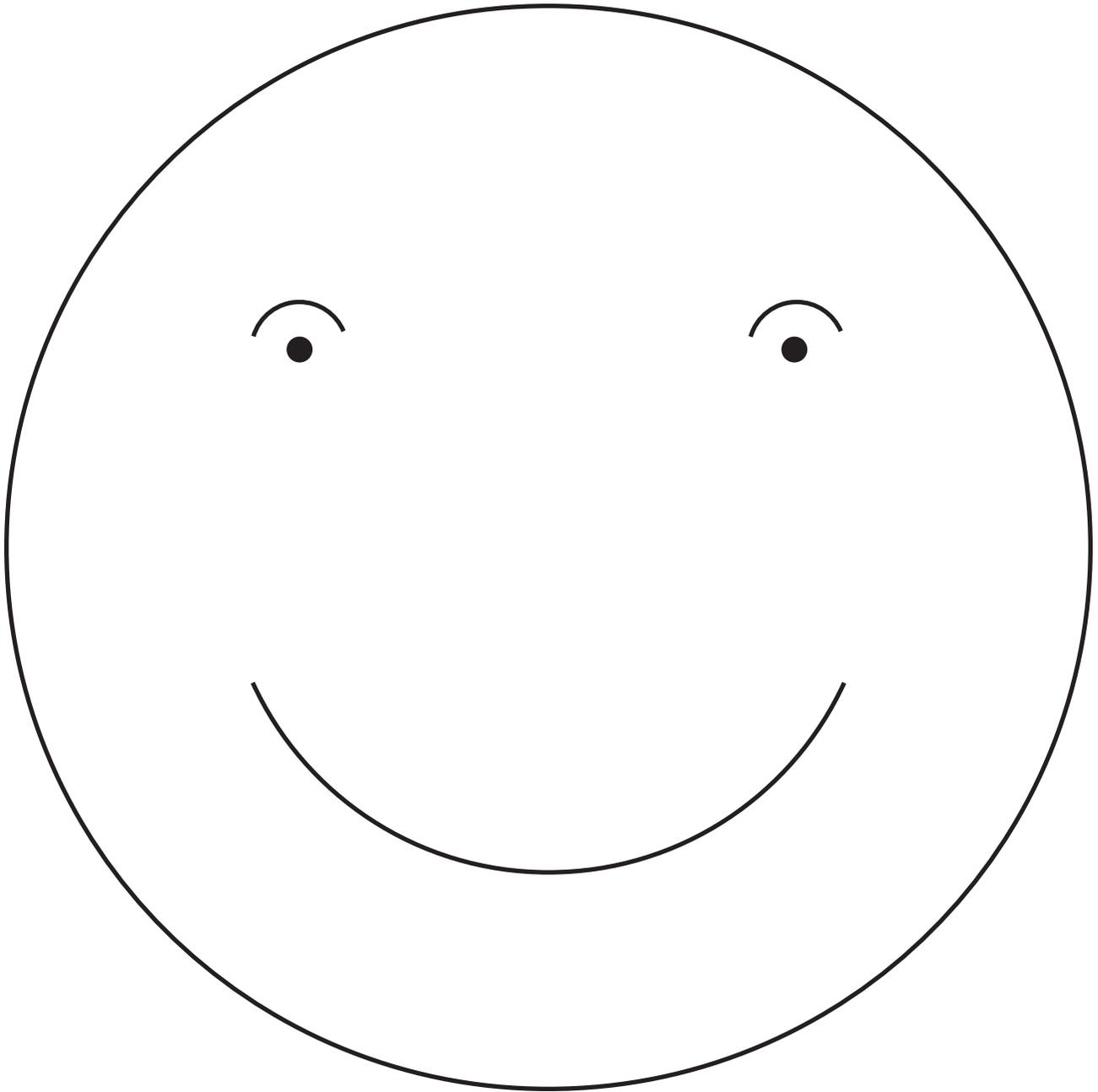
Visualization Drawing—Picture #4



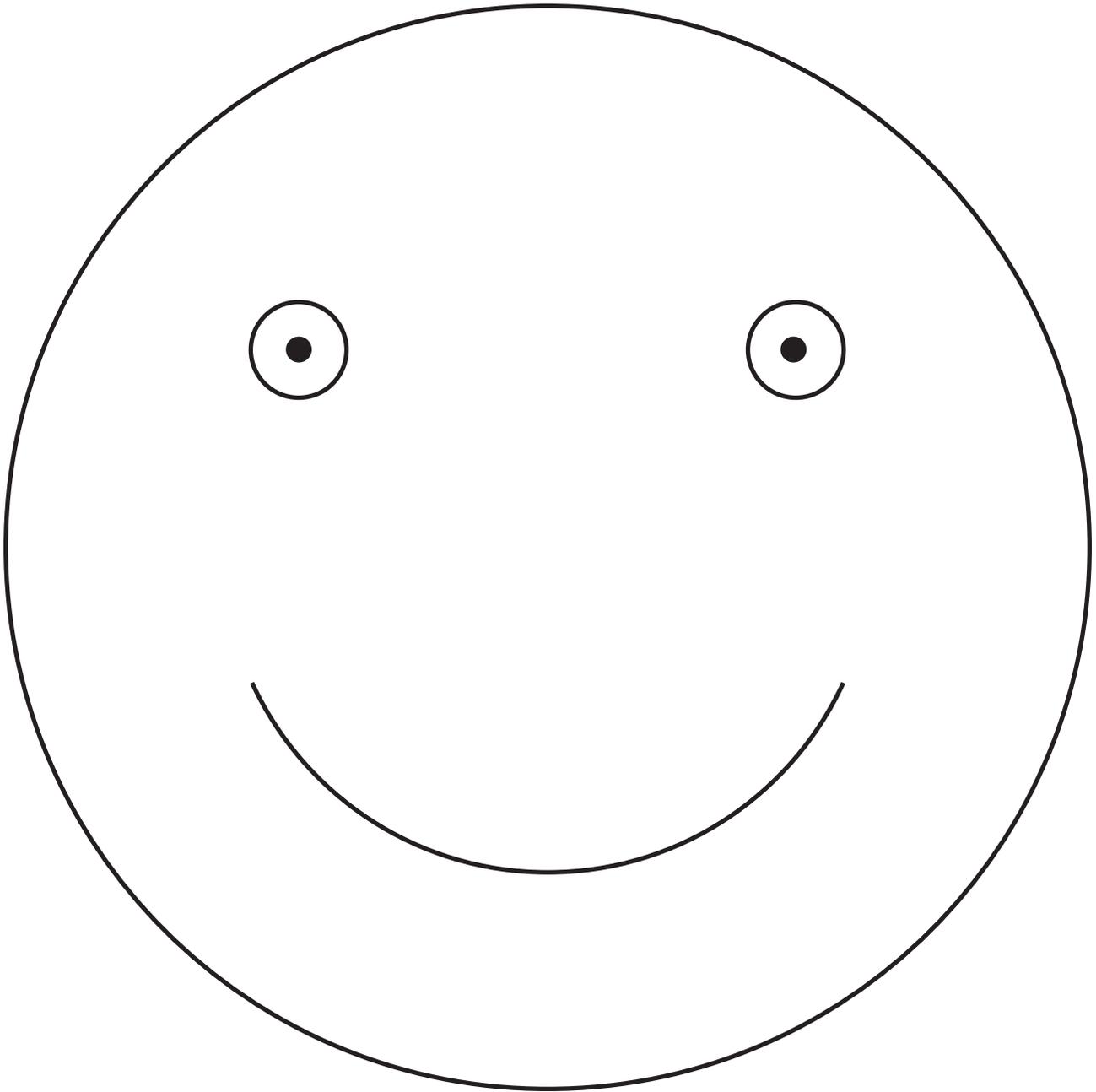
Visualization Drawing–Picture #5



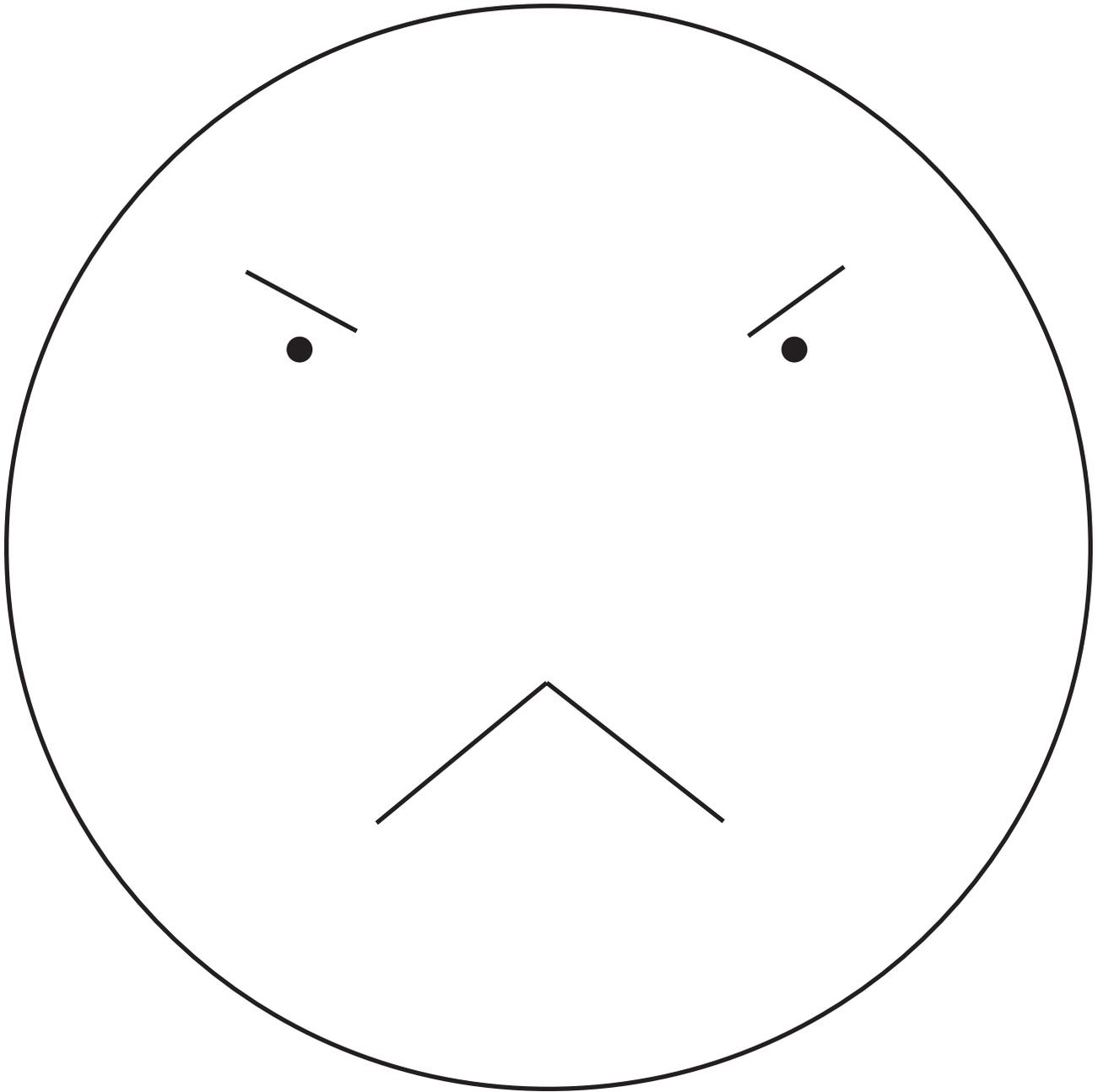
Visualization Drawing—Picture #6



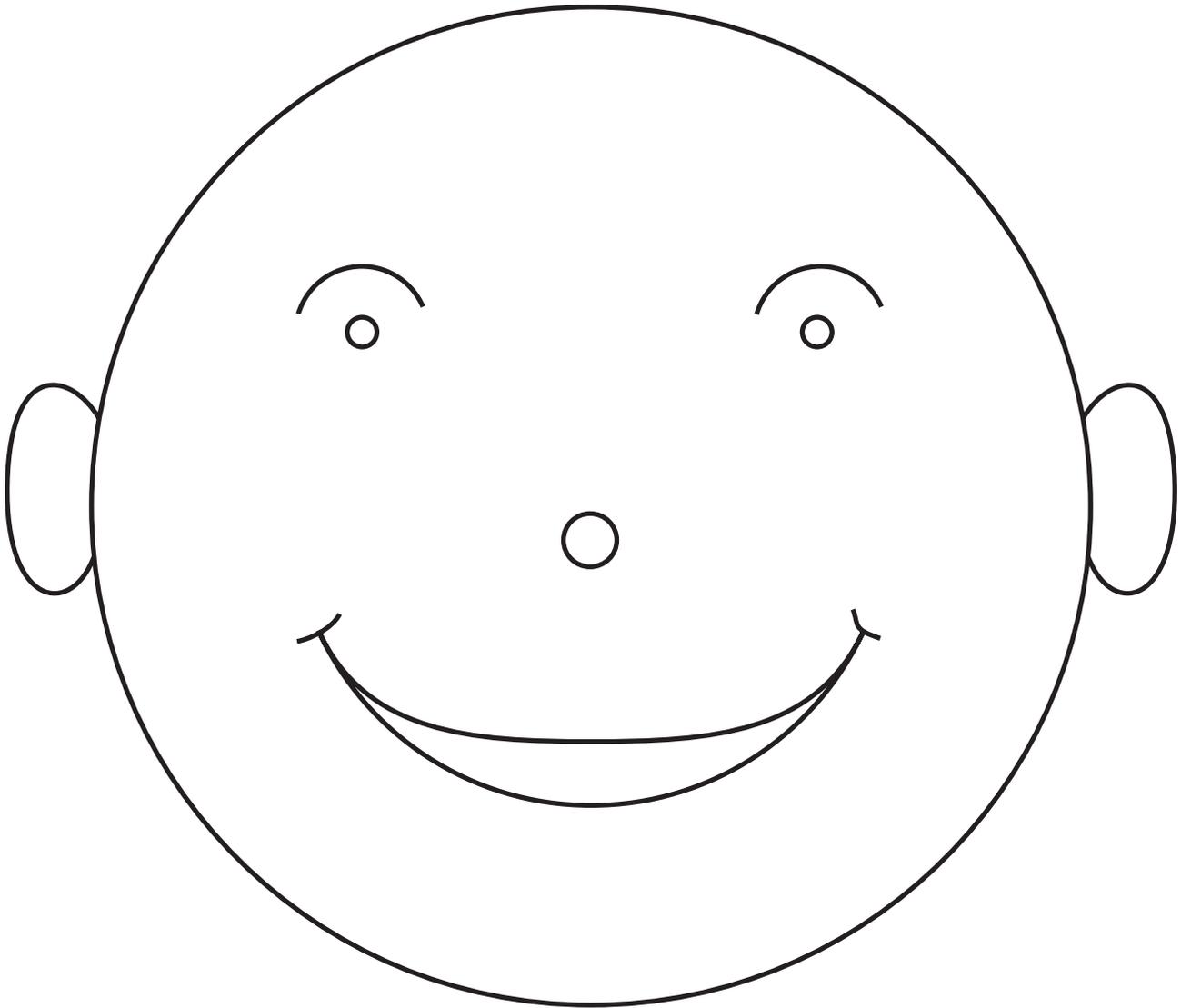
Visualization Drawing–Picture #7



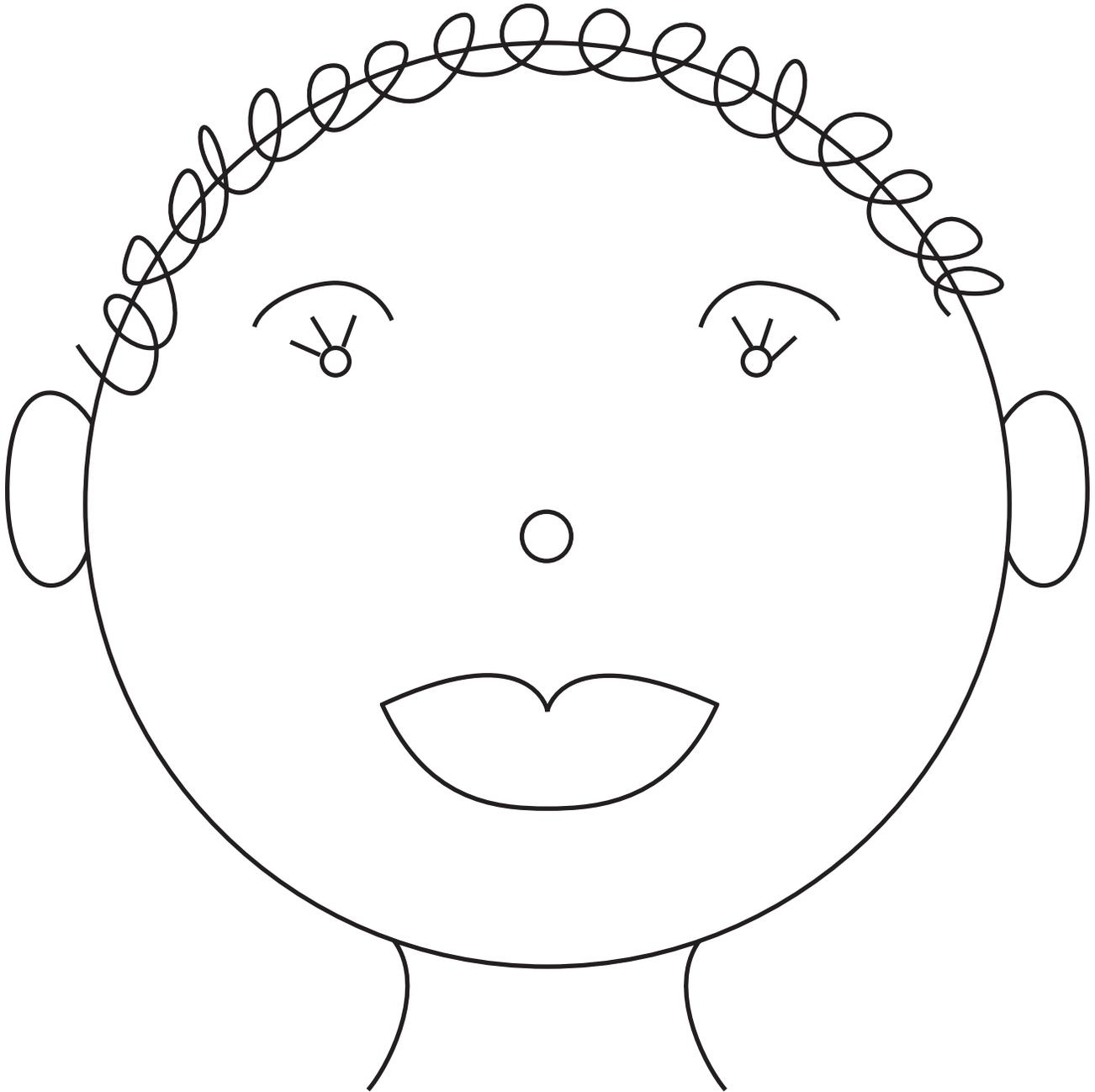
Visualization Drawing—Picture #8



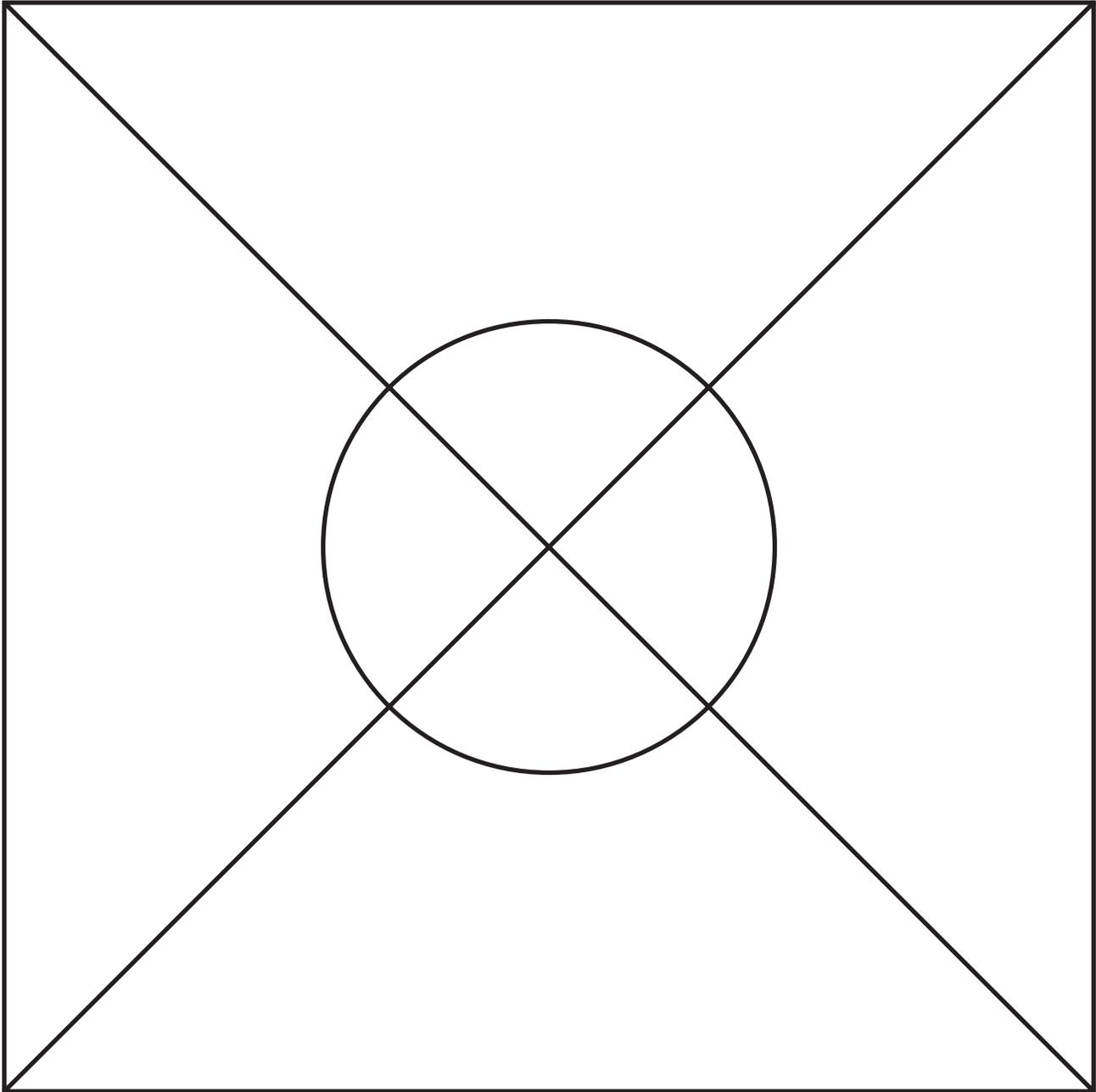
Visualization Drawing–Picture #9



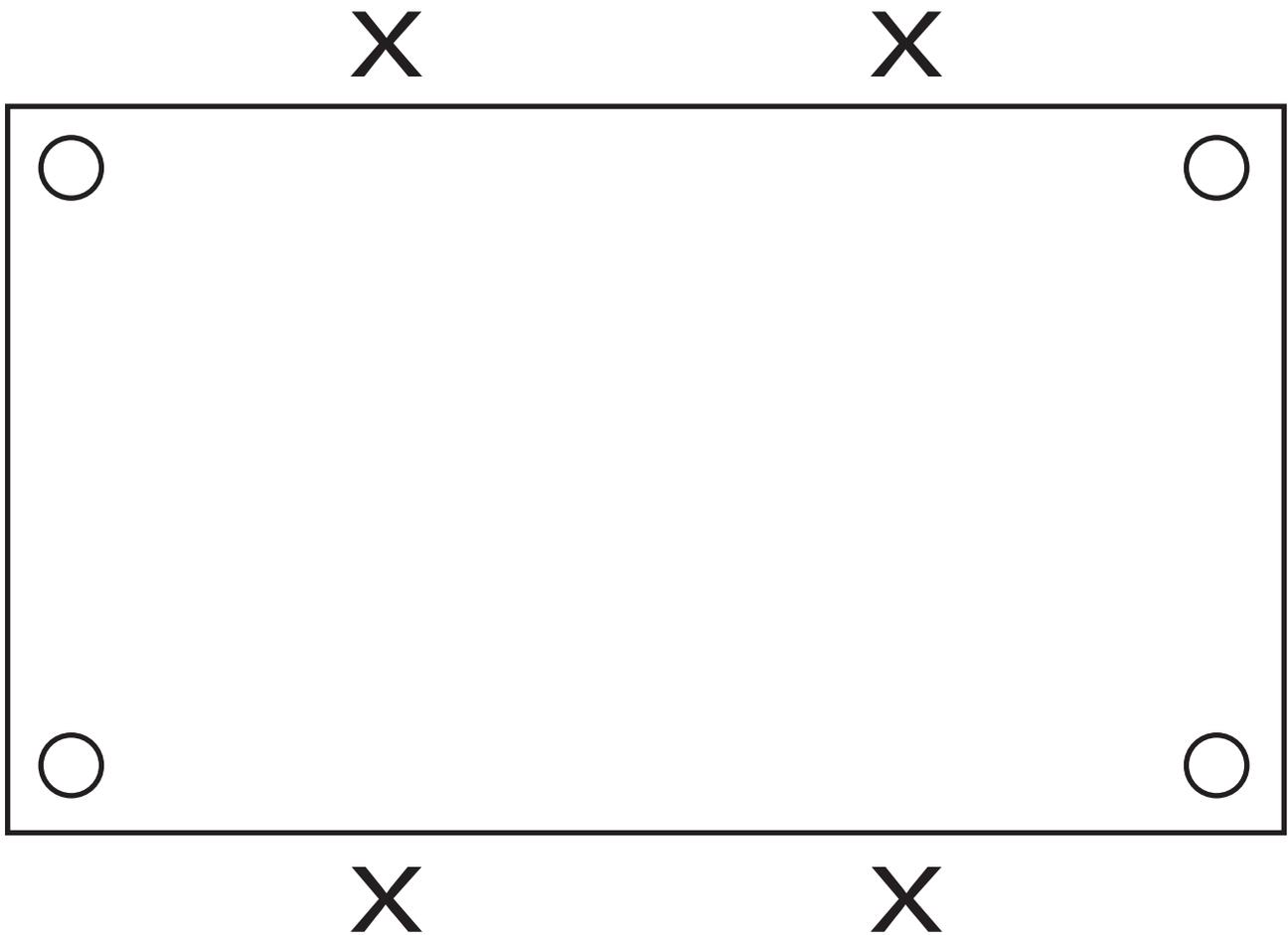
Visualization Drawing—Picture #10



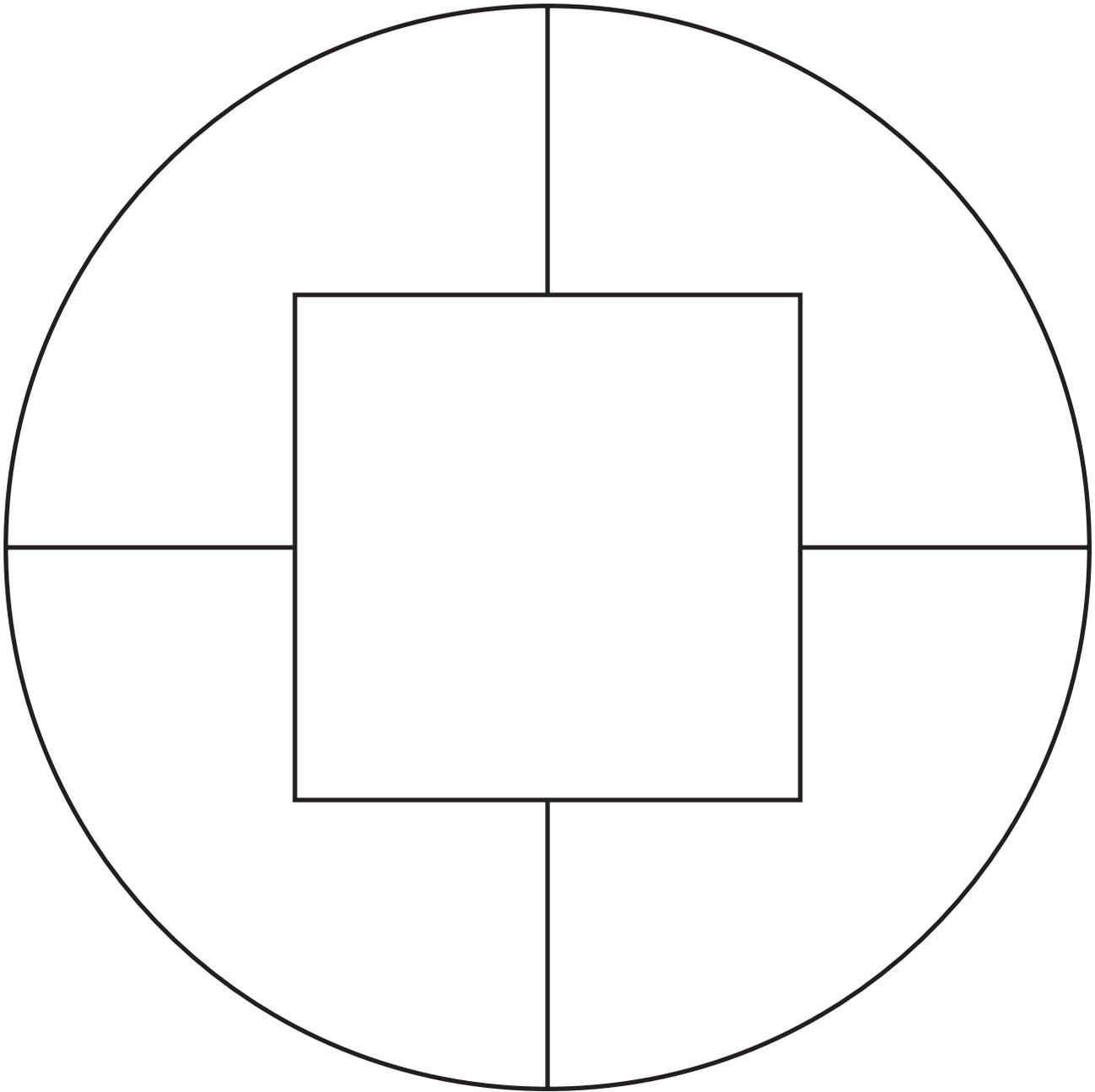
Visualization Drawing–Picture #11



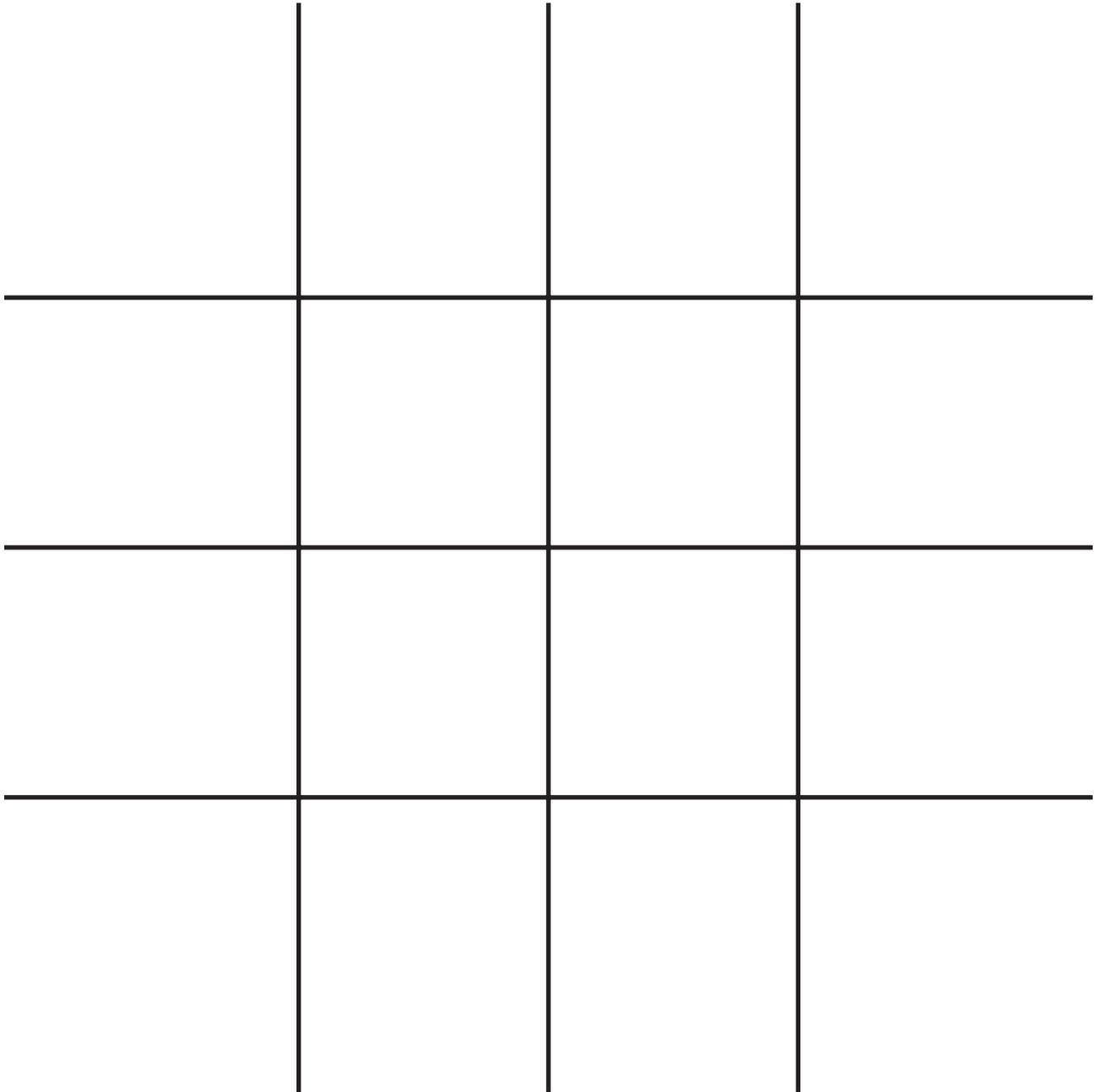
Visualization Drawing—Picture #12



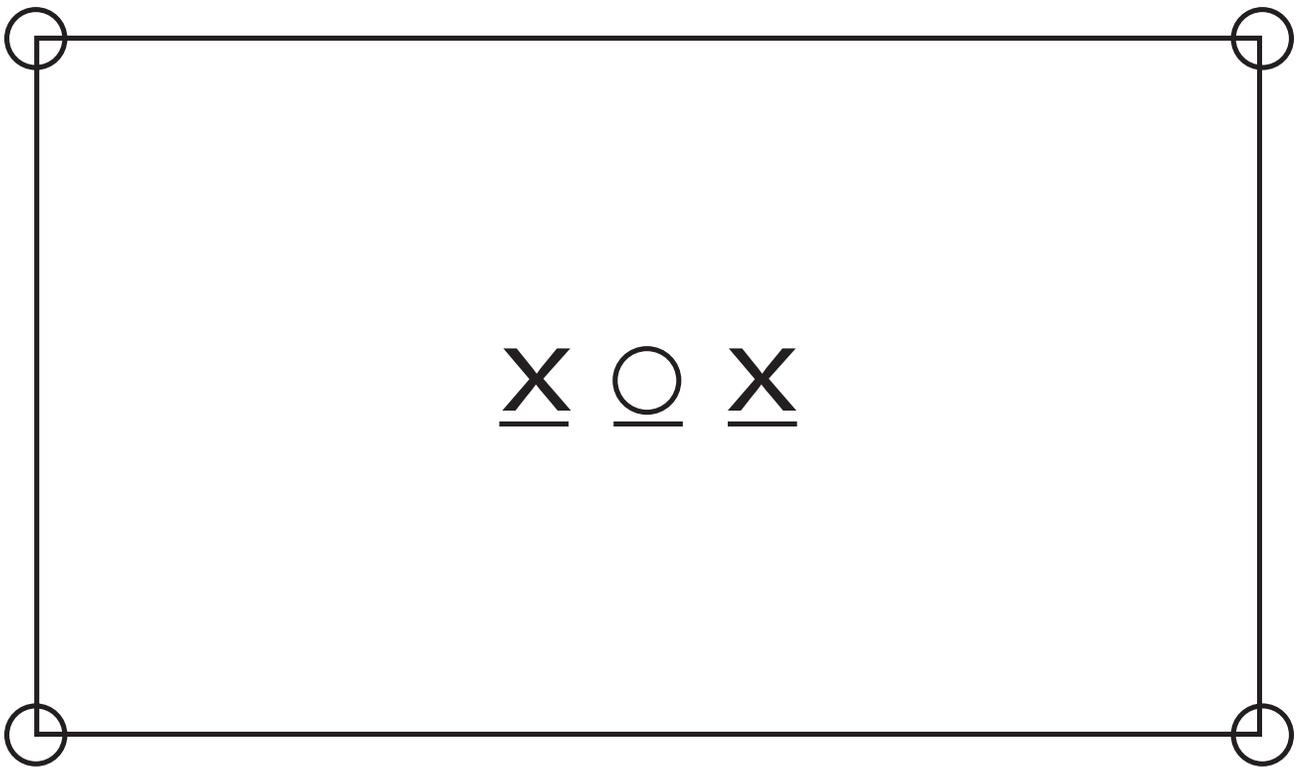
Visualization Drawing–Picture #13



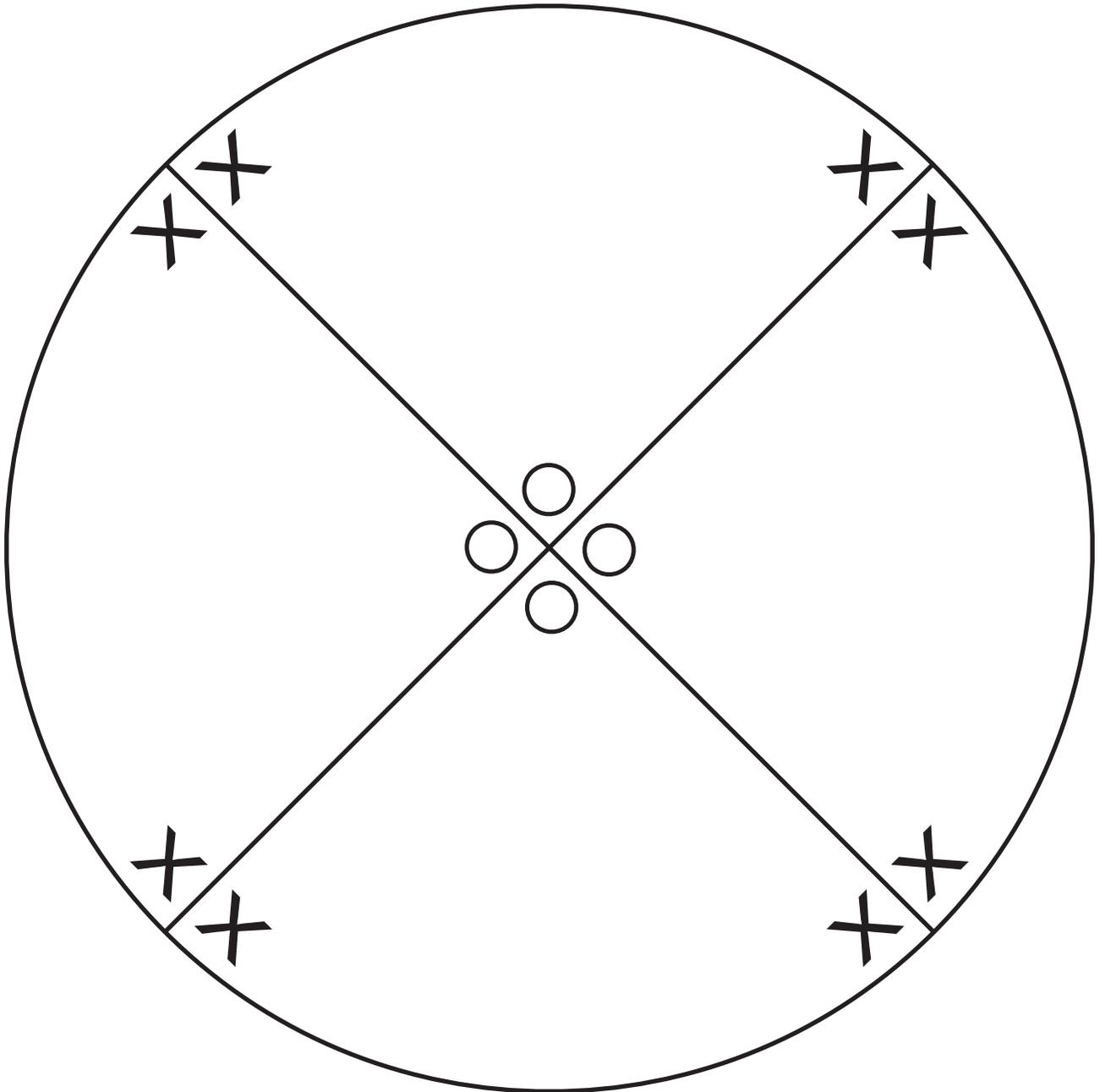
Visualization Drawing—Picture #14



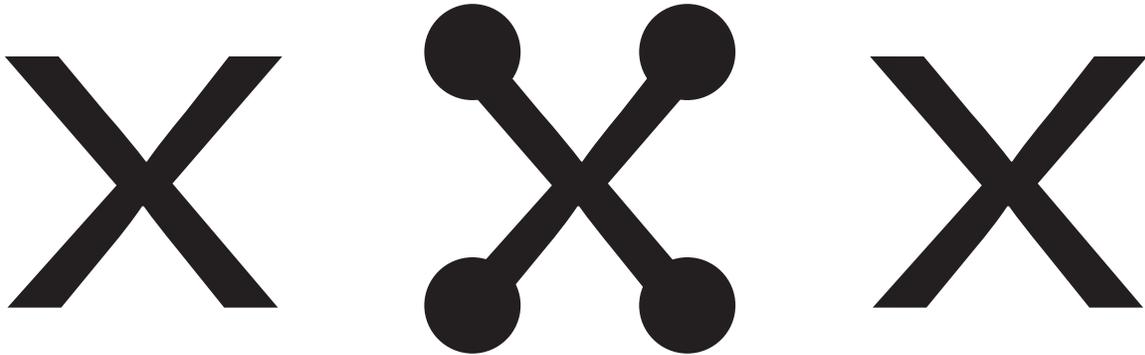
Visualization Drawing–Picture #15



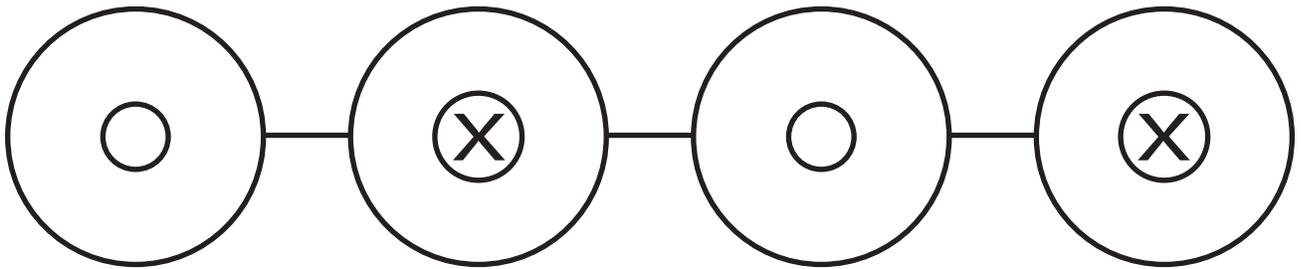
Visualization Drawing—Picture #16



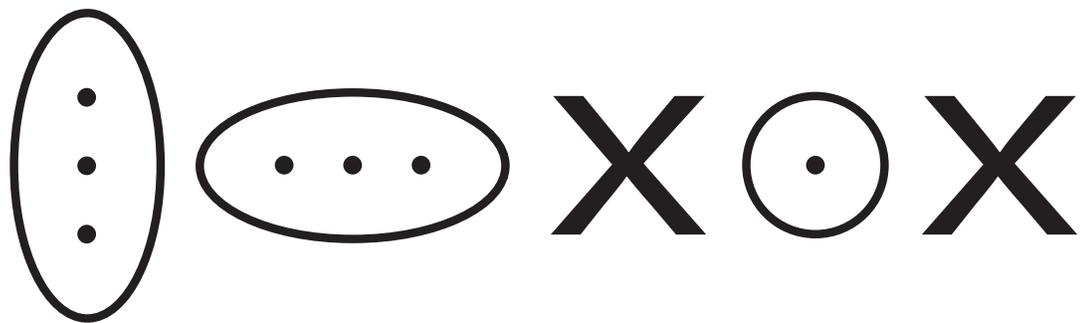
Visualization Drawing–Picture #17



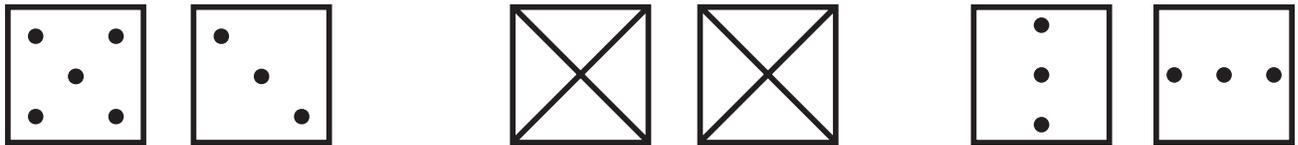
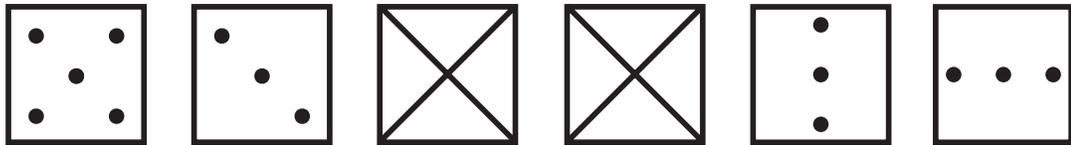
Visualization Drawing—Picture #18



Visualization Drawing–Picture #19



Visualization Drawing—Picture #20



Questions or Statements?

Standard I:

Students will develop a sense of self.

Objective 3:

Develop and use skills to communicate ideas, information, and feelings.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
3. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:

Language Arts I-1, VII-2

Content
Standard
I

Objective
3

Connections

Background Information

Questioning strategies give children the opportunity to engage more in the learning process and increase their ability to comprehend. Many young children do not understand the difference between asking a question and making a statement or telling a story.

This activity teaches children six question words: *who*, *what*, *when*, *where*, *why*, and *how*.

Research Basis

Beckman, P. & Weller, C. (1990). *Teaching Exceptional Children*, 21/22, 26-29.

Active, independent learning for children with learning disabilities.

Leal, L., Crays, N., & Moely, B.E. (1985). Training Children to Use Self-monitoring Study Strategy in Preparation for Recalls: Maintenance and Generalization Effects. *Child Development*, 56(3). 643-653

Training children to use a self-monitoring study strategy in preparation for recall, maintenance and generalization effects.

Assessment Suggestions

- Listen to students as they engage in the questioning process. Document interactions to evaluate and compare each time a student has the opportunity to use questioning strategies.

Invitation to Learn

Have students participate in the *The Three Bears Rap*.

Instructional Procedures

Materials

- Goldilocks and the Three Bears*
- The Three Bears Rap*
- Question Word Cards*
- Pictures that relate to the story (e.g., Goldilocks, bowl of porridge, sun, cottage, bear, spoon, etc.)
- Show and Teach Bucket* handout
- Post-it® notes

1. Read *Goldilocks and the Three Bears*.
2. Show the question word *who* and ask who this story was about. Place the picture of Goldilocks under the word *who*.
3. Continue the discussion with each *Question Word Card* and corresponding picture.
4. Show children the *Show and Teach Bucket* and explain that there is something inside. The only way they can find out what is inside is by asking questions.
5. Each time a student asks a question using a question word, write the student's name on a sticky note and place it on the question word that s/he used. Continue until there have been several questions asked, placing names on the question words as you go along.
6. Send the *Show and Teach Bucket* home with a student and explain that when it comes back they will ask questions again to see what is inside.

Curriculum Extensions/Adaptations/Integration

- Anytime a student asks a question pertaining to a lesson you are presenting, place his/her name on the question word s/he used. Students soon become aware of question words and continue to use them in the learning process.

Resources

Book

Activating and Engaging Habits of Mind, by Arthur Costa and Bena Kallick; ISBN 0-87120-369-3

Organizations

Developing "I Can Do It!" Kids, Integrated Strategies Program, Pat Beckman USOE

Integrated Strategies Program, Contact Pat Beckman, USOE, beckman@exolo.com 801-255-0791.

Family Connections

- Notify parents of the activities that have been used in class. Encourage them to be aware of situations where their children could ask questions and help them to use appropriate question words to find out more information.

The Three Bears Rap

(Snap fingers in rhythm while singing the jazz version.)

Once upon a time in the middle of the woods, there lived three bears.
One was the papa bear, and one was the mama bear, and one was the wee bear.
One day they took a walk in the de-ep woods,
along came a little girl with lo-ng curls.
Her name was Goldilocks and upon the door she knocked, but no one was there.

So she went right in, made herself at home, cause she didn't care.
Then home, home, came the three bears.
"Someone's been eating my porridge," said the papa bear.
"Someone's been eating my porridge," said the mama bear.
"Hey, papa-ree bear," said the little wee bear, "Someone has eaten my soup, soup, boop boopy doop."

So they went into the front room.

"Someone's been sitting in my chair!" said the papa bear.
"Well, someone's been sitting in my chair!" said the mama bear.
"Hey, papa-ree bear," said the little wee bear, "Someone has broken my chair, chair!"
Poor little bear.

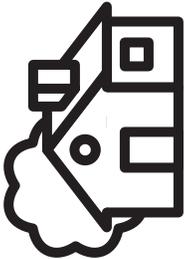
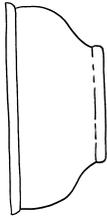
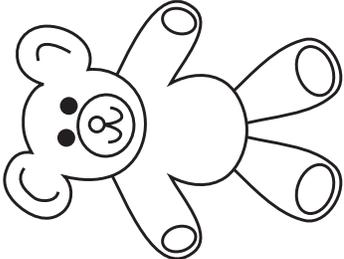
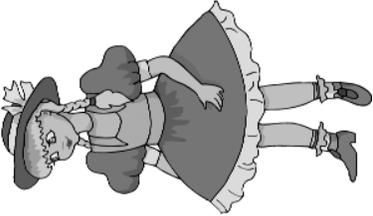
So they went upstairs.

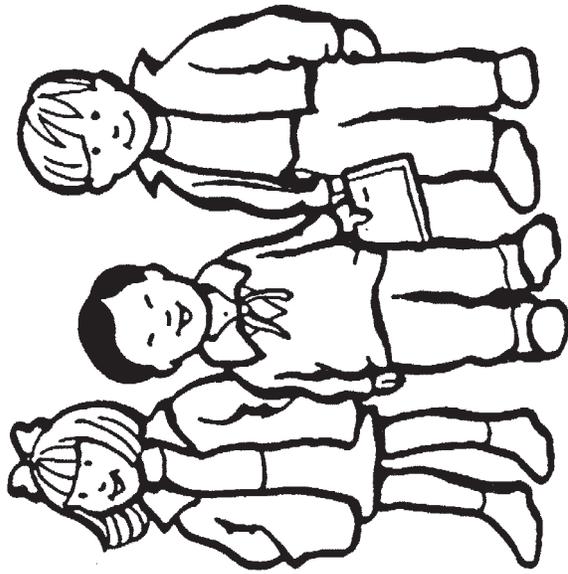
"Someone's been sleeping in my bed," said the papa bear.
"Well, someone's been sleeping in my bed," said the mama bear.
"Hey, papa-ree bear," said the little wee bear, "She's there, there, what do I care?"
Goldilocks woke up and screamed, "Ahhhhhhhhhh!"
She ran away as fast as she could.

"Good-bye, good-bye, good-bye," said the papa bear. (wave)
"Good-bye, good-bye, good-bye," said the mama bear. (wave)
"Hey, papa-ree bear," said the little wee bear, "Dig ya later!" (hold up a thumb)

And that's the story of the three bears, the three bears! (make your voice go deep on the second "three bears")

Question Word Cards

		
where	what	why
		
who	when	how



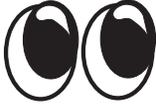
Show and Teach Bucket

Rules:

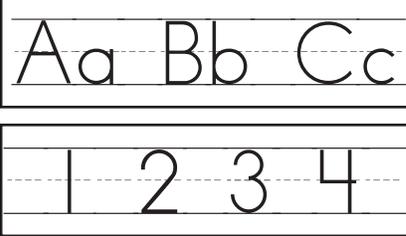
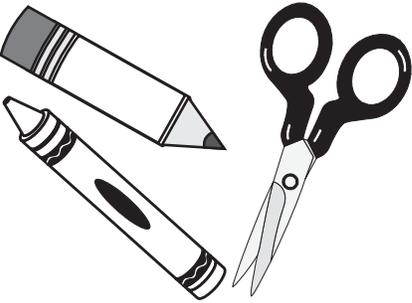
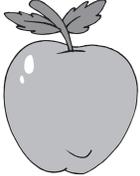
1. Only one item!
2. No toys!

Your child should come prepared to give the class three clues about the item. The children will have an opportunity to ask questions before the item is shown. This helps develop the ability to think, ask questions, speak before a group, and analyze information. Please help us follow these guidelines so it will be a positive experience for all of us. Thanks for your help.

Kindergarten Strategies

Visualize		Verbalize	
Finger Point		Sound Out	
Make Sense		Ask Questions	
Check		Associate	
Chunk			

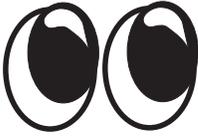
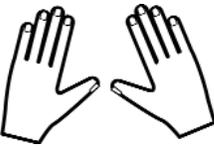
Self Monitoring and Evaluation (SME)

Behavior	Accuracy	Quality
<p>On Task</p>   <p>Rug</p>	 	<p>Colorful</p>  <p>Careful</p>  <p>Detailed</p> 

Check My Work

Colorful				
Careful				
Detailed				

Rules for Good Listening

1. Eyes are watching	
2. Ears are listening	
3. Lips are silent	
4. Hands are still	
5. Feet are quiet	

What do you do when you don't know a word?

	Point to the word.
	Look at the beginning letter.
	Get your mouth ready to say the sound of that letter.
	Look at the picture.
	Ask yourself, "Did what I read make sense?"
	Re-read.

***Math
Standard
II-1 & 2
Activities***

Patterning With P's

Standard II:

Students will identify and use patterns to represent mathematical situations.

Objective 1:

Identify and sort objects according to common attributes.

Objective 2:

Identify and use patterns to describe numbers or objects.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
5. Understand and use basic concepts and skills.

Content Connections:

Math I-1, V-1; Health I-1; Language Arts I-1

Math Standard II

Objectives 1 & 2

Connections

Background Information

Patterning activities are connected to the basis for all mathematical understandings. Math is largely a process of patterning. In these activities, students use things familiar to them (e.g., themselves, pasta, pattern blocks, pizza toppings, etc.) to demonstrate their understanding of the patterning concepts being presented.

Patterning experiences ranging from simple (e.g., AB) patterns to more complex and complicated patterns (e.g., AAB, ABB, etc.) will be offered using manipulatives.

Research Basis

Burns, M., (2002). *Math Solutions Newsletter*. Marilyn Burns Education Associates.

“We can think of the value of firsthand experience for learning mathematics. Math has many areas—patterns, measurement, geometry, statistics, probability, and more—and they’re often unfamiliar, abstract, and confusing to students. We need to help children develop the ability and confidence to find their way around in each of these areas, see how they connect, and know what to do should they forget a fact or procedure.”

Manipulatives build students’ confidence by giving them a way to test and confirm their reasoning. Using manipulatives as tools for problem solving allows a child to build a concrete model to use to solve problems.

Piaget, J., & Inhelder, B. (1967). *The Child’s Conception of Space*. New York: W. W. Norton.

Based upon Piaget’s theory of developmental stages and the processes by which children progress through them, manipulating objects to discover ideas is critical to understanding. “Teaching means creating situations where structure can be discovered.”

Holt., J. (1995). *How Children Learn*. Addison-Wesley Longman, Incorporated.

Dr. John Holt's book, *How Children Learn*, specifies the need for children to have opportunities for free and unguided exploratory work. Given materials, the children must have time to explore similarities, differences, patterns, and relationships between items. He states, "We teachers like to think that we can transplant our own mental models into the minds of children by means of explanations. It can't be done."

Baratta-Lorton, M. (1995). *Mathematics Their Way*. Center for Innovation in Education, Menlo Park, CA.

"By working with patterns, children begin to make sense of their world. Once children begin understand and trust the notion of pattern, they begin to see patterns in other areas: number sentences, reading (e.g., word families and spelling), art and music.

Assessment Suggestions

- Students respond appropriately to group learning sessions.
- Students show that they are learning the pattern relationships by creating patterns using a wide variety of manipulatives.
- Observe children and make anecdotal notes as to their ability in finding and explaining patterns in their environment.
- Keep a class list and record observations when children demonstrate their understanding and competency with certain patterns.

Invitation to Learn

People Patterns

To introduce patterning at the kindergarten level, recognize and talk about patterns using, colors, shapes, and size. Using several lesson sessions as needed, begin by selecting a few students to come to the front and stand in an ABAB pattern, probably girl, boy, girl, boy to begin with. Ask for student responses to identify the pattern, and give it a name. Have each student hold a sign with an A or B posted on it. Move from more simple patterns to some that are less obvious (e.g., sandals, shoes, hair color differences, tall, short, kneeling, standing, shorts, long pants, etc.). Read the pattern with the children. Ask for a volunteer to create a pattern for the class to solve and let the class identify what makes it a pattern. After the ABAB patterns have been established, use the students and their attributes to move into more complex patterns.

Instructional Procedures

Patterns all around us

1. Introduce a few items from the bag of patterned things you've gathered, and then share the book, *Pattern*, by Henry Pluckrose.
2. Take a pattern walk. With an adult leader, children move in small groups to find objects in the school and outside that show a pattern. Take a photo of several patterns that were identified.
3. Invite the children to search for patterns around their own environment and bring in some samples. Allow them to share, then post samples on a bulletin board and/or build a class book.
4. Provide frequent opportunities for children to “read” their patterns and point out the type of patterns they see.

Pasta Patterning

1. Using an assortment of larger dry pasta pieces, allow the children to sort, explore, and compare the pasta. Vary choices by providing pasta colored in two to four different colors.
2. Select two varieties of pasta and begin making the ABAB patterns. Using dark colored paper, make a sampler of the patterns extending to 20, and “read” the patterns.
3. Extend this activity to include experiences with other patterns using more than two types of pasta (e.g., AAB, AAB; or ABBA, ABBA, etc.).
4. Use the pasta to demonstrate a pictorial representation of numbers from 1-10 by gluing pasta pieces onto large cutouts of each number. Make into a book.
5. Make pattern necklaces using either/both colored and natural pasta pieces suitable for stringing onto yarn.

Pattern Block Patterning

1. Scoop and sort: Take a two-handed scoop of pattern blocks, sort them by shape, and place matching shapes in separate sections of a Styrofoam sectioned tray.
2. Train patterns: Use two shapes and make a train pattern. Name the pattern (e.g., ABAB or AABBA, etc.). Now use three different shapes in an ABC pattern; continue making shape trains that use the three shapes in different patterns.
3. Pattern strips: Match the pattern blocks to the shapes on the page.

Materials

- Bag or box of assorted patterned items (e.g., fabric, wrapping paper, patterned ribbon, etc.)
- Pattern*
- Classroom items (e.g., chair, pencils, erasers, markers, etc.)
- Digital or disposable cameras (one for each group)
- Manipulatives (e.g., cubes, blocks, colored beads, magnets, foam shapes, finger-sized cereals, pattern blocks, etc.)

Materials

- Uncooked pasta assortment (e.g., wagon wheels, elbow, rigatoni, fettuccine, shells, bow ties, corkscrews, etc.)
- Yarn or string
- Sorting Pasta on a String* worksheet

Materials

- 1” graph paper

Materials

- Cardboard pizza rounds in 3 sizes
- Pizza boxes
- Red construction paper
- Yellow yarn
- Pizza Parts*

Pizza Patterning

1. Color, cut, and then use *Pizza Parts* patterns for peppers, olives, mushrooms, pepperoni, and pineapple to sort toppings.
2. Make a pattern with two or three of the above toppings and arrange it in a spiral pattern beginning at the outer edge of a pizza circle and ending in the center.

Curriculum Extensions/Adaptations/Integration

- *Pasta Dominoes*.
- *Sorting Pasta* activities.
- *Counting Noodles* counting activity.
- Create pasta collage art with patterning and/or free form arrangements.
- Cut & paste patterns: Use the paper pattern block designs to record patterns made from the above activities.
- Stamp patterns: Use the pattern block stamps to recreate patterns made with the blocks.
- Surround Patterns: Begin with a yellow hexagon in the center. Add 6 of the same shape on each side of the hexagon. Then add 6 more to the ends, and so on until you have a symmetrical design.
- Small, Medium or Large? Use pizza rounds and boxes to determine three sizes of pizza available.
- Food activities: Make individual pizzas using English muffins, pizza sauce pepperoni, and grated cheese.
- Continue with patterning activities using the following: rhythmic clapping, Unifix® cubes, pattern attribute blocks, and popcorn (popped, unpopped, and/or Styrofoam peanut popcorn), numbered cards, and ABC cards.

Resources

Books

Pattern, by Henry Pluckrose; ISBN 0-590-06259-X

I See Patterns, by Linda Benton; ISBN 0-916119-97-1

A Pair of Socks, by Stuart Murphy; ISBN 0-590-06259-X

Mr. Noisy's Book of Patterns, by Rozanne Williams;
ISBN 0-916119-96-3

Web sites

Ask Dr. Math

<http://mathforum.com/dr.math>

Figure This! Math Challenges for Families <http://www.figurethis.org>

Math Steps

<http://www.eduplace.com/math/mathsteps/index.html>

Family Connections

- Include information about patterning in newsletters and communication with parents. Ask them to help students notice patterns in the world around them, and listen to them as they identify the patterns wherever they go.
- Request families to share books, puzzles, and games that have particular patterning activities.
- Send home *Pattern Mats* for practice at home.
- Send home the student made patterning projects and encourage children to “read” patterns with their families.

Pattern Mat 1

This is a pattern mat. Please help me sort two items into these patterns.
What would come next as the pattern continues?

A B A B A B A

A A B A A B A

A A B B A A B

Name _____

Pattern Mat 2

This is a pattern mat. Please help me sort a group of items with three to four types using these patterns. I can also make my own patterns—let me show you some of my ideas!

A B C A B C A B

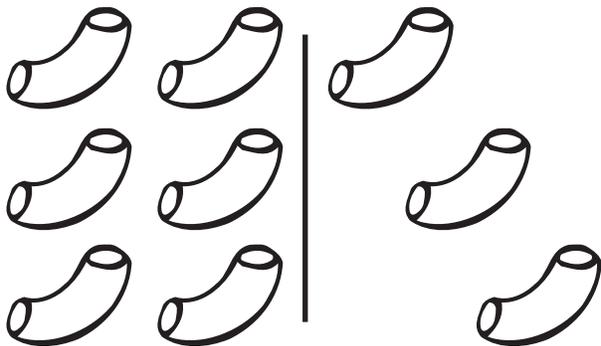
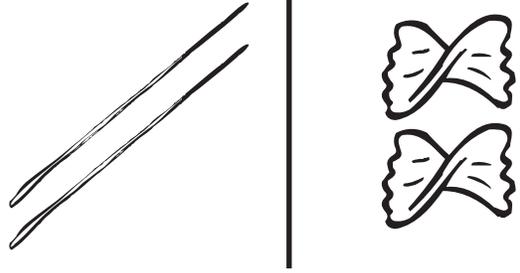
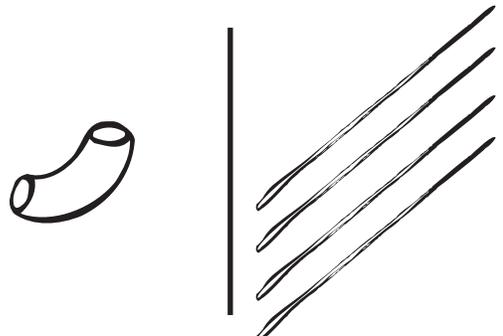
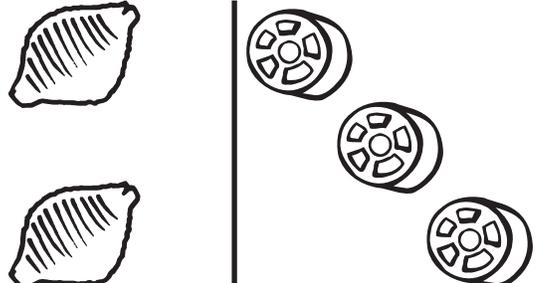
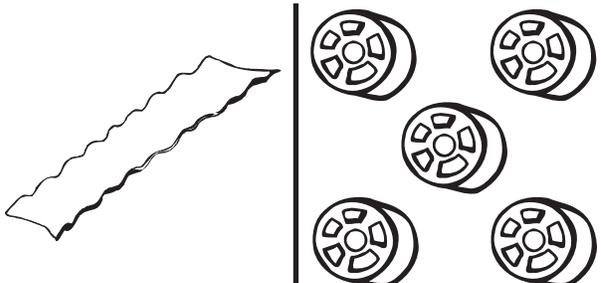
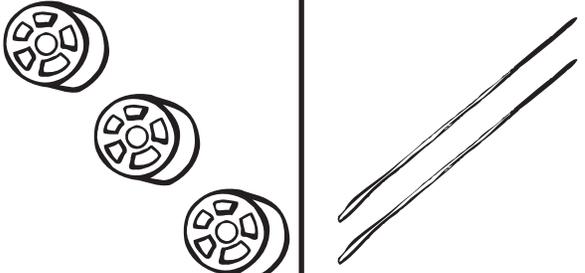
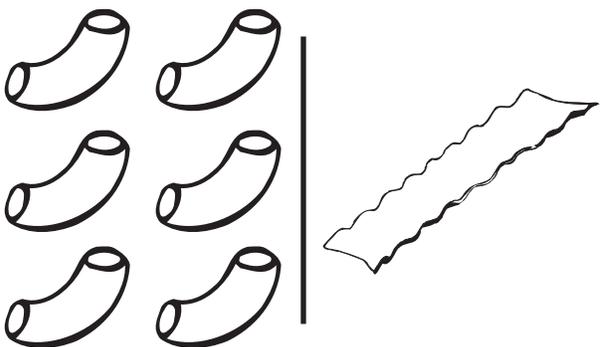
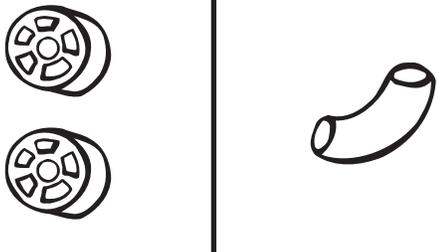
A A B B C C A A

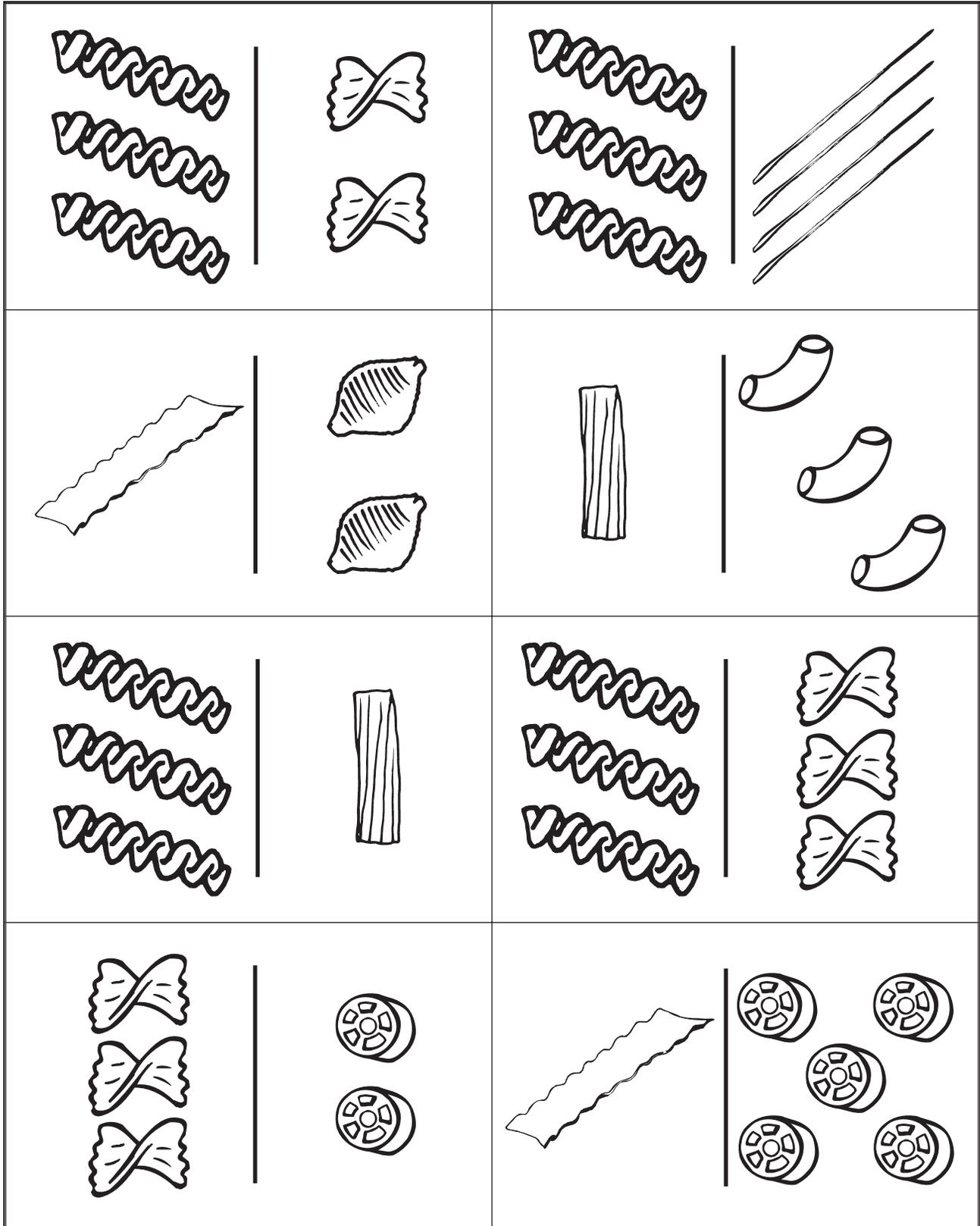
A B C D A B C D

Pasta Dominoes

<p style="text-align: center;">Pasta Dominoes <i>Count, Match & Learn</i></p> <p>A game of dominoes builds skills with counting and visual matching. Players match either the type of pasta played by the previous player, the number of pasta pieces, or both the type and the number (e.g., 5 wagon wheels to 5 wagon wheels).</p>	<p style="text-align: center;">Pasta Dominoes <i>Count, Match & Learn</i></p> <p>A game of dominoes builds skills with counting and visual matching. Players match either the type of pasta played by the previous player, the number of pasta pieces, or both the type and the number (e.g., 5 wagon wheels to 5 wagon wheels).</p>
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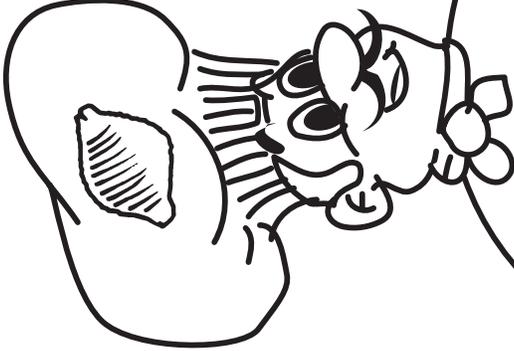
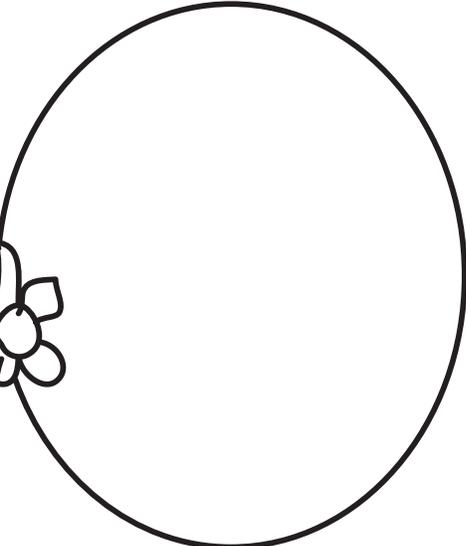
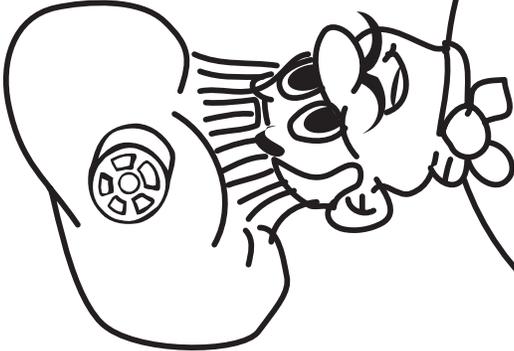
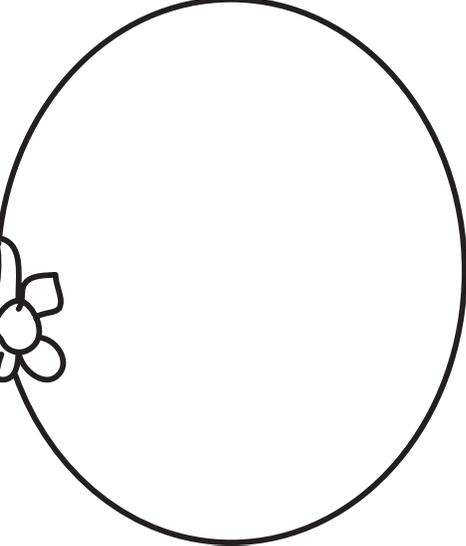
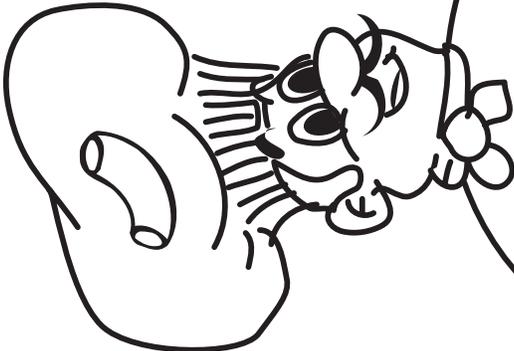
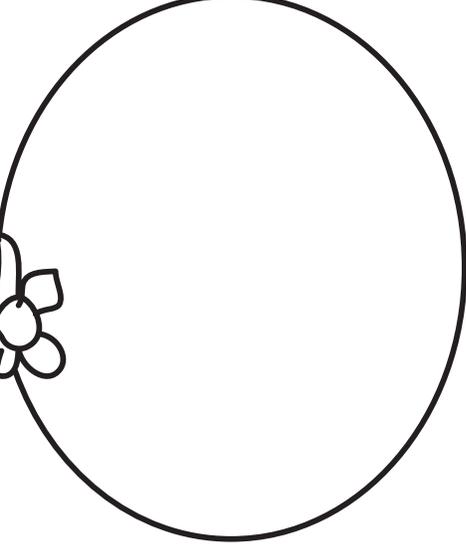
Pasta Domino Cards



Name _____

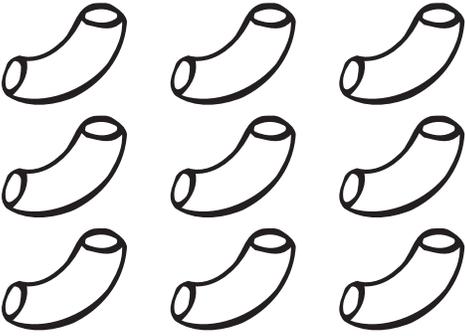
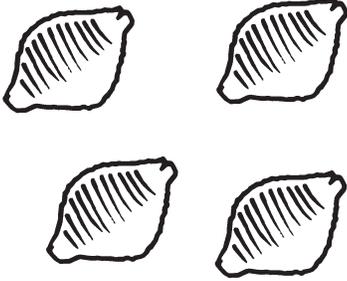
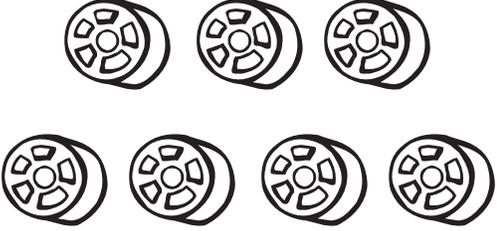
Sorting Pasta

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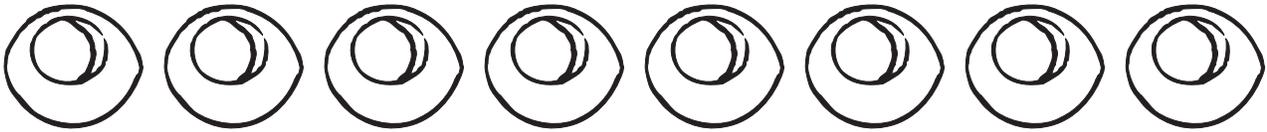
Counting Noodles

Count the pasta in each box. Circle the correct number.

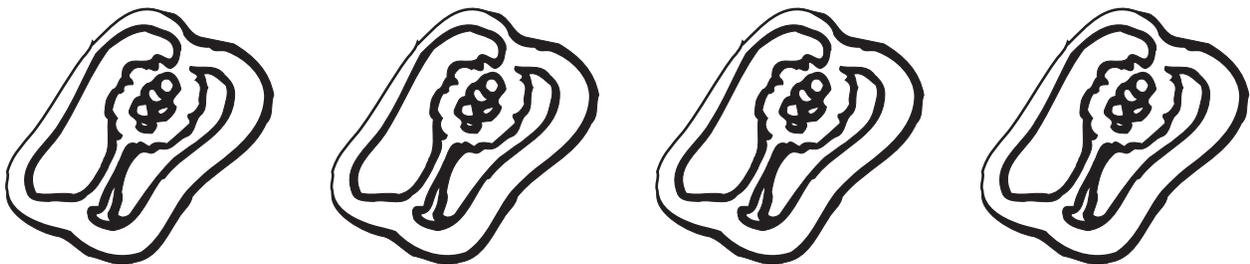
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 <p>9 10 11</p>	 <p>4 5 6</p>
 <p>4 5 6</p>	 <p>6 7 8</p>

Pizza Parts

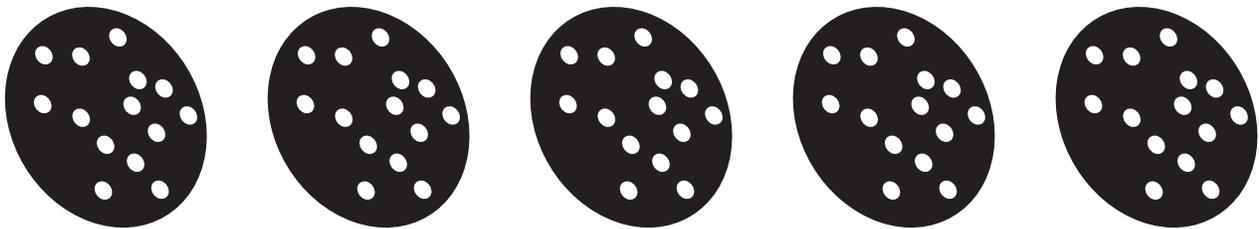
olives



green pepper



pepperoni



pineapple



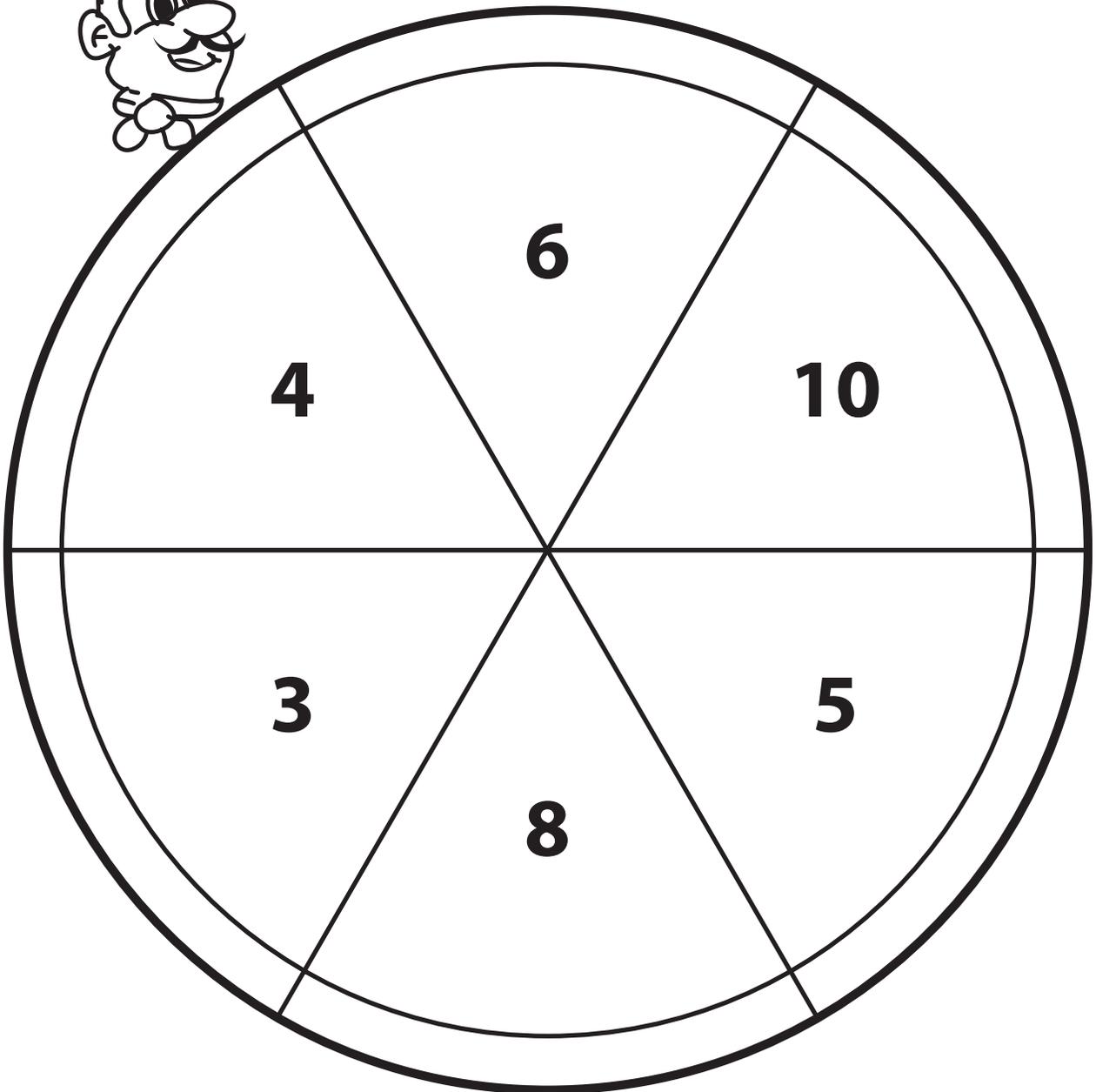
mushrooms



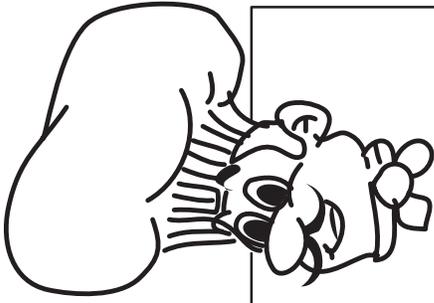
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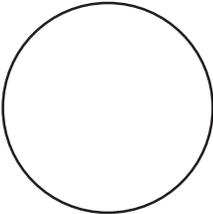
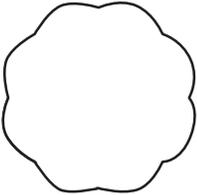
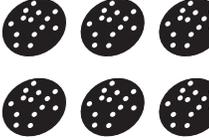
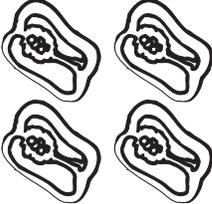
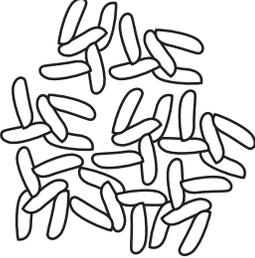
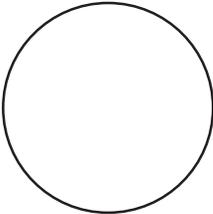
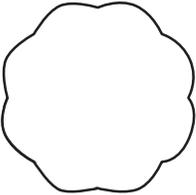
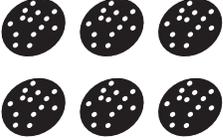
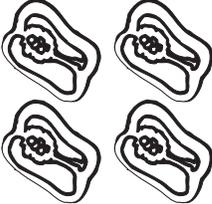
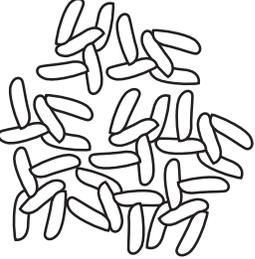
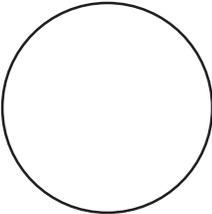
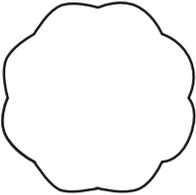
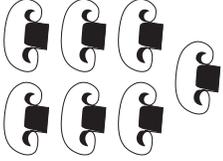
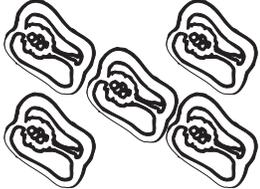
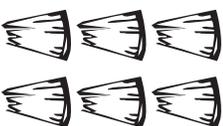
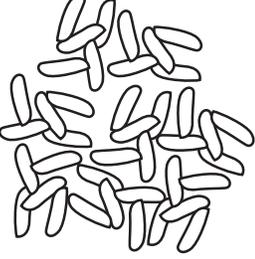
Arrange a Pizza

Read the numeral. Make a set to match.



Pizza Making Sequence

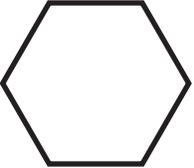
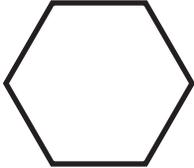
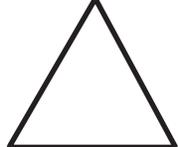
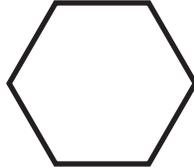
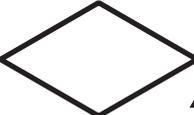
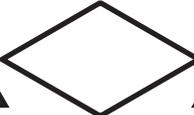
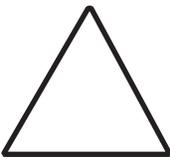
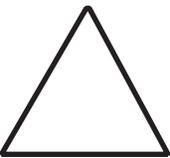
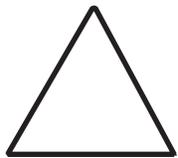
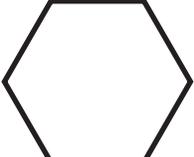
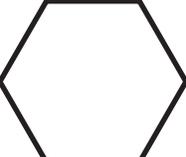
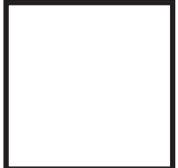
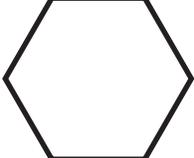
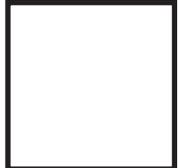
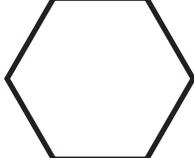


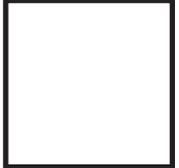
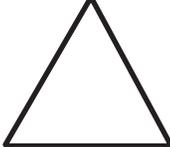
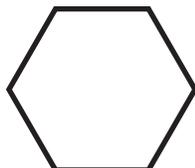
Pepperoni	 crust	 sauce	 6 pepperoni	 4 mushrooms	 4 green peppers	 8 olives	 cheese
Supreme	 crust	 sauce	 6 pepperoni	 4 mushrooms	 4 green peppers	 8 olives	 cheese
Vegetarian	 crust	 sauce	 7 mushrooms	 5 green peppers	 6 olives	 6 pineapple	 cheese

Name _____

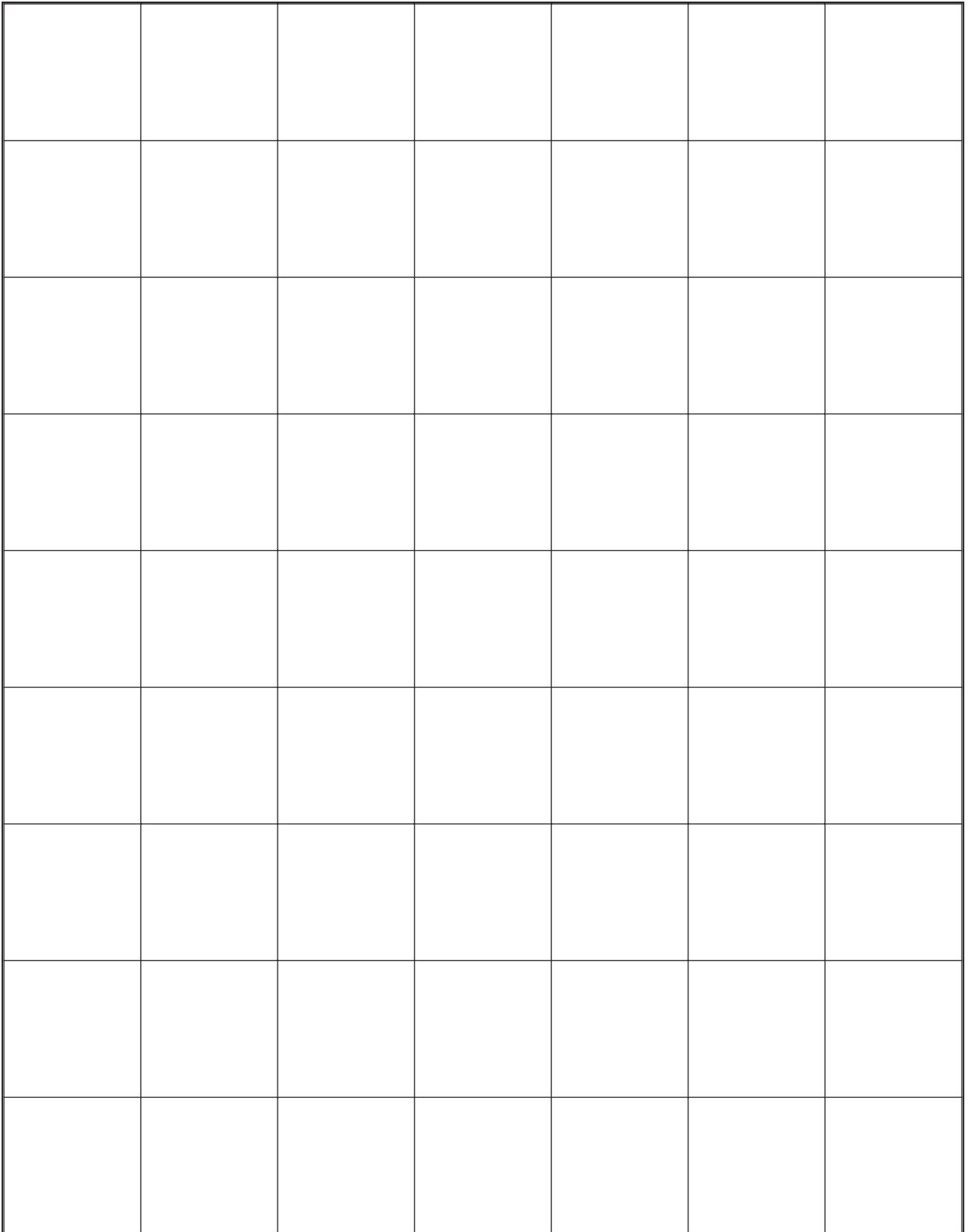
Pattern Blocks

Cut, color, and glue to finish the pattern.

				
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1" Graph Paper



***Content
Standard
II-3
Activities***

“Hello’s” Heard Around the World

Standard II:

Students will develop a sense of self in relation to families and community.

Objective 3:

Express relationships in a variety of ways.

Intended Learning Outcomes:

2. Develop social skills and ethical responsibility.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts VI-1; Content II-1

Content Standard II

Objective 3

Connections

Background Information

This activity focuses on the different cultural languages spoken throughout the world. Students will learn how to say, “Hello” in five different languages—Spanish, Portuguese, French, Swahili, and Japanese. (Adjust this to the diversity of the students in your class or area you wish to study.) Just as there are differences in the way we look around the world, there are also differences in the way we speak. All over the world children speak many different languages.

Mexico: Spanish is Mexico’s official language, but Mexicans have their own way of using and pronouncing common Spanish words. They often use the special endings, such as *ito* or *ita*. These endings show that something is special or loved. Like *abuelo* (grandfather) would be *abuelito* (dear grandfather). There are at least one hundred native languages spoken throughout Mexico.

Tanzania Africa: Swahili is the official language spoken by most people in Tanzania. But for many, it isn’t their first language (the language they speak at home). Each ethnic group has its own language, so Tanzania has more than one hundred languages. English is also an official language of Tanzania. It is used in business, government, and education.

France: Everyone in France speaks French, even though many people come from other countries and ethnic backgrounds. The French are very proud of their language. They even have an organization, Académie Française, whose main purpose is to protect the French language. French is spoken in more than 20 other countries. It is an international language.

Brazil: Brazil’s national language is Portuguese. Portuguese is a romance language, which means it evolved from Latin. Brazilian

Portuguese is pronounced a little differently than Portugal's Portuguese and uses some different words, many of which are African. Immigrant groups speak their own languages, too, as do the native peoples.

Japan: Japanese is the language spoken by people from Japan. English is taught in all secondary schools and is often used in business. The first page of a Japanese book is what Americans consider the last page. In other words, Japanese books are read from “back” to “front.” Japanese is written in a line from right to left and from the top of the page to the bottom. The Japanese also use several alphabets. Japanese people place great worth on nonverbal language or communication—much can be said with a bow.

Research Basis

Dubin, F; (1975) An Overlooked Resource for English Language Teaching: Pop, Rock, and Folk Music. CATESOL Occasional Papers, NO.2 (ERIC Education Resource Information Center) ED 126673

This research discusses the use of pop, rock, and folk music in foreign language teaching. Songs can be used as presentation contexts, as reinforcement material, and for cultural education. Songs can teach phonological patterns, grammar, and even repetition.

Soy, R. H.; (1975) Bilingual Education through Music (ERIC Education Resource Information Center) ED 141473

The purpose of this study is to design a bilingual/bicultural kindergarten course of study based on the concepts of Richards Education Through Music Method. This method is rooted in the Hungarian composer-educator Zoltan Kodaly's educational philosophy and was developed in the U.S. by Mary Helen Richards. This is a method of teaching all areas of the curriculum through musical activities.

Assessment Suggestions

- Have students predict where each child in the pictures might live.
- Have students verbally repeat “hello” in each language as you say it.
- Students participate in singing the song.
- Have students share the countries of origin of their ancestors.
- Students walk around the classroom and greet someone with a handshake and say “hello” in a language they just learned.

Invitation to Learn

As students walk into the room, greet them in a language other than their own.

Display flags and pictures of children from the countries you are learning about.

Instructional Procedures

1. Show students pictures of children from the different parts of the world.
2. Point out on a map or globe where each country is located as you introduce the pictures.
3. As you look at the children from other parts of the world, discuss some of the visual differences (e.g., clothes, hair color or styles, skin color, etc.).
4. Invite the students to discuss the differences that may be present in their own classroom. Lead the discussion back to the pictures and the different parts of the world.
5. Explain that the children in the pictures not only have differences that we can see, but that they also have differences in the languages that they speak.
6. Ask the students these questions:
 - What language do we speak in our classroom?
 - What language do you speak at home with your family?
 - What language do you think students in Japan speak?
7. Show the students the *Word Strips* with “Hello” written in different languages.
8. Read each word strip and have students repeat after you.
9. Ask the students to help you place the corresponding word strip of each language above the pictures of the children from around the world by asking, “Which child do you think say’s ‘Hello’ like this.....?”
10. Place each *Word Strip* under the correct picture of each child.
11. Have students practice saying, “Hello” in each language.
12. Using the second set of *Word Strips* and the chart, teach the song *This Is The Way We Say Hello* (tune Here We Go ‘round the Mulberry Bush).

Materials

- Pictures of kids from around the world
- 2 copies of *Word Strips* (laminated)
- Chart of *This is the Way We Say Hello*
- Masking tape
- Map or globe of the world

13. Change the *Word Strips* for each country and sing the song again using the new language.

Curriculum Extensions/Adaptations/Integration

- Copy “Hello” in the various languages in your writer’s notebook.
- Draw illustrations of what you think children from other cultures would look like singing this song in their language.
- Learn to say a phrase in another language (e.g., Hello how are you today?).
- Learn a new song in another language.
- Graph the different languages spoken in your classroom, school, and family. Draw a picture of the national flag of each country represented.
- Listen to music pieces from each country and use instruments to follow the beat.
- Learn a traditional dance from another culture.
- Listen to music from other cultures and create your own dance moves according to how the music makes you feel.
- Make instruments or dance props from other cultures (e.g., drums, ribbon sticks, grass skirts, shakers, etc.).

Resources

Books

Hello World, by Fran Manushkin; ISBN 1-56282-059-1

Hello, by Betsey Chessen and Samantha Berger;
ISBN 0-439-04560-6

Children Just Like Me, by Barnabas and Anabel Kindersley;
ISBN 7894-0201-7

What is Your Language?, by Debra Leventhal ISBN 0-525-45133-1

Web site

<http://culturegrams.com>

Additional Media

Children of the World Poster Pack (available from Lakeshore Learning Materials, <http://www.lakeshorelearning.com>); Item# LC936

Can a Jumbo Jet Sing The Alphabet? CD, by Hap Palmer (available from <http://www.happalmer.com>); Item# HP110

Family Connections

- Send home words to the song so that students can share/teach it to family members.
- Ask families to share or write down how to say hello in other languages they may know to share with the class.
- Graph how many languages members of your family know.
- Listen to music from other cultures.

Word Strips

<p>English</p>	<p>Hello</p>
<p>Spanish</p>	<p>Hola (OH-lah)</p>
<p>Swahili</p>	<p>Jambo (JAH-mboh)</p>

<p>Bon-jour (BONE-zhure)</p>	<p>French</p>
<p>Oi (OY)</p>	<p>Portuguese</p>
<p>Konnichi wa (ko-KNEE-chee wah)</p>	<p>Japanese</p>

“This is The Way We Say Hello”

(Tune: Here we go round the mulberry bush)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **English** language (**Hello**)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **Spanish** language (**Hola!**)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **Swahili** language (**Jambo**)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **French** language (**Bon-Jour**)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **Portuguese** language (**Oi**)

This is the way we say hello
Say hello, say hello
This is the way we say hello
Hello in the **Japanese** language (**Konnichiwa**)

Retelling the African Folktale *Abiyoyo*

Standard II:

Students will develop a sense of self in relation to families and community.

Objective 3:

Express relationships in a variety of ways.

Intended Learning Outcomes:

2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts I-1 & 2; Content I-3

Content Standard II

Objective 3

Connections

Background Information

This activity focuses on retelling and performing a story from a different culture. When retelling a story to someone else, it is important to have the sequence and all parts to the story in correct order. The beginning of a story generally tells who the characters in the story are and what the problems may be. The middle generally explains what attempts were made to solve the problems, and the end generally has the solution to the problems or what the results may be and how the story ends. For this activity, students should be familiar with the story so that they can easily retell it as they role play the characters. As you are preparing to retell/role play the story, you will need to discuss the main characters the students will be portraying and decide what simple props, if any, may be helpful in telling the story.

The foreword of *Abiyoyo* talks about the art of taking a story and making it your own as you retell it. You may want to read the foreword and decide what parts, if any, you want to share with your students.

Research Basis

Rimaly, B.K.; (1999) Increasing the Literacy Growth of Kindergarten Students through Developmentally Appropriate Emergent Literacy (ERIC—Education Resource Information Center) ED 436761

Using integrated thematic units that incorporates emergent literacy instructional strategies like read alouds, story retell using props, shared reading, acquisition of vocabulary, music, art, and writing activities enhances learning.

Marjanovic-Umek, L., Kranjc, S., Fekonja, U.; (2002) Developmental Levels of the Child's Storytelling. (ERIC Education Resource Information Center) ED468 907

Storytelling skills of children between four and eight years of age can provide insights into the child's overall language development. This study explored the development of children's storytelling, using story coherence and story cohesion to evaluate the developmental level of the child's storytelling.

Assessment Suggestions

- Observe to see that the whole class is participating in the retelling/role playing of the story.
- Have students verbally identify the characters in the story.
- Have students help make a list or determine what simple props would be useful in the telling of the story.
- Write about or illustrate your favorite part of the story in your writers notebook.
- Draw illustrations of the main characters in the story.

Invitation to Learn

Come to class dressed as a character from a familiar story or nursery rhyme. Read a story about your character and invite students to play along with you and pretend to be other characters.

Instructional Procedures

Materials

- Abiyoyo* (listening tape optional)
- Props: ukulele, hat (optional), magic wand, drinking cup, chair, saw and block of wood, sun made of red paper, finger nails, sheep and cow (puppets or stuffed animals)
- Name tags (you may want to have the kids draw illustrations of each character instead of labeling them)
- String

1. Tell students they are going to be actress and actors today as they help you retell the story of *Abiyoyo*.
2. Read *Abiyoyo* or listen to the tape.
3. Discuss and identify the main characters of the story and write them on name tags for the actors/actresses to wear.
4. As a class, gather the props or make the scenery you want to use for the retelling.
5. Assign each student a part in the retelling/role playing. Everyone should have a role, either as characters or prop helpers.
Characters/prop helpers: father, son, person drinking water, person sitting on chair, person sawing wood, big red sun (optional), *Abiyoyo*, cow, sheep, and the remaining students as townspeople.
6. Arrange room as you see fit and pass out props to students.

7. Retell/role play the characters and actions of the story as teacher/student retells the story using the book as a guide.

Optional—Videotape the students role playing the story to watch as a class at a later time. (Check district policy on videotaping students.)

Curriculum Extensions/Adaptations/Integration

- Allow students to use instruments to keep a beat and rhythm as you sing the song, *Abiyoyo*, found in the back of the book.
- Use skills as a creative dancer and move like you think Abiyoyo did in the story.
- Add a second verse to the song. Make up words that could describe Abiyoyo or how the townspeople felt as he was coming over the mountain.
- In your writer's notebook, draw an illustration of Abiyoyo and what you think the faces of the townspeople looked like when they first saw him.
- Write about what you would say if you saw Abiyoyo in your town.
- Make a storyboard of *Abiyoyo* to share with others by drawing illustrations for the beginning, the middle, and the end of the story.
- Working in cooperative groups, have students create a group storyboard by illustrating the beginning, middle, and end of other stories.
- Make a picture map of the town and its surrounding area where Abiyoyo lived.

Resources

Books

Abiyoyo, by Pete Seegar; ISBN 590-42720-2

Anansi the Spider, by Gerald McDermott; ISBN 0590-47340-9

The Legend of the Indian Paintbrush, by Tomi dePaola;
ISBN 0-590-44706-8

Why Mosquitoes Buzz in Peoples Ears, by Verna Aardema;
ISBN 0-590-10294-x

Tikki Tikki Tembo, by Arlene Mosel; ISBN 0-8050-0662-1

Zomo the Rabbit: A Trickster Tale from West Africa, by Gerald
McDermott; ISBN 0152010106

Web sites

<http://www.earlychildhood.com/Articles>

<http://culturegrams.com>

Family Connections

- Invite parents to come watch as you retell/role play the story.
- Allow each child to check out *Abiyoyo* for one night to read with family members.
- Retell/role play another familiar story with family members.
- Make a book at home of other retellings and have parents dictate your story. Share with the class.
- Videotape your family retelling a story and share it with the class.
- Send home a book with the materials to make a storyboard. Bring the storyboard back to school and share with the class.
- The father in the story was a magician. Practice a magic trick you know and share it with your family.

Abiyoyo Storyboard

Abiyoyo Storyboard

Maori Stick Game

Standard II:

Students will develop a sense of self in relation to families and community.

Objective 3:

Express relationships in a variety of ways.

Intended Learning Outcomes:

2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Content I-2 & 3; Math V-1

Content Standard II

Objective 3

Connections

Background Information

Students should have an understanding of what culture means and what it represents. Culture is a way of living. It can be your beliefs, a form of art or dance, and/or certain traditions or customs of a group of people. Each culture has certain traditions and cultural activities that we may learn and participate in as we live in that culture. This particular activity comes from the Maori culture. The Maori people live in the New Zealand area and make up about 15 percent of the population. This activity is a traditional game played by children and adults in the Maori culture called Maori Stick Game. It has been said that in olden times, stick games such as this helped train young men in spear fishing and handling a spear. This game has changed and been adapted by many other cultures throughout the world. Students will play an adapted, simplified version of the Maori Stick game.

Research Basis

Suther, L., & Larkin, V. (1996). Early Childhood Arts Games (ERIC Education Resource Information Center) ED403-056

The arts are central to quality early childhood programs. Using games, music, dance, and movement help develop physical skills such as coordination, jumping, and ball handling. Cognitive skills such as language development, problem solving, and social skills (cooperation, sharing, and group negotiation) are enhanced through the arts.

Snyder-Sowers, M.A., & Kariuki, P. (1997). Effects of Creative Dance Movement Taught in a Holistic Integrated Approach versus Creative Dance Movement Taught in Isolation. (ERIC Education Resource Information Center) ED 432551

This study examined whether there were any significant differences in academic performance between students taught creative dance movement in a holistic integrated approach versus those taught creative dance movement in isolation.

Wang, J.H.T. (2003). The Effects of a Creative Movement Program on Motor Creativity of Children Ages Three to Five. (ERIC Education Resource Information Center) ED 479276

This study investigated the effects of a creative movement program on the motor creativity of Taiwanese preschool children, hypothesizing that there would be no significant difference in the motor creativity between children participating the creative movement program and those in the control group.

Assessment Suggestions

- Show students a picture of a Maori warrior. Ask them who they think this man/warrior might be. Where do they think he lives? Students predict what they might do with the rhythm sticks.
- Observe the students to see that everyone is participating in the activity.
- Watch for students who may need help finding the rhythm of the game, monitor their progress, and assist as needed.

Invitation to Learn

Display a picture of a Maori warrior and the rhythm sticks. Ask the students to think of ways that you could use the rhythm sticks. Students will be using the sticks to play an old traditional Maori game that the Maori warriors played to practice their spear handling skills.

Instructional Procedures

1. Discuss where the warrior pictured is from. Locate New Zealand on the map or globe.
2. Show students the rhythm sticks they will be using for the game.
3. Play a portion of the song *E Papa Waiari* and let the students listen to the music.
4. Have students sit on the floor with their legs crossed. Practice keeping a steady beat (3 counts) by tapping their legs, floor, etc.
5. Give each student two rhythm sticks and show them how to hold them vertically with their hands on the lower bottom portion of the sticks.

6. Explain each move and its name. Call out moves while students practice.

down—hitting both sticks on the floor at the same time

tap—hitting the tips of the stick on the floor in front of you

click—gently hitting sticks together at the tips

together—gently hitting both sticks together flush

cross click—gently hitting the tips of your sticks together making an X, alternate each hit with right on top left on top (quickly)

7. Practice the various pattern combinations until the students are comfortable with the moves:

Combination A

down—hit both sticks on the floor in front of you (1 count)

tap—hit the tips of one stick on floor in front of you alternate right hand left hand every other turn (2 counts)

Combination B

down—both sticks on the floor in front of you (1 count)

together—gently hitting both sticks together flush (2 counts)

Combination C

cross click—gently hit the tips of your sticks together making an X, alternate each hit with right on top left on top (12 fast counts)

Combination D

down—hit both sticks on the floor in front of you (1 count)

click—gently hitting sticks together at the tips alternate right hand, left hand every other turn (2 counts)

resting spot—a designated place to put your sticks when they should not be making noise (both sticks resting on knees)

8. Play the music again. Practice each of the patterns numerous times until students are comfortable. Have the students sit facing a partner (leaving enough space to hit the floor in front of them).
9. Practice patterns A, B, C, and D with the music. As students become proficient, have them gently tap a partner's stick as they do pattern A instead of tapping the floor.
10. Follow the patterns and counts on the chart as the music plays.

Materials

- 2 sticks per child (you can make sticks with inch PVC pipe found at most hardware stores)
- Music for *E Papa Waiari*
- Maori Stick Game*
- Map or globe
- Picture of Maori Warrior

Curriculum Extensions/Adaptations/Integration

- Students make up their own rhythms for hitting the sticks.
- Practice hitting the sticks to a beat from other pieces of music. Choose some faster, some slower.
- Learn the words to the *E Papa Waiari* song.
- Play various instruments along with the *E Papa Waiari* song, keeping the beat and rhythm on the song.
- Learn a new dance from another culture.

Resources

Web sites

http://encarta.msn.com/media_461543458/Maori_warrior.html

<http://folksong.org.nz/epapa/>

Words to E Papa Waiari song; can also listen online.

<http://online.culturegrams.com>

This is a great site where kids can find information about different countries around the world. It provides information about the people, land and climate, population, the languages spoken, a timeline history of the country and important events, lifestyles and interests of the people, information about the society, and fun facts about the country and people.

Additional Media

Lummi Sticks for Kids CD, by Laura Johnson (available from Kimbo Educational, <http://www.kimboed.com/>, (800) 631-2187); Item# KIM2014CD, ISBN 1-56346-049-1

Family Connections

- Make Maori sticks with rolled up newspaper and trying the patterns at home.
- Discuss with your family the culture where your family members may have originated if it differs from where you grew up. Report back to class.
- Graph the different areas of the world where students' families originated (e.g., North America, South America, continents, far from Utah/close to Utah, etc.).

E Papā Waiari

(Traditional New Zealand Folk Song)

1. O elder Waiari my habit has been
My habit has been to shed tears

Chorus:

Alas I will die; oh girl, return to me
Alas I will die; oh girl, return to me

2. I will count your footsteps
I will count your footsteps

Chorus

*More information available at <http://folksong.org.nz/epapa/>

Maori Stick Game

Combination A

down—hit both sticks on the floor in front of you (1 count)

tap—hit the tips of one stick on floor in front of you alternate right hand left hand every other turn (2 counts)

Combination B

down—both sticks on the floor in front of you (1 count)

together—gently hitting both sticks together flush (2 counts)

Combination C

cross click—gently hit the tips of your sticks together making an X, alternate each hit with right on top left on top (12 fast counts)

Combination D

down—hit both sticks on the floor in front of you (1 count)

click—gently hitting sticks together at the tips alternate right hand, left hand every other turn (2 counts)

resting spot—a designated place to put your sticks when they should not be making noise (both sticks resting on knees)

A	down—tap—tap	16 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)
D	down—click—click	8 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)
A	down—tap—tap	16 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)
D	down—click—click	8 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)
A	down—tap—tap	16 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)
D	down—click—click	8 times
B	down—together—together	4 times
C	cross click	12 counts fast (music changes tempo)

Ending: Music change

Right hand—turn stick sideways rock tip to tip on floor (8 counts)

Left hand—turn stick sideways rock tip to tip on floor (8 counts)

Down—hit both sticks on floor together (1 count)

Tap—tap tips of sticks on floor alternate right then left every other time (1 count) Repeat 11 times

Down—hit both sticks on floor together (1 count)

***Math
Standard
V-1
Activities***

Tallies Tell it All

Standard V:

Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 1:

Collect, organize, and display simple data.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
2. Develop social skills and ethical responsibility.
3. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:

Content I-3; Language Arts I-1

Math
Standard
V

Objective
1

Connections

Background Information

Students should have a basic knowledge of numbers and one-to-one correspondence before they start working on these activities.

Vocabulary words used in this activity:

Tally mark—A line made on a chart to represent an object in a set.

Tally chart—The chart on which tally marks are recorded.

Set of five tallies—The fifth tally goes across the first four tally marks to show a set of five marks.

Set of ten tallies—Two sets of five tallies get circled to show a set of ten tally marks.

Data—Information we are using, either from around us or generated by us.

Attributes—The properties of an object that can be used to compare it to other objects.

Research Basis

NAEYC, Bredekamp, S. & Copple, C., Eds. (1997). *Developmentally Appropriate Practice In Early Childhood Programs*. Revised Edition.

“To help children learn and develop, teachers use a variety of active, intellectually engaging strategies. . . teachers also model, demonstrate and explain, and provide information, coaching, direct instruction, and other assistance that a child needs to progress (pg 165).”

Assessment Suggestions

- Assessment for this skill is done by the teacher observing the students' behavior and actions during the work time. Note if the students are making one tally mark for each object that is being tallied. Is every fifth tally mark being placed sideways across the first four, making sets of five tallies? Are every two sets of five tallies being circled to make sets of ten?
- Note observations on record sheets kept on a clipboard. There are *Class Anecdotal Record* sheets and *Individual Anecdotal Record* sheets to assist with assessment. The *Individual Anecdotal Record* can be kept in the child's individual file so they can be shared with parents during conferences. They can also be used to log individual growth doing this task.

Invitation to Learn

Have everyone close their eyes for a minute. Tell them that we are in a store and we are walking down the game aisle. Ask them what they see. Tell them that what you see are manipulatives for math—box after box of manipulatives that can make math really fun and interesting for students. The problem? Those games have big prices stuck on them and we can't afford to buy them. Tell the class that you are a garage sale and second-hand store addict. Tell them that usually you can buy a game for \$2 or less at a garage sale or a second-hand store. Tell them that those games will probably never be played following the rules of the game.

The following game ideas use second-hand items and can be adapted for games that are available to the teacher.

Push the grasshoppers down and wait for them to pop up. Have a student come and check whether they landed right-side up, or up-side down. Ask a couple of students to come up and try to catapult the monkeys into the tree. Ask another student to come and push the button on the Monster Mixup machine. Have another turn on the Lucky Ducks game and start pulling ducks from the pond one at a time, etc. . .

Ask the students what the students have been doing. Guide their conversation so that you establish the fact that all of the students have been generating data. Then ask what we can do with the data that is being generated. How can we collect, record, and display that data? Make a list on the board of the different ways that the students suggest.

Instructional Procedures

1. Have students sit around you on the floor. Place a number of cars, trucks, vans, etc. on a whiteboard. Ask the students how many vehicles are on the board. Starting from the upper left-hand side of the board, have them count the vehicles with you as you point to each one. After you have counted all of the vehicles, continue counting by starting over—pointing at the same vehicles again. When a student gets excited about the fact that you are doing it all wrong, stop and review with the children that when we count objects in a set we only count each item once. Count the vehicles again. This time stop after each item has been pointed to and counted.
2. Tell the students that we are going to make a record of what we have on the board.
3. Hold up a big tally sheet for them to see. Show them that there is a row on the sheet for each different kind of vehicle that is on the board.
4. Invite a student to go to the board and remove one of the vehicles. The student needs to show everyone which vehicle s/he removed and then give the vehicle to you.
5. Show the students that you are making a tally mark on the tally chart on the row that shows the picture of the vehicle the student removed from the board. Make sure the students understand that the tally mark on the sheet represents the vehicle that was removed from the board. As you get to a row where a fifth tally needs to be recorded, choose five students to come up and represent the tally marks with meter sticks. Have four students lay their meter sticks on the floor side by side so they look like the four tally marks on the chart. Have the fifth student lay his/her meter stick across the other four so that it touches all of the other meter sticks. Let the rest of the students in the class circle around the tally mark model so that they can see that the fifth tally goes across the first four.
6. Mark the fifth tally across the other four on the tally chart. Show the students that it can go straight across like this, (mark four tallies on the board make the fifth tally go across the other tallies at the middle point). This way seems to be easier for kindergarten children to make, or it can go diagonally across the other tallies from either side like this (mark four tallies on the board and show that the fifth tally can go diagonally across the four starting from either side). The fifth tally going across the other four makes it

Materials

- Class Anecdotal Record* sheet
- Individual Anecdotal Record* sheets
- Rubber math manipulative vehicles
- Magnet strips
- Laminated *Class Tally Chart*
- Dry-erase markers
- 5 meter sticks
- Used games (e.g., Lucky Duck, Monster Mixup, etc.)

For each student:

- Whiteboard
- Whiteboard eraser or fleece square
- Piece of card stock for palm pocket
- Number Cards*

very easy to recognize sets of five tally marks. When the students see a set of five tallies, they should call it five. The children also need to be shown that we leave a little space after a set of five before starting a new set.

7. Since kindergarten children are not very adept at counting by fives, it is good to circle the sets of five every time you have two sets together so it looks like this . Two sets of five circled together make a set of ten. Every time the children see the two sets of five circled, they can call it ten.
8. Ask the students to pick up a whiteboard, a marker, and a fleece square (eraser), and return to their places. Tell them that we are going to practice making tallies using a whiteboard. Mark the tallies that represent the number five. Ask the students to make a set of five tallies on their whiteboards, then write the number that the tallies represent. Have them turn their board so that you can see it. It is easy to give each child a quick thumbs up if they have done it right, or help if they need it.
9. After the children have written the number a few times, tell them that you are going to write a number and they have to mark the tallies that represent the number that you write. Write the number 9. Check the boards to make sure that the children made a set of five tallies, then a space, and then four more tallies. Have the children erase their boards, then practice by giving them other numbers.
10. Ask the students to pick a partner. Let them practice doing their tallies with just the two of them. One student will write a number on his/her board and the other student has to make the tally marks that the number represents. After a few minutes, have the students trade so they both get a chance to write the number and make the tally marks. Ask the students to put their whiteboards, markers, and fleece squares back where they belong and move to their tables.
11. If needed, demonstrate how to make a palm pocket. Ask the students to get their palm pockets, and a set of *Number Cards*. Have them lay the numbers out in front of them so that they can see all of the numbers. Tell the students that you are going to make some tally marks on the board. They need to count the tally marks, find the number that the tally marks represent, put the number in their palm pockets, and then turn the palm pockets so that you can see the number they selected. Make tallies for all of the numbers 1-10. When there is a set of five, make sure the children count five for the set and then count on from there (5, 6,

7, 8 etc.). Have students put their numbers in order to check and make sure that they have all of them and then have them put their number cards and palm pockets away.

Curriculum Extensions/Adaptations/Integration

- Provide ideas for integration with other curricular areas.
- Have the students tally during centers.

Center 1:

You will need a set of cards with tallies on them representing the numbers 1-20. Place the cards face down on the table. Each student at the table will need a laminated fish-shaped storyboard and a portion cup of goldfish crackers. Have a student turn over one of the cards. Everyone looks at the card, determines the number the tallies represent, and counts that many goldfish onto their fish storyboard. The fish are returned to the cup and another student chooses a card. The children continue to turn over the cards and count out the number of fish for the number the tallies represent. At the end of the rotation, the children get to eat the fish and the adult helper wipes all the storyboards with a baby wipe so they are clean for the next group.

Center 2:

Have this table set up with sorting trays that have four different kinds of coins in the main area. Use plastic pennies, dimes, nickels and quarters. Have each of the children sort the coins into the divided areas of their tray. Then each student gets a tally sheet showing the front and back of each of the coins. Model for the students just what they need to do to make the tally. Show them that the pencil can stay in the hand they use to write with and then they need to use their other hand to move the coins as they tally them. The coins can be put back in the main area of the sorting tray as they are tallied. To clean up this table at the end of the rotation, the children must have all of the coins back in the main area of their tray and they need to put their tally sheets in their desks at their starting table.

Center 3:

The students at this table will each have a container with about 15 beans in it. They are to reach into the container, pull out a number of beans, and put the beans on a foam square. Then they will tally the number of beans they pulled out of the container, using the

hand they write with to make the tallies on the record sheet and the other hand to return the beans to the container. After all the beans are tallied, they count the tally marks, write how many beans there were, and circle the number. Then pull beans from the container again and start a new tally. At the end of this rotation, all the beans need to be back in the containers and their tally sheet needs to be put in their cubbies.

Center 4:

Have a grocery store set up in this area with a number of foods that come in different kinds of containers. Have a tally sheet showing cans, packets, boxes, and bottles. Have two children fill their carts with 10 items they choose to buy. The other two children will check them out at the cash register. Have the students who were shopping place the items from their carts up on the counter. One of the check-out children pretends to scan the item and puts the item into a bag. The other student has to put a tally on the record sheet for each type of item purchased. Then have the check-out people trade places before the second grocery cart is emptied. After both carts have been tallied and bagged, have the students trade places so the other two students can have a turn shopping.

Center 5:

This center will be set up with a grasshopper for each student and a tally sheet showing a picture of the grasshopper right-side up on one line and a picture of the grasshopper upside down on the other line. Have the students push down on their grasshopper to get them to hook to the table. After it jumps and lands, have them determine whether the grasshopper landed right-side up or upside down. Have the children put a tally mark on the chart on the right line. Push the grasshopper down and let him take another flying leap, and repeat the whole process again.

As the children are doing these activities, monitor and record who is able to put one tally for each object that is counted. Who understands that the fifth tally goes across the first four to divide the tallies into sets of five, and who can circle groups of two sets of five to make a set of ten. You can also note who is having trouble with these concepts. It is really just one-to-one correspondence. One tally for each object they see that they can mark on their chart.

- With all of the children busy in centers, it gives you a chance to provide help to students who need it. It also gives you a chance to see and pull out those who may need more challenging activities. Some activities the more advanced students may enjoy are:
 1. Put name tags on the students. Give each student a record sheet showing four rows. Let each child choose a letter to put on each row. Have them walk around the room and mark a tally on their chart for each time they see one of their four letters on a name tag.
 2. Have children take inventory of your store center. Give them a clipboard with a tally sheet showing six different items and have them mark how many of each of those there are in your store center.

Resources

Books

Beginning Graphing, by Eleanor Villalpando (available from Remedia publications, <http://www.rempub.com/stores>);
Item# REM 152

Beep, Beep, Varoom, Varoom, by Stewart J. Murphy;
ISBN 0-06-446728-7

Family Connections

- The children can tally the silverware as it is taken from the silverware basket in the dishwasher and put into the drawer.
- The children can make a tally of the different places the items purchased at the grocery store need to go to be put away.
- As they help with the laundry, students can tally the number of items that need to go to each room.
- Each week, students make a tally of the things their family does for entertainment.

Class Anecdotal Record

Date	Child's Name	Comment

Name _____

Individual Anecdotal Record

Date	Comment

Class Tally Chart

Item	Tally

Number Cards

0	1	2	3
4	5	6	7
8	9	10	

Generating and Recording Data

Math
Standard
V

Objective
1

Connections

Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.
Objective 1: Collect, organize, and display simple data.
Intended Learning Outcomes: <ol style="list-style-type: none">1. Demonstrate a positive learning attitude.2. Develop social skills and ethical responsibility.3. Demonstrate responsible emotional and cognitive behaviors.
Content Connections: Content I-3; Language Arts I-1

Background Information

Vocabulary words used in this activity:

Function machine—A machine that can perform a function on the input before it sends it out as the output. (The teacher performs the function for the machine and sends out the output.)

Input—What is placed in the input side of the machine.

Output—What comes out the output side of the machine.

Record sheet—A sheet to record the input and the output of the machine.

Function—What the machine does to the input before sending it out as the output.

Research Basis

NAEYC, Bredekamp, S. & Copple, C., Eds. (1997). *Developmentally Appropriate Practice In Early Childhood Programs*, Revised Edition.

“Teachers plan for children to learn mathematical concepts through solving of meaningful problems. Math skills and problem solving are the focus of instruction. . . A variety of math manipulatives and games are provided and used. . . (pg 173).”

Assessment Suggestions

- This lesson is the first introduction of a function machine to the students. They need to be exposed to and use the function machine a number of times before they are assessed on the idea of a function machine. When the time is right, make a rubric using the *Assessment Rubric*.

Invitation to Learn

Hold up a toaster and ask the class what you are holding. Tell them that the toaster is a machine that performs a function. Ask the students what is going to happen to the bread you are putting into the toaster. Explain that the function of this toaster is to take whatever is put into it and toast it before it pops it out. The toaster is a *function machine*. Explain that the bread we put into the machine is called the *input* and the toast it spits out is the *output*. The function of this machine is that it heats the bread and toasts it before it sends it out as toast.

Ask the students to think about a washing machine. What is the input that goes into that machine? What is the output of the washing machine? What is the function of the washing machine?

Instructional Procedures

1. Tell the students that we are going to explore the data generated by a function machine.
2. Hold up the box you have made into a function machine. Point out where the hole is for the input, where the hole is for the output, and where you can put your hands inside the machine to perform the function of the machine. Make sure the students understand that you have to make the machine work.
3. Tell the students that if we record what the input is, and record what the output is, we will be able to figure out what function the machine is doing. Then we will be able to predict what the output is going to be before the machine sends it out.
4. Have a student place 1 purple fish in the input side of the machine. Add 2 green fish to the purple fish and put them out the output side of the machine.
5. On the record sheet, show that the input was 1 purple fish, and the output was 1 purple fish and 2 green fish.

Materials

- Fish (You will need at least 20 each of green, purple, red, yellow, blue, orange, and pink.)
- Box made into a function machine (large enough for teacher to perform function inside box)
- Dry erase markers
- Magnet strip

6. Have a student put 1 yellow fish in the input side of the machine. Add 2 green fish to the yellow fish and put them out the output side of the machine.
7. Return to the record sheet and show that when 1 yellow fish was the input, 1 yellow fish and 2 green fish was the output.
8. Have a child place 1 red fish into the input side of the machine. Add 2 green fish to the red fish and place them out the output side of the machine.
9. Record on the record sheet that when 1 red fish was the input, 1 red fish and 2 green fish was the output. Now that you have three outputs for the students to look at, ask the them what the function of the machine is. They will be able to see that the machine is adding 2 green fish to whatever is put into it before it sends it out.
10. Ask the students to predict what will happen if 1 green fish is put into the machine.
11. Have a student put 1 green fish in. Add 2 green fish to the green fish and put it out the output side of the machine.
12. Record the data on the record sheet.
13. Ask the students to predict what will happen if 2 fish are put into the machine at the same time. Have a student put 1 pink fish and 1 orange fish into the input side of the machine. Add 2 green fish to the fish and send them out.
14. Ask the students what will happen if the input is not a fish. Put 1 small teddy bear in the input side of the machine. Add 2 green fish to the teddy bear and put it out the output side of the machine. Explain to the students that no matter what they put into the input side of the machine, the machine is going to add 2 green fish to it before it sends it to the output side of the machine. The function you are making the machine do is to add 2 green fish.
15. Tell the children that the next time they use the function machine it may have a new function. Next time it may add something other than 2 green fish. They will have to look at the data again next time to see what function the machine is doing.

Curriculum Extensions/Adaptations/Integration

- Provide ideas for integration with other curricular areas.

The output of the function machine creates a pattern that the children have to recognize in order to discover the function of the machine. Patterns are all around us. Give the students a clipboard with paper and pencil and have them draw where they find patterns in the world around them. Take them down the hall and then outside so they will have some patterns from both inside and outside of the school.

Explore other ways that data can be generated. Have students flip a coin and record the heads and tails. They can roll dice and record what numbers are rolled. They could spin a spinner and record what the spinner lands on. They could pull ducks from the Lucky Ducks game and record the numbers that are under the ducks.

- Adaptations for learners with special needs and a variety of learning styles:

Children who are unable to see the pattern created by recording the output of the function machine need more work with patterns. Pattern strips are a useful tool in every kindergarten class. These strips are about 1” wide and 8.5” long. They have circles, squares, or triangles on them that the students can color to show patterns. Write the name of a pattern on the board. Students have to tell how many crayons they will need and then color in the shapes to show the pattern that are asked for. As the children get better at doing the patterns, put a pattern on the board. They have to tell two other names for the pattern before they color their strips. In kindergarten, we learn about “one more than” and “one less than.” This is a good way to introduce the idea of using numbers in a function machine.

- Children who understand the concept of a function machine could be placed into small groups and allowed to make the function machine work themselves as they get more practice. They need to remember that once they decide what the function of the machine is going to be, the function stays the same no matter what the input is.

- For those students who are already understanding a lot more about math and numbers, there are function machine applets available on the Internet at the Web sites listed in the resources. Those students can put numbers in as input and try to figure out the function the machine is doing by looking at the output. Function machines do not always have to use addition. They can also subtract, multiply, and divide.

Resources

Web sites

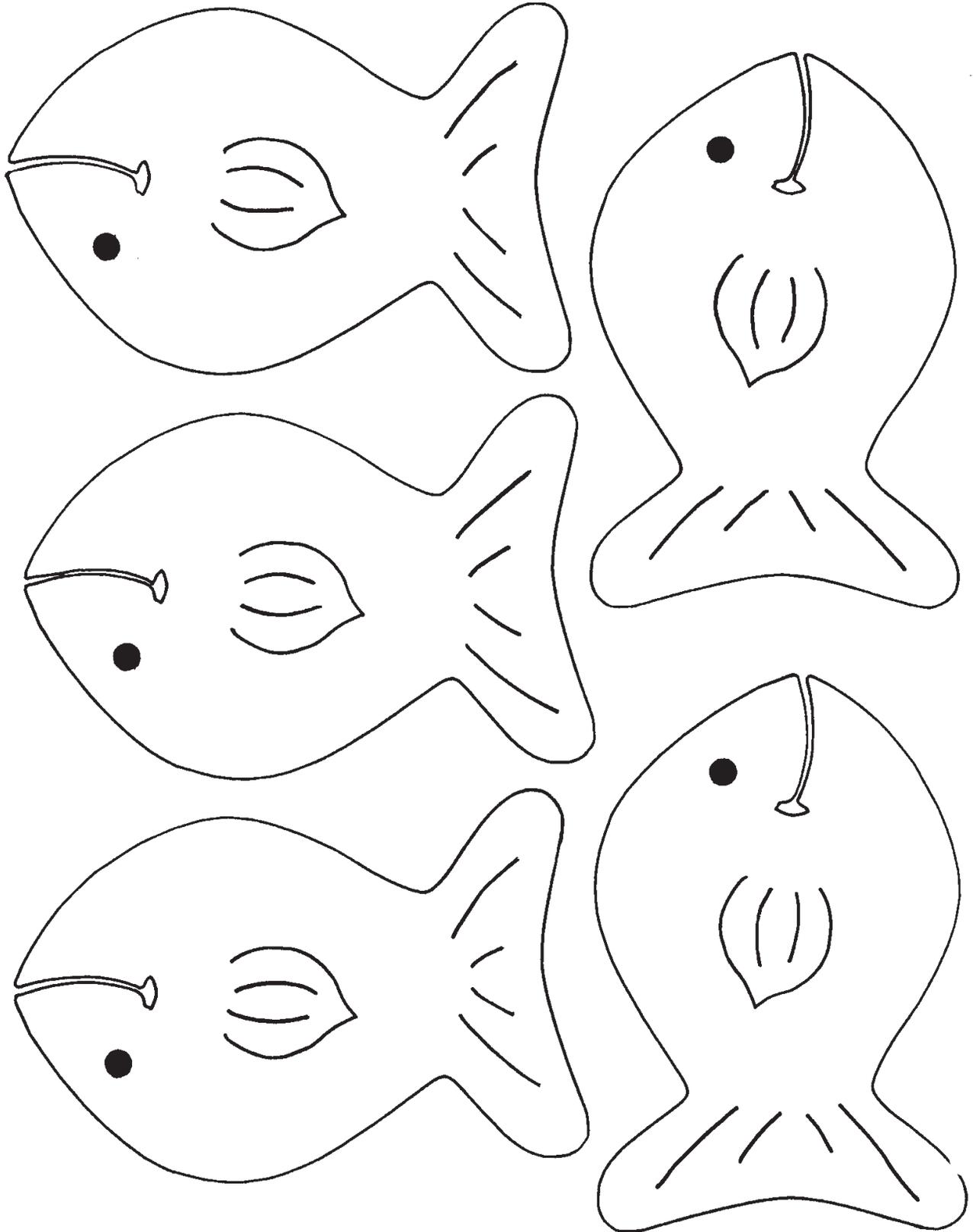
<http://www.shodor.org/interactivate/activities/fm/>

<http://score.kings.k12.ca.us/lessons/functions/machine.html>

Family Connections

- Children go on a function machine hunt in their homes with their families. Have them list what the machine is, what the input is for the machine, what function the machine does, and what the output of the machine is. Have them share their list with the class.

Fish



Assessment Rubric

<p>Concept being observed: Function machines can be used to generate data. If students record the input and the output of the machine, they can determine the function of the machine. Since the machine will continue to perform the same function, the students can predict what is going to happen before more objects are put into the machine. Students need at least three recorded outputs before trying to state the function of the machine.</p>	
Level of Understanding	Expected Performance for Level
4	The student recognized that there was a pattern by looking at the recorded output of the machine and was able to state the function of the machine. With that information, the student was able to predict what was going to happen before another object was put into the machine.
3	The student recognized that there was a pattern by looking at the recorded output of the machine and was able to state the function of the machine, but was unable to predict what would happen when another object was put into the machine.
2	The student recognized that there was a pattern by looking at the recorded output of the machine, but was unable to state the function of the machine or predict what would happen before another object was placed into the machine.
1	The student was unable to see a pattern in the recorded output of the machine.

“This is Me” Glyph

Standard V:

Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 1:

Collect, organize, and display simple data.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
2. Develop social skills and ethical responsibility.
3. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:

Content I-3; Language Arts I-1

**Math
Standard
V**

**Objective
1**

Connections

Background Information

Vocabulary words used in this activity:

glyph—Kind of like a graph, but they can show three, four, or even more variables about a single subject. Glyphs blend data representation with art. They are a creative way for students to have fun and show data.

legend—The key to the glyph. It tells you what the variables on the glyph represent.

Glyphs can be made as simple as having the student choose what color apple they like and taking one bite for each brother and adding a worm hole for each sister, or they can be very complex and show 10 or 12 different pieces of information. For kindergarten children, it is best to have them display four to six things.

The students need to know these basic facts about themselves:

- If they are a boy or a girl.
- How old they are.
- If they have a pet.
- Which they like best, reading books about people or reading books about animals.
- How many people are in their family.

The teacher needs to fill out the “information for the glyphs” sheet showing the correct information for each child.

Research Basis

NAEYC, Bredekamp, S., & Copple, C. Eds. (1997). *Developmentally Appropriate Practice In Early Childhood Programs*. Revised Edition.

“Young children should have opportunities for organizing information into concepts based on attributes that define an object or idea. . . they should also describe objects by their appearance and actions (pg 113).”
“Teachers should plan curriculum with concrete materials and experiences for children to investigate and think about. . . (pg 156).

Assessment Suggestions

- The finished glyph should display the correct information about the student. The teacher can go back through the legend with the student and check to make sure each variable is shown correctly on the glyph.
- The teacher has an *Information For The Glyph* sheet showing the basic information about each child. This sheet could be used to check the glyphs when the students are not present.
- The student, teacher, and parent could check the glyph together at an SEP conference. As mentioned in the extension activities, the glyphs could be on display, parents given the legend, and asked to figure out which glyph belongs to their student. After the glyph is located, the student, parent, and the teacher could go through the glyph together to make sure the variables are showing the correct information.

Invitation to Learn

Read *Hannah’s Collections* to the class. Point out all the different kinds of things that Hannah liked to collect. Discuss with the class how Hannah solved her problem of having to decide which collection she would take to show at school. Make sure they understand that a collection of things starts with just one thing. The sculpture that Hannah made to take to class showed some of each of her other collections. Sometimes we can make one thing that shows many things.

Tell the class that we are going to make a “This is Me” glyph. Explain that a glyph is a figure or picture that has different parts to represent information about a given subject. A glyph is kind of like Hannah’s sculpture. The figure that we are going to make will be able to tell anyone who has the legend for it five things about the person who made the glyph. A glyph is like a graph that can show three, four, or even more variables about a single subject. Glyphs blend data representation

with art and are a creative way for students to have fun and show data. The legend is the key that tell us what variables the different parts of the glyph represent.

Instructional Procedures

1. Give each student a piece of white cardstock with the body and arms printed on it. Have them look at the page as you explain where the feet are, which section will be the pants of the figure, and where the head will glue on.
2. Instruct the students to cut out the body and both of the arms.
3. Have students put glue on the end of the arms as marked and put the end with the glue on the backside of the body at the shoulder line and glue in place.
4. Have the children cut on the line between the feet, up to the fold line. Fold both of the feet up on the fold line and then fold them back down. Put shoes on the feet by coloring them brown if they have a pet and by coloring them black if they do not have a pet.
5. Students color the section of the body above the feet green if they are six years old (or if their age is even). Color that section blue if they are five years old (or if their age is odd). This section is the pants of the figure.
6. Fold the body in half lengthwise and crease from the line between the feet to the top of the point at the top of the body.
7. Fold the point at the top of the body down toward the back of the figure on the fold line, lay it back straight, and place the body on the table.
8. Students choose one of the girls' heads if they are a girl, or one of the boys' heads if they are a boy. (There are two boy heads and two girl heads in various skin colors from which to choose.)
9. Cut out the head and the hands. Put one drop of glue on the point of the head and position the head over the point to glue the head in place.
10. Glue the hands over the rounded end of the arms so that when the arms are folded toward the body, the hands are facing out.
11. Students choose a yellow rectangle if they like to read books about animals, or a red rectangle if they like to read books about people.

Materials

- Heads and Hands* (flesh tone cardstocks)
- Body and Arms* (white cardstock)
- 2.5" x 4.25" construction paper (yellow and red)
- Scissors
- White glue
- Masking tape
- A graph mat
- Information for the Glyphs*

12. Fold the rectangle in half to make it look like a book. Have each child write the number of people in their family on the front cover of the book. Glue the book to the hands so the arms are holding the book open in front of the figure.
13. Place a piece of masking tape made into a roll under the feet to help the figure stand up.
14. Have each student stand their figure up in front of them on the table.
15. Make a legend for the figures by showing:

“This Is Me” glyph

Shoes:

If the shoes are brown, the person has a pet.

If the shoes are black, the person does not have a pet.

Pants:

Are colored green if the person is 6 years old (or their age is even).

Are colored blue if the person is 5 years old (or their age is odd).

Head:

Has a boy head if they are a boy.

Has a girl head if they are a girl.

Book:

The book is yellow if they like to read books about animals.

The book is red if they like to read books about people.

Number:

The number of people in their family.

16. Choose one of the figures. Hold it up so all the students can see it. As a class, use the legend to determine the facts about the person the glyph represents. Give the figure back to the person it belongs to.
17. Ask all the students who are six to bring their figures over and place it on one of the rectangles next to the six on the graph mat. Place one figure in each rectangle as you work across the mat. Then have everyone who is five bring their figures over and place them in rectangles next to the five. Ask the students if we have more six year olds or more five year olds in our class.
18. Have the students count the number of six year olds. Have them count the number of five year olds. Ask how many more figures we would need in the row that has the least number of figures to make it the same as the number of the row that has the most.

19. Choose other attributes to sort the glyphs on the graph mat. Make sure that you talk about which has the least, most, etc., each time a new graph is made.

Curriculum Extensions/Adaptations/Integration

- Provide ideas for integration with other curricular areas.

During circle time, choose one of the “This Is Me” glyphs and share it with the class. Interpret the data on the graph one variable at a time and let the students guess who it is (e.g., This person is a boy, is 6 years old, has a pet, likes to read books about people, and has 6 people in his family). The students can guess after each clue is given to see if they can figure out who the person is by matching the clues to a person they know in the class.

During science, make a graph showing how many people like to read books about animals. Take it a step further by having each person tell their favorite animal to read about. This could work into the perfect time to talk about fiction and nonfiction because there are a lot of animal books that belong to both of the categories.

The glyphs could be made right before “Student-Educator-Parent” conferences and be on display when the parents come. Show parents the legend and see if they can pick out their child’s glyph.

- Adaptations for learners with special needs and a variety of learning styles:

Children who are struggling with the glyph could work on sorting and displaying data in a Venn Diagram. This activity is on page 18 of *Charts and Graphs*. There are a lot of simple graphing activities in this book that may be done before moving forward with the more abstract idea of a glyph.

Children who have the glyph idea down could make up their own glyph and a legend showing the variables on their glyph. They could draw pictures on the legend and have an older buddy or adult help them with the words that they need.

Resources

Books

Charts and Graphs, by David and Wendy Clemson;
ISBN 1-58728-342-5

Hannah's Collections, by Marthe Jocelyn; ISBN 0887766900

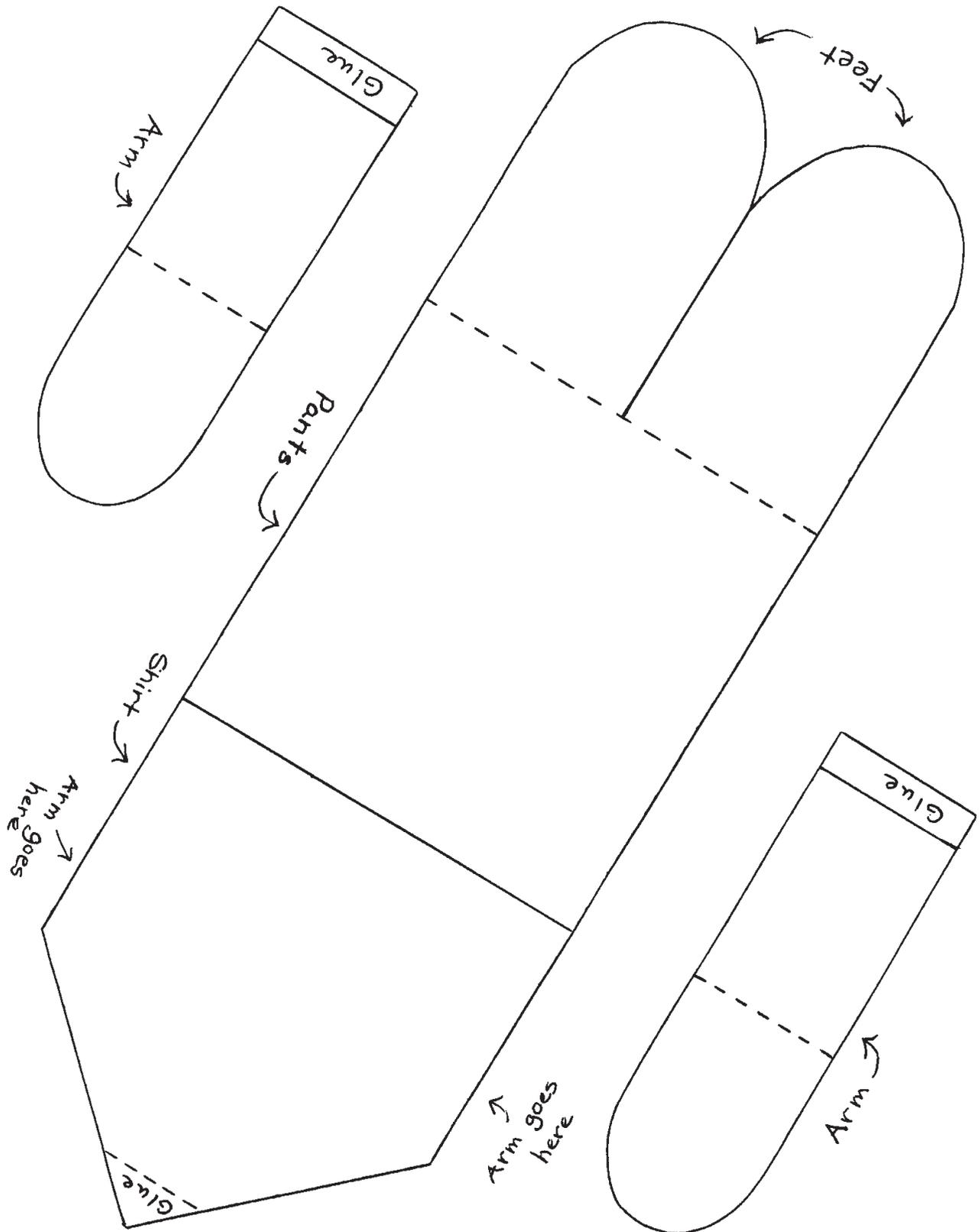
Additional Media

Clear plastic to make a graph mat (sold by the yard at fabric stores).

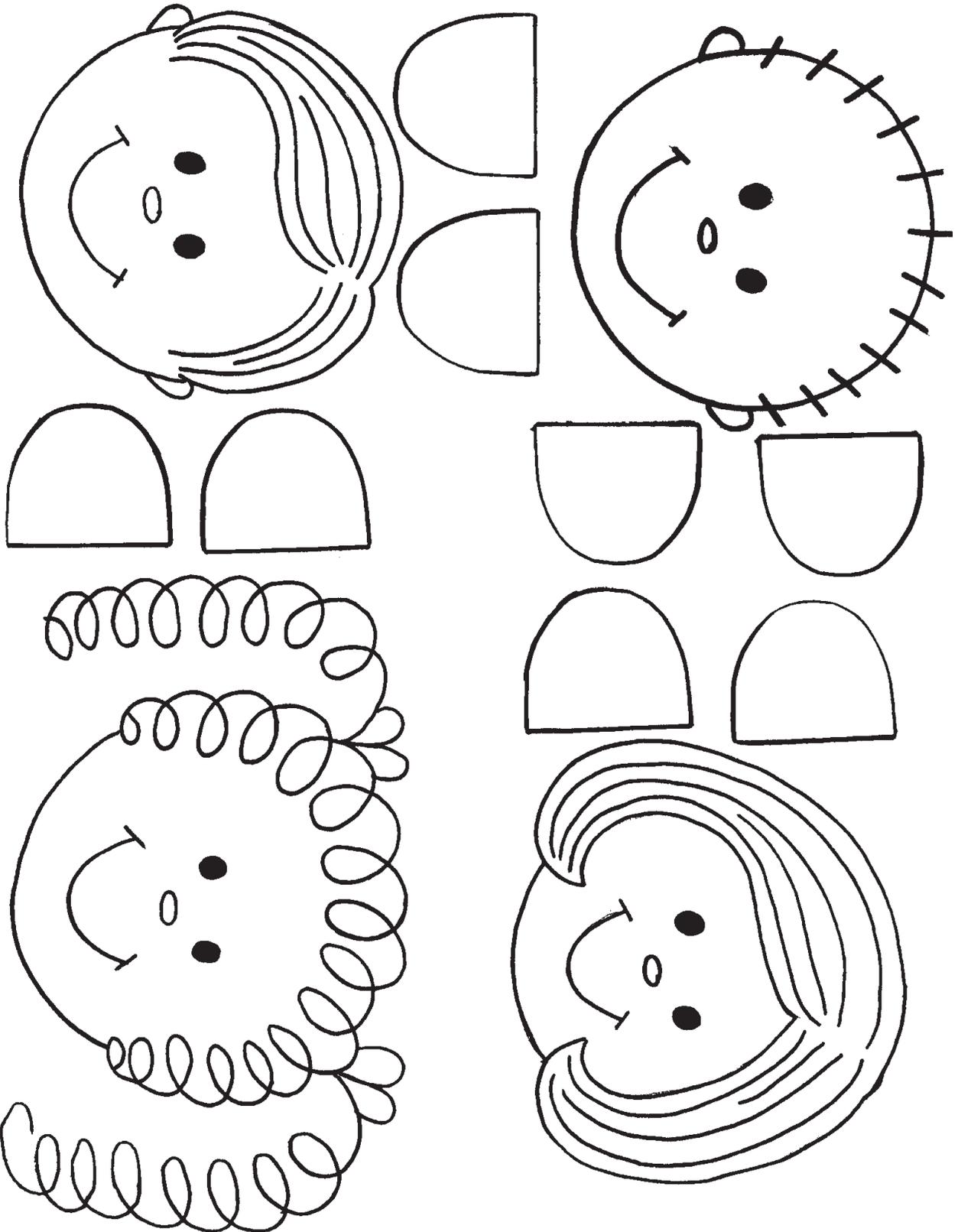
Family Connections

- As a homework project, have students make up a glyph and a legend with their families. Have them bring their family glyphs back to share with the class.
They could start by asking questions like:
 - What activities do we like to do as a family?
 - How many people are in our family?
 - What kind of vehicles does our family drive?
 - What kind and color of house do we live in?
 - Where do we like to go on vacation?
- Have the family come up with a glyph and a legend that gives the answers to these questions.

Body and Arms



Heads and Hands



***Content
Standard
I-1
Activities***

Healthy, Happy Teeth

Standard I:

Students will develop a sense of self.

Objective 1:

Develop and practice responsible behaviors for health and safety.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
4. Develop physical skills and personal hygiene.

Content Connections:

Language Arts VI-1; Content I-3

Content Standard I

Objective 1

Connections

Background Information

Teeth are one of the most important parts of your body. They give your face its shape. They help you talk. They help you bite and chew food. At first, you have 20 baby teeth. By the time you are six or so, these teeth start to loosen up and fall out. Your 32 adult teeth push them out and grow in their place.

Tooth vocabulary:

Fluoride—Helps protect your teeth. You get it from toothpaste and check-ups at the dentist.

Cavity—A soft spot or hole in your tooth. Ouch, that hurts!

Plaque—A sticky layer of germs on your teeth. Brushing and flossing gets rid of plaque.

Brushing Basics

Every time you eat, tiny pieces of food get stuck in your teeth. Brushing gets rid of the food, so you should brush at least twice a day. Using a drop of toothpaste, move your toothbrush back and forth. Brush the front, back, and top of each tooth. Then give your tongue a gentle brushing to get rid of germs. Floss nightly and limit your snacks.

Research Basis

Wood, R. K. (1994). A Close-up Look at How Children Learn Science. *Educational Leadership*, 51(5), p. 33-35.

Students often use their preschool experiences to form personal theories about the world and rarely correct misconceptions even when they acquire new information. This article describes an elementary science teacher's efforts to help students revise personal theories through experimentation. There is no simple way to "teach away" students' misconceptions, but a hands-on approach helps.

Cosgrove, M. S. (1992). Inside Learning Centers. ERIC ED356875.

Learning centers are areas in a classroom that define a specific focus or provide a unique learning opportunity by using the skills in interesting, meaningful, relevant, and social contexts. Learning centers give students opportunities to participate in thought-provoking activities.

Assessment Suggestions

- Formal assessment included in worksheets.
- Students use their happy tooth/sad tooth puppets in small groups to explain good and bad things for their teeth. This is an oral assessment.
- Use the *My Toothbrushing Chart* to assess that students are forming a life long healthy habit.
- Disclosure tablets during assessment centers in “Healthy, Happy Me” activity plan.

Invitation to Learn

Disclosure Tablet Activity

Give each student a disclosure tablet. Have them chew it and then look in the mirror. They will see pink stuff all over their teeth. Tell the students the pink areas are where plaque “germs” are trying to make holes in their teeth. “We are going to learn ways to chase the plaque germs away during our lesson.” Allow children time to try to brush the pink off their teeth.

Materials

- Hand mirror
- Toothbrush (labeled with child’s name)
- Disclosure tablets

Instructional Procedures

Part I

1. Read *I Know Why I Brush My Teeth*. Stop after page 6 and ask if anyone has had a wiggly tooth like Sam. Continue reading and stop after pg. 13. Ask the students, “Did any of you have trouble getting all the pink off your teeth? Let’s learn the right way to brush our teeth so we can get all those ‘plaque germs’ off our teeth.” Model proper brushing techniques on a large tooth model. Students practice on their own teeth as you demonstrate. Have the children use their flossers to floss their teeth.

Materials

- I Know Why I Brush My Teeth*
 - Large tooth model
- For each student:
- Flosser
 - Snack-sized Ziploc® bag with student’s name on it

2. Explain that if they brush their teeth the right way, their teeth will be healthy and happy. Let’s learn a song to help us remember to do that.

Healthy, Happy Teeth

(sing to the tune of Old MacDonald)

Brush your teeth and floss then too,
 For healthy, happy teeth.
 Drink and eat foods good for you,
 For healthy, happy teeth!
 With a brush, brush here,
 And a floss, floss there,
 Here a brush, there a floss
 Day and night a brush, floss!
 See your dentist twice a year
 For healthy, happy teeth!

3. Students take their toothbrush and flosser home in a baggie.

Part II

1. Fill clear plastic cups with different liquids, such as water, dark soft drinks, vinegar, and fruit juices. Label each cup. Prepare *Monsters* to put around each cup.
2. Invite children to learn by telling them that these are plaque attack “monsters.” “They love to eat teeth. This egg shell is like a tooth. Eggshells and teeth both contain calcium. We are going to pretend it is a tooth. Who wants to put a pretend ‘tooth’ into our plaque monster cups?” Have the children help you put the eggshells into the cups. Set the monsters in a safe place so students can watch them for a couple of days. Students will notice what happens when too many sugars and sweets get on their teeth. The sugar helps create plaque. Plaque eats through tooth enamel, causes tooth decay (or holes in their teeth), and gum disease. Expect dark liquids to stain the shells. Vinegar and sugary juices will dissolve or discolor the shells.
3. “Remember what Sam told us about teeth yesterday?” Review the main points of the story. “Let’s find out more about plaque ‘monsters’ today.” Continue reading *I Know Why I Brush My Teeth* on page 14 and finish the story. “Let’s be scientists and do

Materials

- I Know Why I Brush My Teeth*
- Clear plastic cups
- Monster* signs
- Water
- Dark drinks
- Vinegar
- Fruit juices
- Eggshells
- For each student:
- Apple with student’s name on it

an experiment to show what happens to a tooth when plaque monsters attack. This apple is like your tooth.” Poke a hole in the apple with the point of a pencil, representing the cavity in a tooth. Tell the students that the plaque monsters make a hole, or cave, in your tooth. “We are going to watch what happens to this ‘tooth’ over time.” Provide students with an opportunity to make their own apple cavity. Students may each bring an apple from home, or the teacher may provide one for everyone. Use a permanent marker to label each apple with the students’ names. Display them in the room by the plaque monsters.

4. Ask the students to touch their nose if they practiced brushing their teeth the right way last night and remembered to floss. Review the “Healthy, Happy Teeth” song. Tell the children that today we are going to learn a new song to help us remember to brush our teeth everyday.

“Do You Brush Them” song

(sung to Are You Sleeping?)

Do you brush them?

Do you brush them?

Everyday? Everyday?

Yes, I try to brush them.

Yes, I try to brush them.

Everyday. Everyday.

Part 3

Students work in small groups at each of these centers. Put students that have shown strong knowledge of the topic from the teeth brushing demonstration and the written assessment first. All other students will have an opportunity to review at the puppet center before performing the written assessment.

Tooth Puppets

Students make two puppets on tongue depressors—a healthy, happy tooth, and a sick, sad tooth. The picture of the tooth will be glued on one side of the tongue depressor and a picture strip will be glued on the other side to show what things help your teeth or hurt your teeth. Students use these as an oral assessment during the assessment centers at the end of the Healthy, Happy Me unit.

Materials

- 2 tongue depressors
- Tooth Puppets*
- Scissors
- Glue
- Crayons

Written Assessment

- Using the *Tooth Test* worksheet, students turn the circle into a happy face or a sad face as they decide whether the item above it will help their teeth or hurt their teeth.

Brushing Up!

- Students practice their brushing skills with this painting activity. Use old toothbrushes, white paint, and the *Tooth* handout copied on gray or brown paper. Students practice “brushing” the paper teeth with paint and watch them turn white!

Toothbrush Chart

- Students create a *Toothbrush Chart* to take home and mark off for a week. Fold a piece of 9” x 12” construction paper in half horizontally. Trace the rectangle on the side opposite the fold from the *My Toothbrushing Chart* handout. Students cut that rectangle off their paper, making sure that they cut through both halves of the paper. Glue a white paper towel in between the large square part of the toothbrush. Make small straight cuts in the paper towel to resemble the bristles of a toothbrush. Glue the chart on the square “head” of the toothbrush.

Materials

- Tooth Test* worksheet
- Pencils or crayons

Materials

- Old toothbrushes
- White paint
- Tooth* handout
- Smocks

Materials

- 9” x 12” construction paper
- Paper towel
- Toothbrush Chart* handout
- My Toothbrushing Chart* handout
- Scissors
- Glue
- Crayons

Curriculum Extensions/Adaptations/Integration

- Help children to understand that teeth have an inside and an outside by teaching the basic tooth parts. Use the bottom of page 15-19 in *I Know Why I Brush My Teeth*. Students draw and label the parts of a tooth in their journals, similar to the drawing in the back of *I Know Why I Brush My Teeth*.
- Help children understand that all teeth are not the same. Each type of tooth has its own shape and its own job. Incisors are like scissors. They cut food with their sharp edges. Canines are like knives. They tear food with their sharp points. Molars are like hammers. They crush and grind food into tiny bits. The students can experience this with a healthy snack. As they chew it, talk them through when they are using each type of tooth to chew the food. You use your incisors to bite it and your pointy canines tear it up and the molars grind it before you swallow it.

Resources

Books

I Know Why I Brush My Teeth, by Kate Rowan; ISBN 0744572320

Make Way For Tooth Decay, by Boobi Katz; ISBN 0-590-52290-6

The Crocodile and the Dentist, by Taro Gomi; ISBN 0-590-67731-4

Vera Goes to the Dentist, by Vera Rosenberry; ISBN 0-439-43815-2

Open Wide Tooth School Inside, by Laurie Keller;
ISBN 0-439-23205-8

Web sites

Colgate Bright Smiles, Bright Futures; www.colgatebsbf.com;
1-800-334-7734

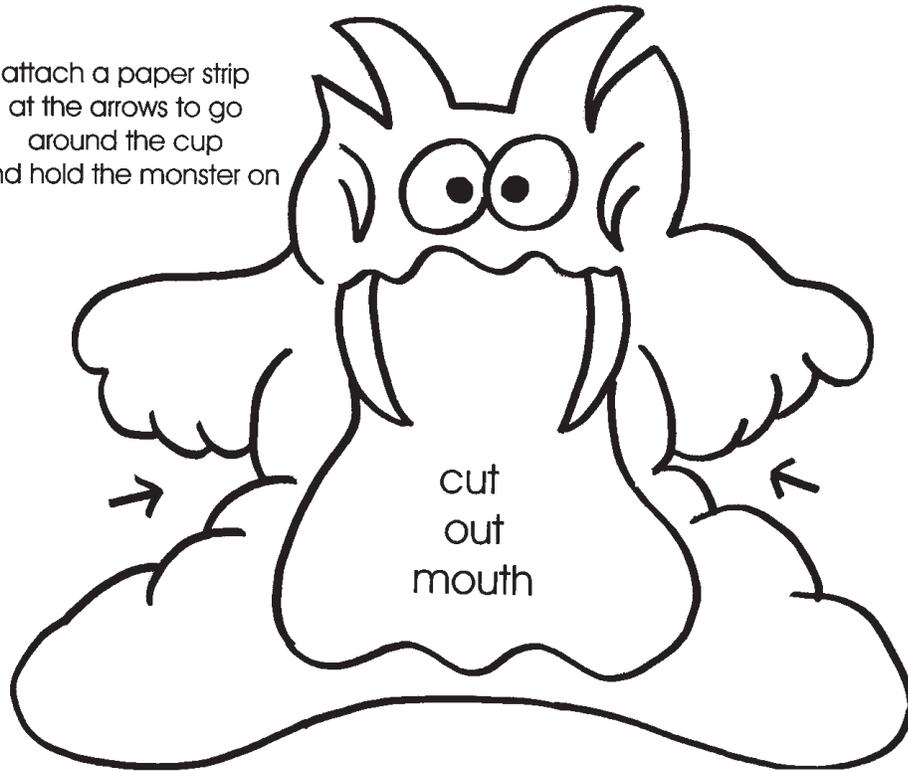
www.pearsondental.com

Family Connections

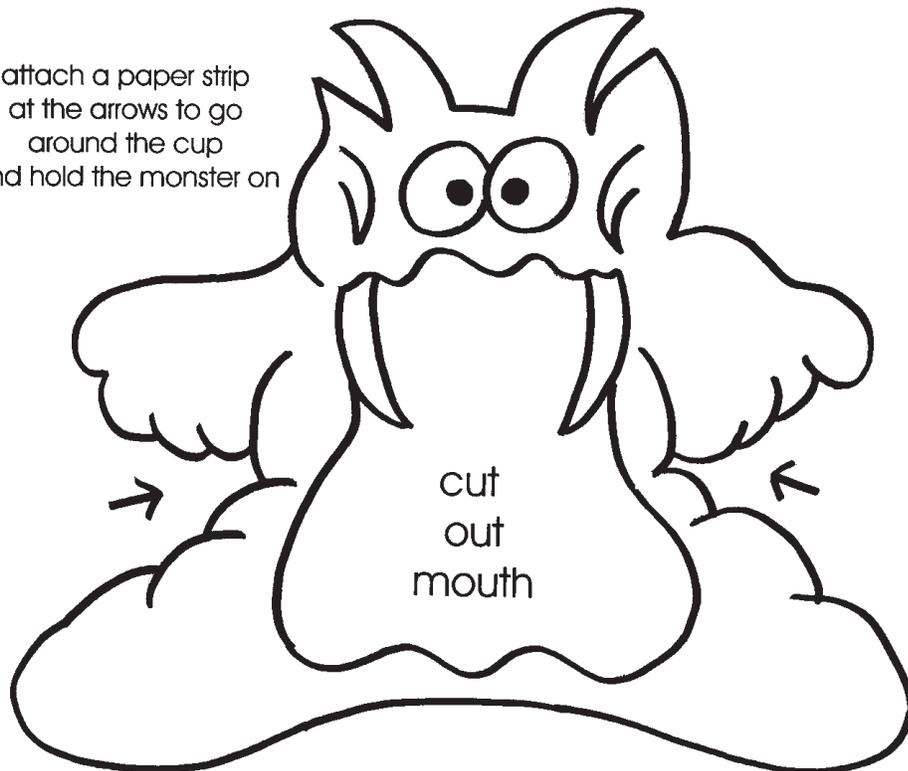
- Students will take home their “Apple Cavity” and puppets home. Use these to demonstrate knowledge they have learned about teeth to members of their family.
- Hang the brushing chart some place where it will be easy to mark it each day. Return it in a week to receive a “tooth treasure” necklace, tooth sticker, etc.

Monster

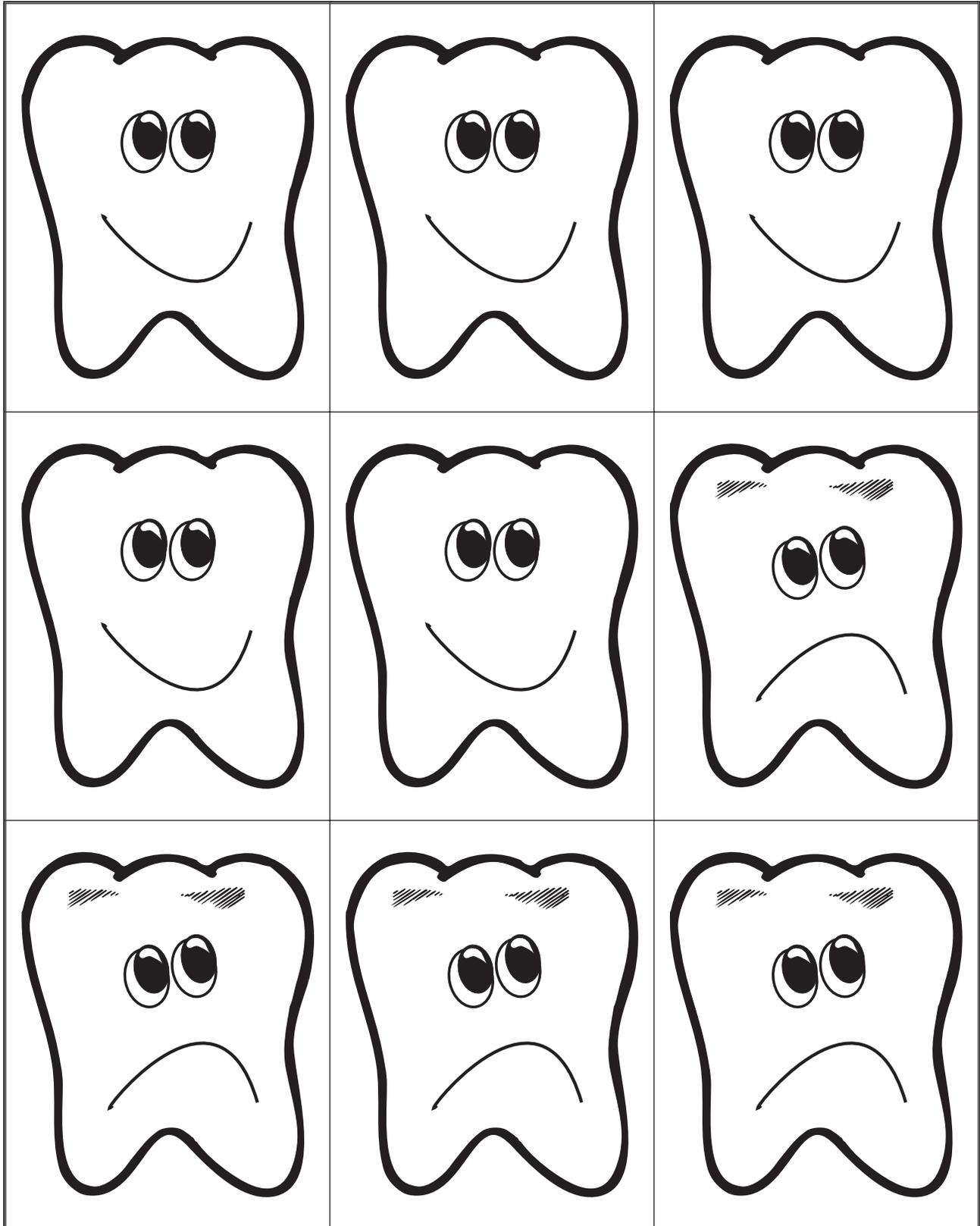
attach a paper strip
at the arrows to go
around the cup
and hold the monster on



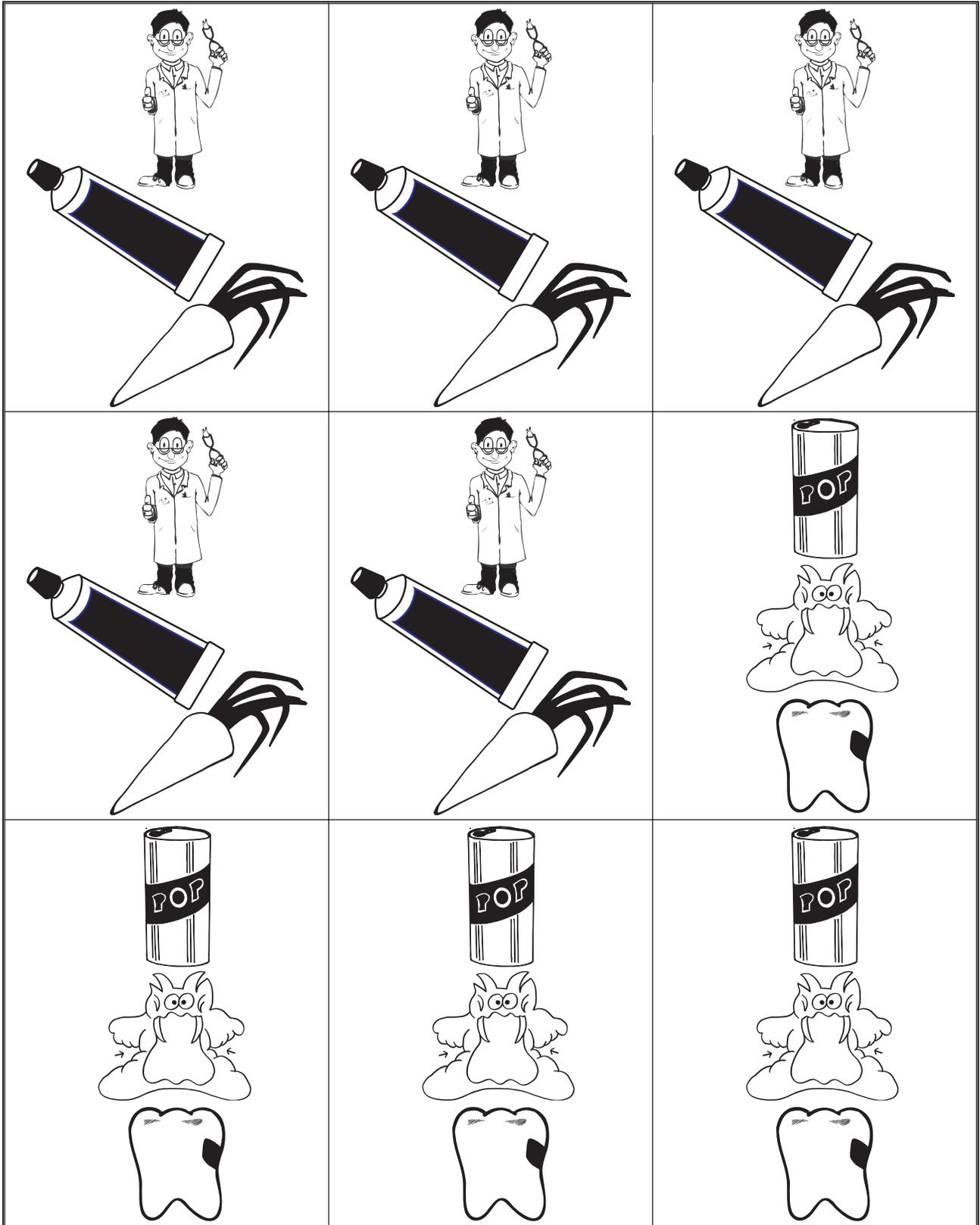
attach a paper strip
at the arrows to go
around the cup
and hold the monster on



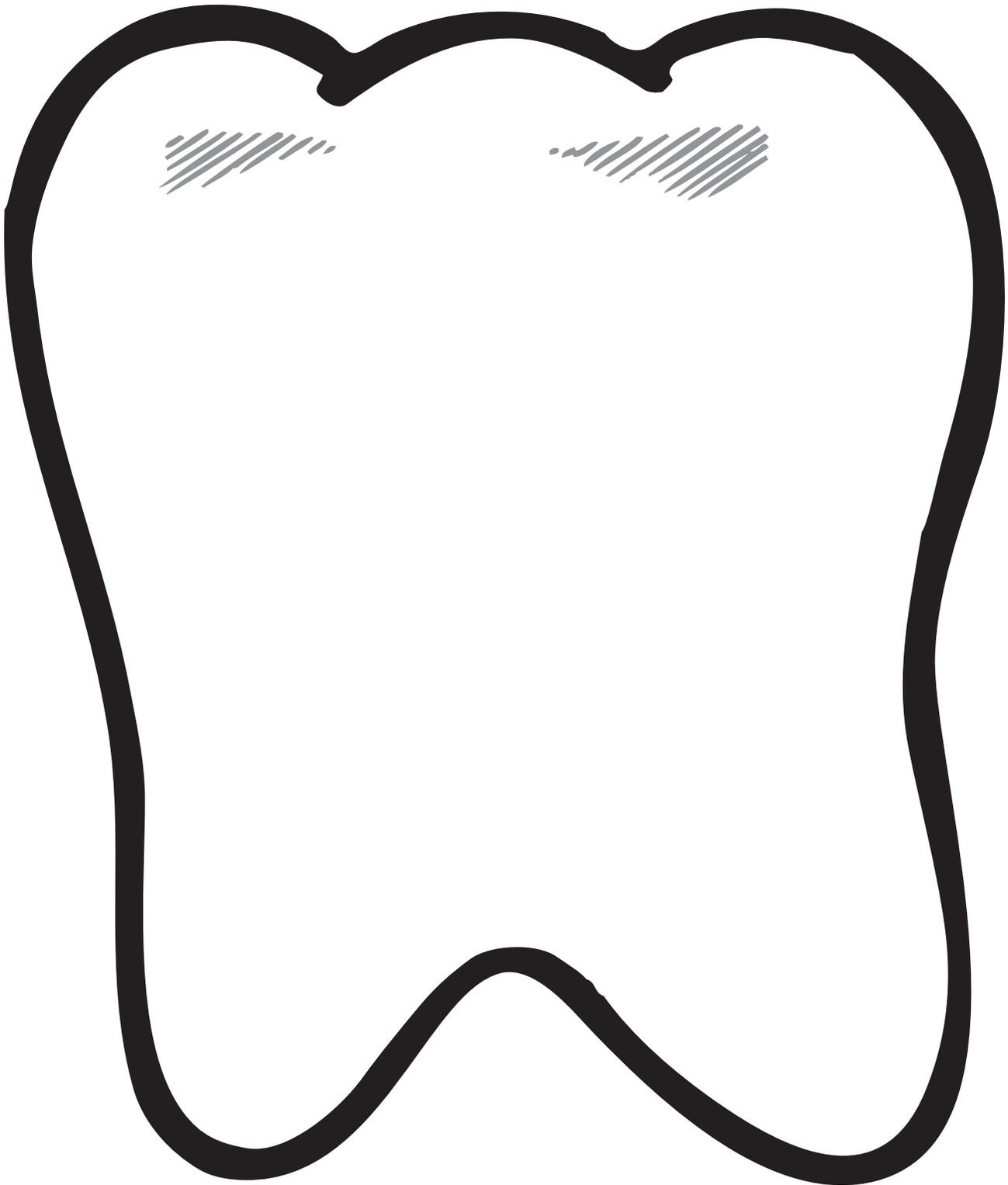
Tooth Puppets



Picture Strips



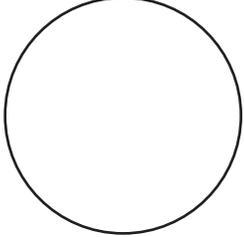
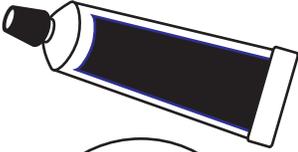
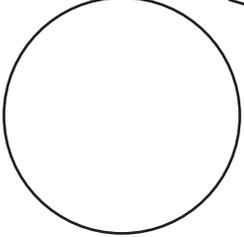
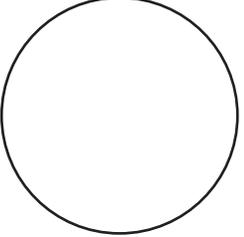
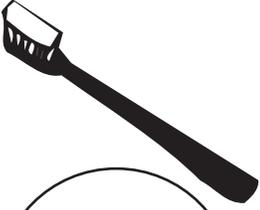
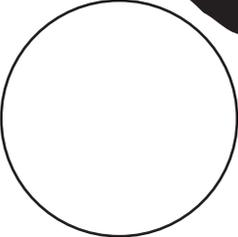
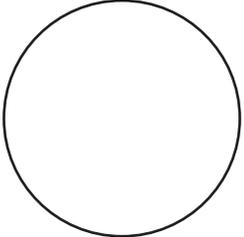
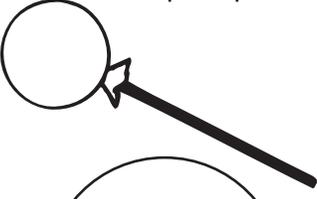
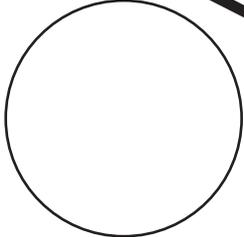
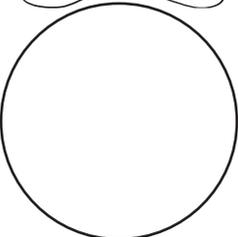
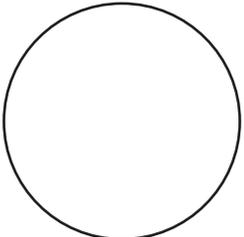
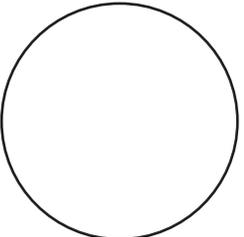
Tooth



Name _____

Tooth Test

Draw a happy face if the item is good for your teeth. Draw a sad face if the item is bad for your teeth.

<p>Carrot</p>  	<p>Toothpaste</p>  	<p>Dental Floss</p>  
<p>Toothbrush</p>  	<p>Tooth</p>  	<p>Lollipop</p>  
<p>Plaque Monster</p>  	<p>Dentist</p>  	<p>Soda</p>  

Toothbrush Chart



Fold a piece of 9" x 12" construction paper in half horizontally.



(2" tall x 6" long) Student cuts this off

Glue *My Toothbrushing Chart* here.

My Toothbrushing Chart

Saturday	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>
Monday	<input type="checkbox"/>	<input type="checkbox"/>
Sunday	<input type="checkbox"/>	<input type="checkbox"/>



My Toothbrushing Chart

Saturday	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>
Monday	<input type="checkbox"/>	<input type="checkbox"/>
Sunday	<input type="checkbox"/>	<input type="checkbox"/>



My Toothbrushing Chart

Saturday	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>
Monday	<input type="checkbox"/>	<input type="checkbox"/>
Sunday	<input type="checkbox"/>	<input type="checkbox"/>



My Toothbrushing Chart

Saturday	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>
Monday	<input type="checkbox"/>	<input type="checkbox"/>
Sunday	<input type="checkbox"/>	<input type="checkbox"/>



Healthy, Happy Me

Standard I:

Students will develop a sense of self.

Objective 1:

Develop and practice responsible behaviors for health and safety.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.
4. Develop physical skills and personal hygiene.

Content Connections:

Language Arts I-1 & 2, VIII-1 & 2; Math I-2

Content Standard I

Objective 1

Connections

Background Information

Germs spread very easily. The spreading of germs can be reduced through proper hand washing habits. The steps for proper hand washing are: 1. wet hands with warm running water; 2. use soap; 3. wash vigorously for 10-20 seconds; 4. rinse; 5. dry with a single use towel or hot air dryer; and 6. turn off faucet with paper towel. Hands should always be washed before preparing food and eating meals and snacks, after using the toilet, playing with animals, coughing, sneezing, wiping your nose, and handling money.

The best way to get complete nutrition is to eat a wide variety of foods. The food we eat is fuel for our bodies and gives us energy to work and play. Recommended daily servings for children are milk group: 2-4 servings; meat group: 2 servings; vegetable group: 3 servings; fruit group: 2 servings; bread group: 6 servings; and fats and sweets: use sparingly.

Research Basis

Ukrainetz, T.A., Cooney, M.H., Dyer, S.K., Kysar, A.J., Harris, T.J. (2000). An Investigation into Teaching Phonemic Awareness through Shared Reading and Writing. *Early Childhood Research Quarterly*, 15(3), p331-55.

This article examined the impact of teaching phonemic awareness by embedding sound talk within meaningful literacy experiences of shared reading and writing in small groups of 5 and 6 year olds. It found that this instruction led to gains in phonemic awareness compared to no treatment.

Button, K., Johnson, M. (1997). The Role of Shared Reading in Developing Effective Early Reading Strategies. *Reading Horizons*, 37(4), p262-73.

This article explains that shared reading uses a familiar text to help children engage in the act of reading even before they can independently

decode words. It describes how it works in a kindergarten classroom within a balanced literacy curriculum and the teacher’s role in its effective use.

Taberski, S. (1998). Motivating Readers, Give Shared Reading the Attention it Deserves. *Instructor*, 107(7), 32-35.

Shared reading lets elementary teachers show children what reading is about. Teachers read the text aloud and encourage students to read along. All levels of readers can participate.

Assessment Suggestions

- Self-assessment check-off list for the week in their journal (see instructional procedure for details)
- Assessment centers set up on the last day of the unit where students demonstrate knowledge of a. proper teeth brushing, b. food groups, c. proper hand washing, and d. catching germs.

Invitation to Learn

Germ Detective Activity

To peak students’ interest in being a germ detective, apply a small circle of glogerm gel to hands. Have the students rub in the gel. Let them hold their hands under the UV light to show them where the germs are on their hands. Have students wash their hands with soap and water and challenge them to wash all the germs away. Check their hands under the UV light again to see if there are areas that are not washed properly, paying close attention to nails and in between fingers. Ask the students, “Do you still have germs on your hands? Let’s learn how to be germ busters. Last week we learned how to attack plaque. This week we will learn how to be germ busters.”

Materials

- Glogerm gel
- UV light

Instructional Procedures

Germs are everywhere—not just on hands.

1. Preview and then show the *Slim Goodbody’s Germ Invaders—Beat the Cold War* video. Create a purpose for learning by asking the children to look for the following things in the movie:
 - What makes the boy sick? (germs)
 - How do most germs get into your body? (your hands)
2. After the movie, discuss these points and any other observations or “favorite parts” they may have.

Materials

- Slim Goodbody’s Germ Invaders—Beat the Cold War* video
- Healthy Habit Journal* Entry pages

- What parts of your body do your hands touch to let the germs in? (mouth, nose, eyes)
 - What does the school nurse say is a good way to fight germs? (wash your hands)
3. Students practice drawing the picture clues for the proper hand washing steps in their *Healthy Habits Journal*. Begin by having students trace one of their hands. On the thumb, draw a stream of running water. On the pointer finger, draw soap. On the middle finger, draw a clock to remind them how much time they need to take to wash their hands. They can count to 20 or sing their ABC's. On the ring finger, draw water to represent rinsing. On the pinkie finger, draw a paper towel. This provides student practice before the assessment centers.
 4. Ask the students think about if they remembered to brush their teeth twice a day over the weekend. Have them respond in their *Healthy Habits Journal*. Tell students that tonight they need to work on brushing their teeth properly and washing their hands properly. Explain that we are learning good habits that we need to be healthy people. We will write about these two things in our *Healthy Habits Journal* tomorrow.

Germ Busters

1. Students will make reflections and self assessment in their *Healthy Habits Journal* about brushing their teeth and washing their hands.
2. Students practice sneezing and coughing into a sleeve and a tissue like they saw in the “Invaders” movie. The students will make a “germ catcher.” Cut a 12” x 18” piece of construction paper in half horizontally to create a 6” x 18” piece of paper. Fold the sides in to make three sections. These will be the arms. The children will trace their hands and cut them out and glue them one on each end (sleeve). Cut out a circle and glue it on the top center section for the head. The square space in the middle is the body. A paper will be glued there for the students to write/draw on for the assessment at the end of the activity.
3. Tell the students that tonight they are going to continue their challenge of creating healthy habits—brushing their teeth, washing their hands, and catching germs in a sleeve or tissue. We will write about all of these things tomorrow in our journal.

Materials

- Healthy Habit Journal* Entry pages
- 12” x 18” construction paper
- Scissors
- Glue

Materials

- Healthy Habit Journal* Entry pages
- The Edible Pyramid*
- Food Picture Cards*
- Large blank pyramid poster or pocket chart
- Paper
- Fruit

Nutrition—Part I

1. The students reflect/write in the *Healthy Habits Journal*.
2. Do a shared reading with *The Edible Pyramid*. Prepare a large food pyramid with different colors to block out each of the six parts of the pyramid. Pass out food picture cards to each of the children. As you read the book, stop and build the pyramid. Add the color block as you talk about each food group and have the children come up and add their food cards to the appropriate group at the appropriate time.
3. Explain that we have smart bodies. If we fall and skin our knee, our body will heal itself if we have practiced good habits to keep it healthy. Ask, “What things can we do to keep our body healthy?” List student responses on chart paper. They should include:
 - Brush your teeth.
 - Wash your hands to keep germs out of your body.
 - Eat healthy foods.
 - Sneeze or cough in a sleeve.
 - Get enough sleep.
 - Exercise your body.
 - Drink plenty of water.
4. Tear a piece of paper in half. Tell the students this paper is not smart like our bodies are. Set a piece of fruit on it. “Even though I am giving it good food, it cannot heal or fix itself like our bodies can. The food cannot heal the paper. That is why it is so important for us eat healthy food and practice healthy habits.”
5. Remind students to work on all the healthy habits we have learned about tonight to add to their journal tomorrow.

Nutrition—Part II

1. Review the information learned from the previous shared reading lesson through the following shared writing activity. The children toss a bean bag onto a food pyramid chart to select a food group to work with. Then give examples of things they ate yesterday or that they like to eat that belong in that specific food group.
2. Use a food pyramid pocket chart or a pyramid previously drawn on chart paper for the following poem.

Materials

- Bean bag
- Large blank pyramid poster or pocket chart
- Healthy Habit Journal* Entry pages
- Healthy Happy Me* class game board
- Large foam die

_____, _____,
_____ too.

Smart kids know
these are good for you.

3. Allow students to help you write and/or sound spell the words to complete the poem.
4. Repeat as time allows until they have created at least one poem from each food group. If time allows, create additional poems starting with the food groups that require the most servings. Students use these food words to help them spell words in their own journal.
5. Students reflect/write in their *Healthy Habits Journal*.
6. Play the *Healthy, Happy Me* game as a class to review for the assessment centers tomorrow. Use the big game board and foam die. Roll a number and move along the board, reviewing the concepts in the game.
7. Remind students about the healthy habits they are going to be working on tonight (see above).

Healthy Habits Assessment Centers

Brushing Teeth

Students demonstrate proper brushing techniques by modeling for the teacher or a parent volunteer on a model of teeth.

Food Group Pyramid Puzzle

Students have a blank food pyramid. They draw in foods from each group and write the number of servings they should eat from each group each day. Cut the pyramid on the thick, dark lines to turn it into a puzzle. Put it in an envelope to take home.

Hand Washing

Students demonstrate washing their hands to an adult using the five steps they have learned. Then trace their hand on a blank white piece of paper and draw the five steps.

Materials

- 6 plastic teeth molds or large teeth model
- Toothbrushes

Materials

- Food Pyramid* pages
- Envelope

Materials

- Water/sink
- Paper

“Germ Catcher/Healthy Me” Writing Assessment

Students draw and/or write ways they can “catch” their own germs, not spread germs, and keep their body healthy enough to fight off germs. Students should include some or all of the following: washing hands often, sneezing and coughing into a sleeve, drinking plenty of water, exercising their body, brushing their teeth, eating a variety of good foods.

Curriculum Extensions/Adaptations/Integration

- Physical Education: Food Group Relay Game

Divide the students into teams. The goal of each team is to make a “plate” of a variety of healthy foods that a child would eat in a day. Emphasize the importance of food being fuel for the body. We need a variety of healthy foods to work and play everyday. Start by having teams stand on one end of the gym behind their team’s food plate. A large amount of food cards will be spread out on the floor or taped to the wall on the opposite end of the gym. Each team member takes a turn running to the opposite end of the gym and taking a food card to bring back to their team “plate.” Every team is a winner when their food serving “plate” is complete with the suggested amount of servings from each food group.

Another way to play this game is to have a large food pyramid (paper poster or pocket chart) posted at one end of the gym and have teams fill it with the proper number of servings from each group with food picture cards.

- Make a class book modeled after the *Be Happy Be Healthy* book published by the United Health Foundation. Have each student draw and/or write something s/he can do to be healthy and happy. Bind the book and add it to your class library.
- Students practice math skills by using food picture cards to create patterns.
- Make a math connection with the food pyramid as an extension of the shared writing activity using tally marks to equal the number of suggested servings for each group. You can also practice symbols and equations with the same activity (1+1+1+1, etc...)
- Ask the school nutritionist to visit your class and explain how s/he plans school lunches and discuss a career in this field.
- Trace around each child on a big sheet of paper or use an 8 1/2” x 11” sheet with a body traced on it. Have each child color his/her face. Cut out and glue pictures of food items from each food group onto their paper figure.

Resources

Books

I Know How We Fight Germs (Sam's Science), by Kate Rowan and Katharine McEwen; ISBN 0-439-20710-X

Germs Make Me Sick!, by Melvin Berger; ISBN 0-06-445154-2

Germs! Germs! Germs!, by Bobbi Katz; ISBN 0-590-67295-9

Eating Healthy Foods, by Anne G. Jones; ISBN 0-8136-2882-2

Gregory, the Terrible Eater, by Mitchell Sharmat;
ISBN 0-590-43350-4

Bread and Cereal, by C. Klingel and R. B. Noyed;
ISBN 0-8368-3055-5

Fats and Sweets, by C. Klingel and R. B. Noyed;
ISBN 0-8368-3056-3

Fruit, by C. Klingel and R. B. Noyed; ISBN 0-8368-3057-1

Meat, by C. Klingel and R. B. Noyed; ISBN 0-8368-3058-X

Milk and Cheese, by C. Klingel and R. B. Noyed;
ISBN 0-8368-3059-8

Vegetables, by C. Klingel and R. B. Noyed; ISBN 0-8368-3060-1

The Edible Pyramid, by Loreen Leedy; ISBN 0153143487

Be Happy, Be Healthy, by the United Health FoundationSM, Available online at <http://www.unitedhealthfoundation.org/book.cfm>

Video

Slim Goodbody's Germ Invaders—Beat the Cold War, by John Burstein (available from <http://www.slimgoodbody.com/>, 1-800-962-7546): Item# SGV103

Web sites

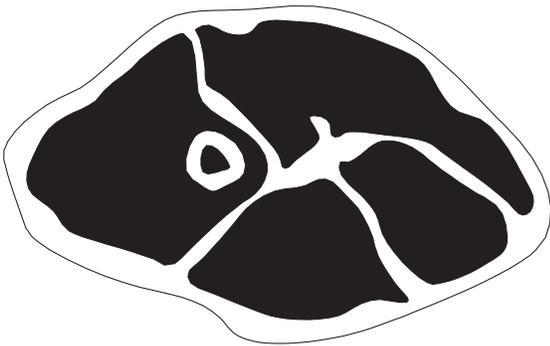
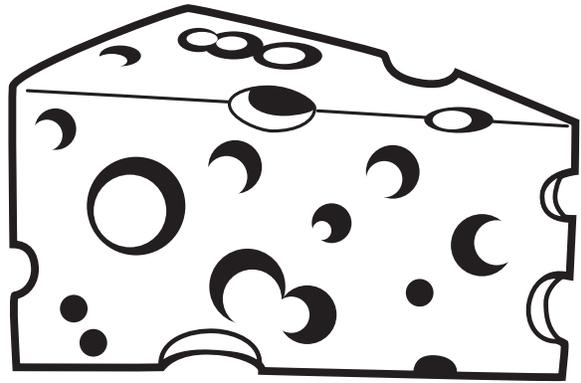
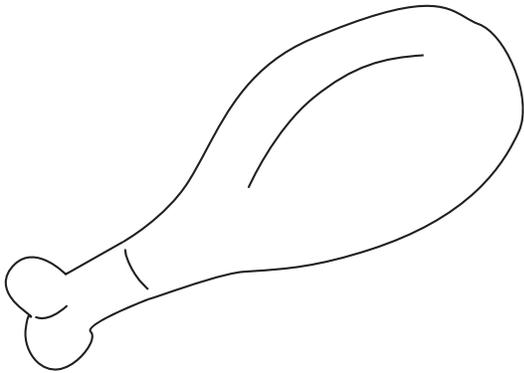
www.glogerm.com

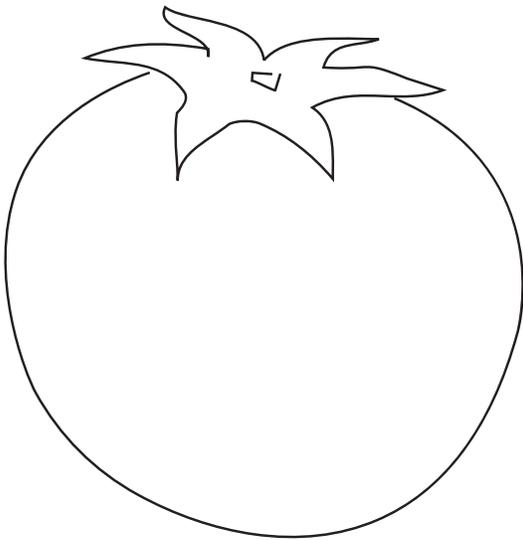
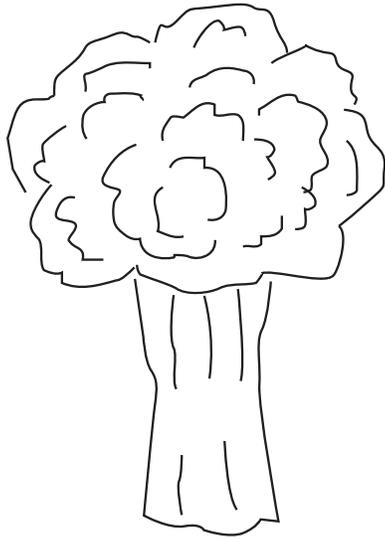
www.unitedhealthfoundation.org

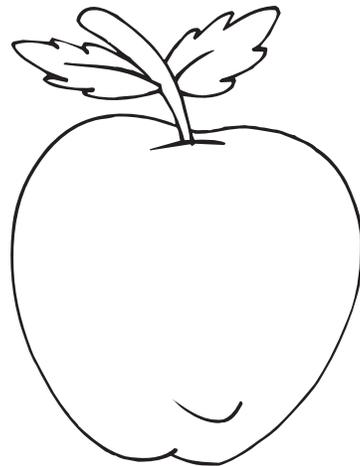
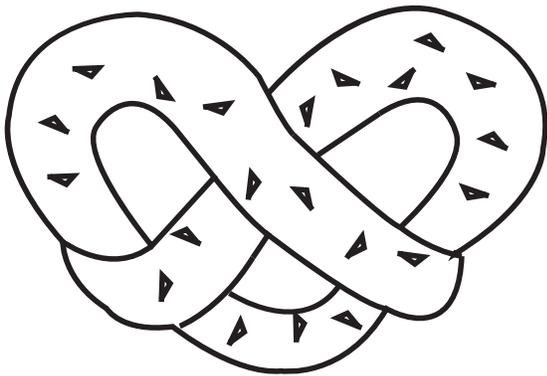
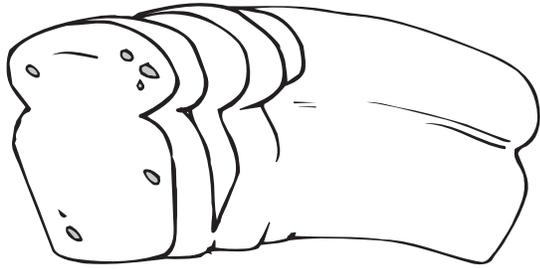
Family Connections

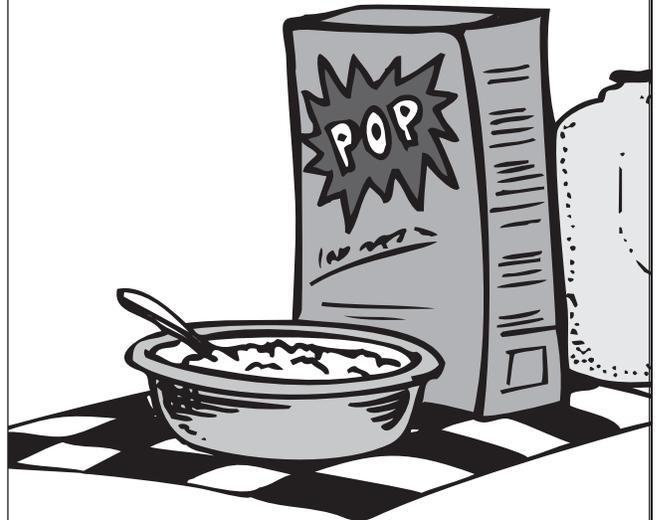
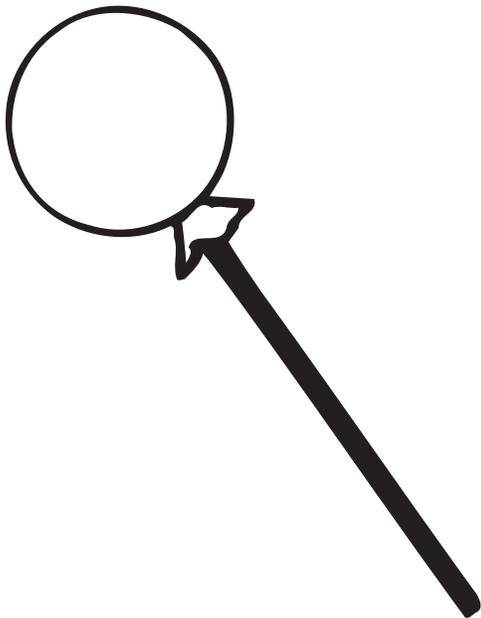
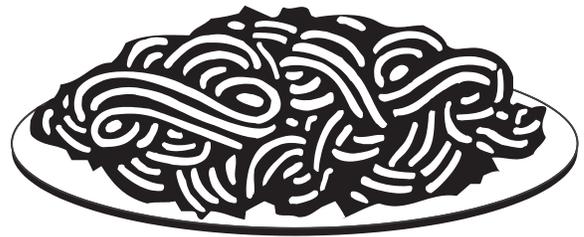
- Students share their knowledge of the five basic food groups to their family by explaining what they have learned as they put their food pyramid puzzle together.
- Students take home a *Healthy, Happy Me Game Board* to play with their family.

Food Picture Cards









My Healthy Habits Journal

Name _____

Monday

I am healthy because.....

I remembered to brush two times
a day this weekend.



Tuesday

I am healthy because.....

I remembered to brush my teeth



I was a germ catcher by washing my hands



I was a germ catcher by sneezing into a sleeve



Wednesday

I am healthy because.....

I remembered to brush my teeth



I was a germ catcher by washing my hands



I was a germ catcher by sneezing into a sleeve



I drank plenty of water



I got plenty of sleep



Thursday

I am healthy because.....

I remembered to brush my teeth



I was a germ catcher by washing my hands



I was a germ catcher by sneezing into a sleeve



I drank plenty of water



I got plenty of sleep



I exercised my body



Friday

I am healthy because.....

I remembered to brush my teeth



I ate healthy foods

I was a germ catcher by washing my hands



 breads/grains



I was a germ catcher by sneezing into a sleeve



 vegetables



I drank plenty of water



 fruits



I got plenty of sleep



 dairy



I exercised my body



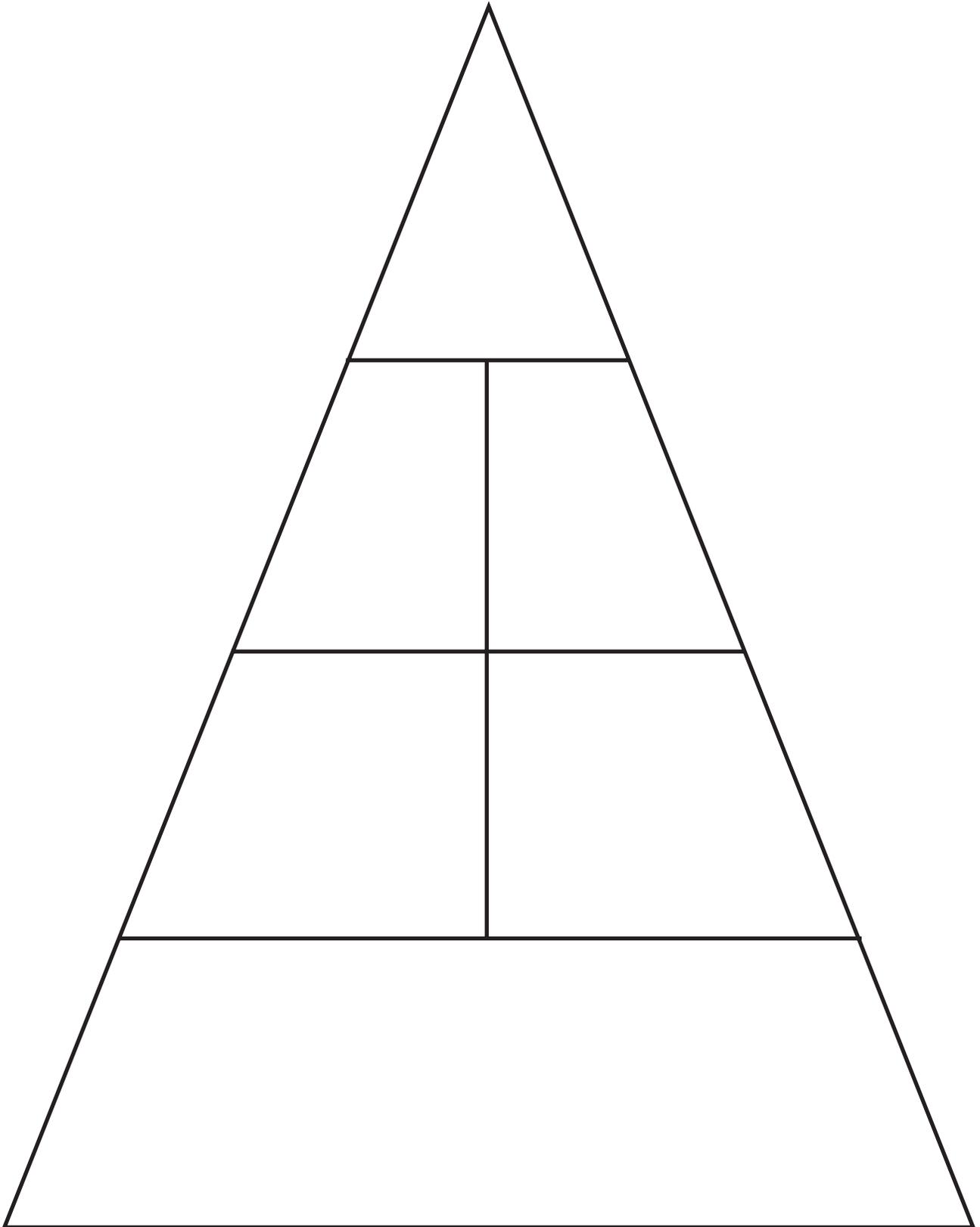
 meat



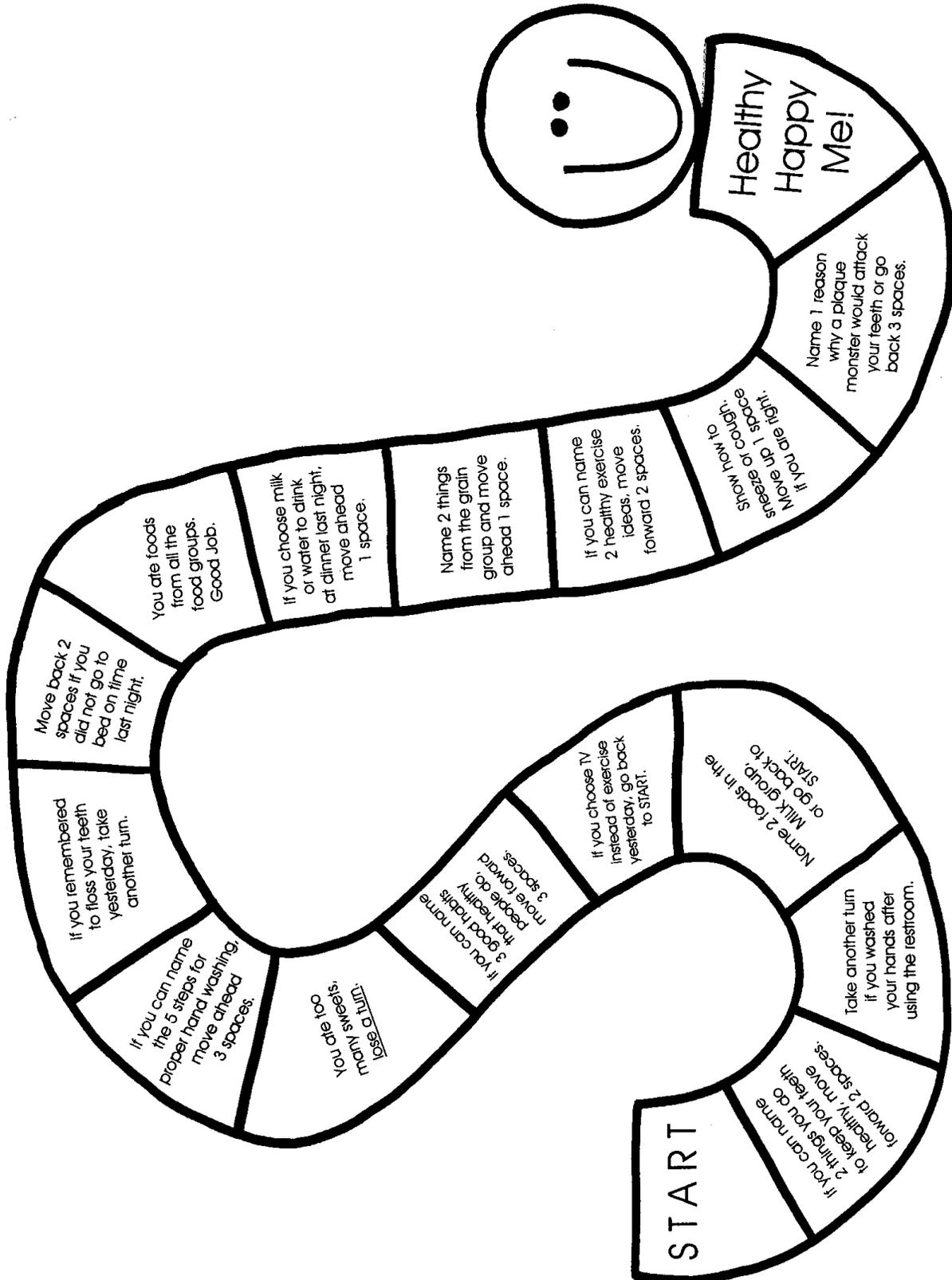
 not too many sweets



Food Pyramid

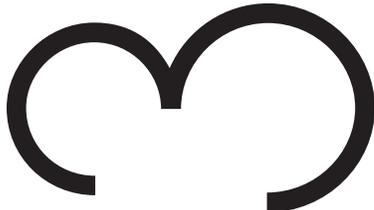


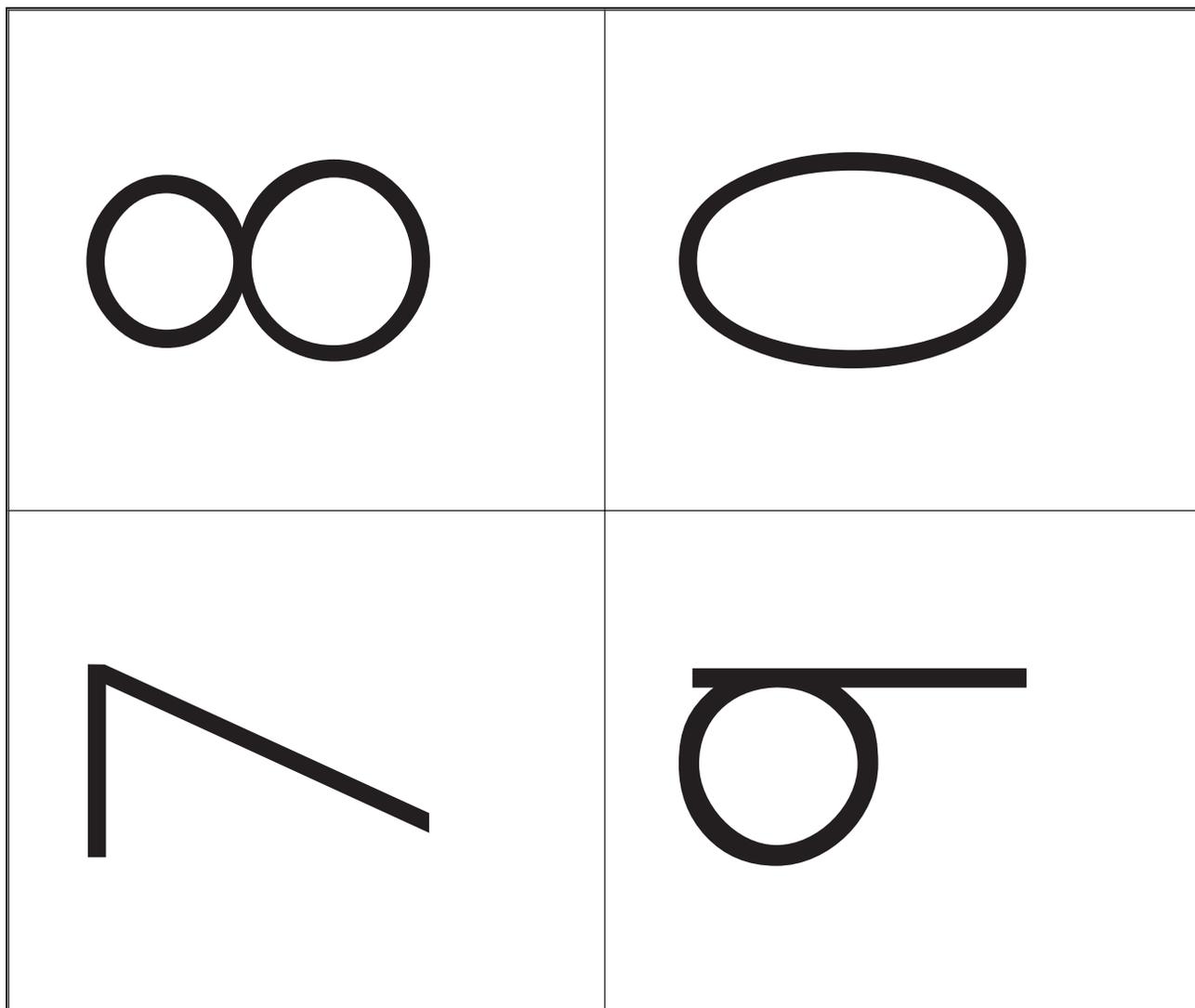
Healthy Happy Me Game Board



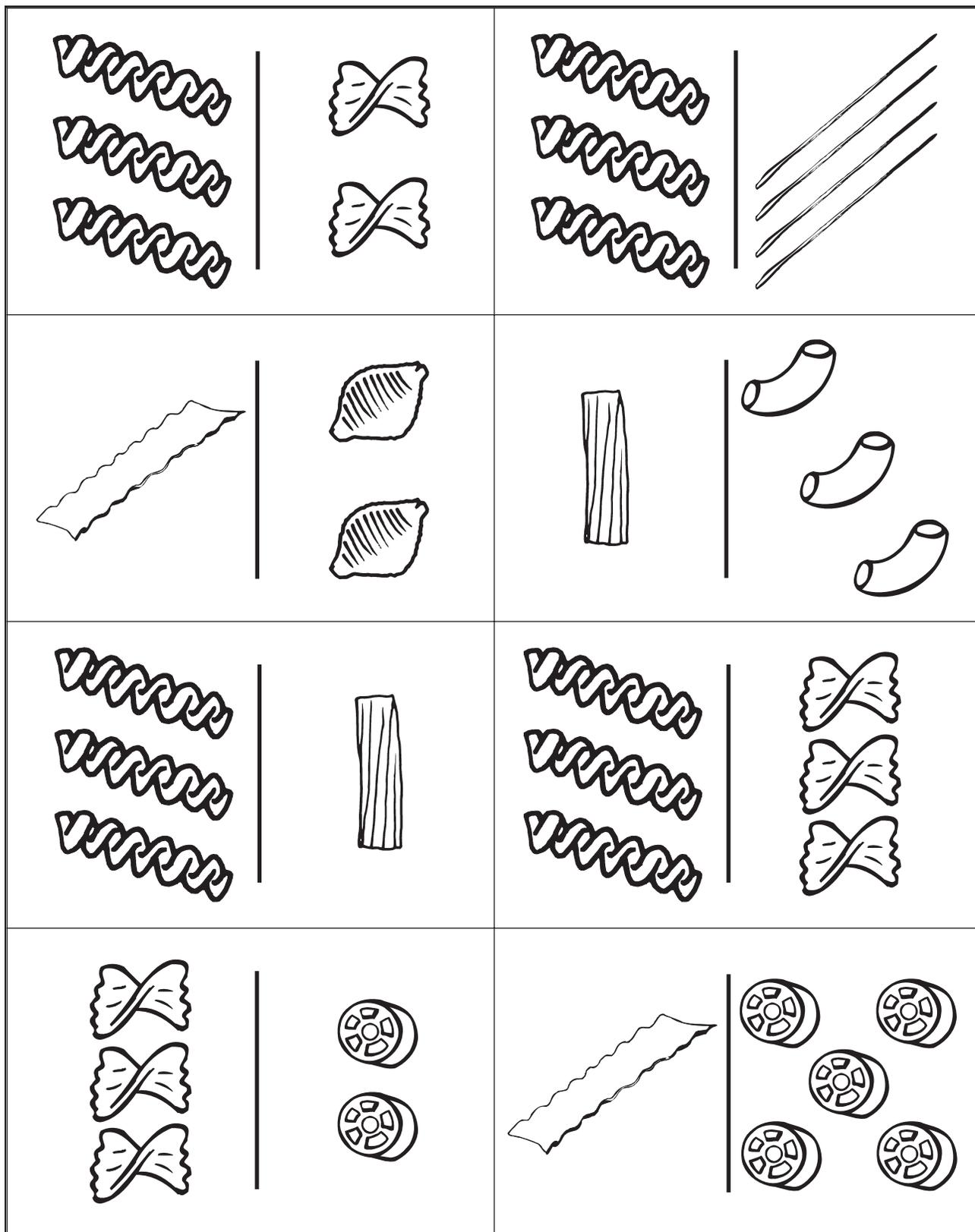
Appendix

Magic Cards

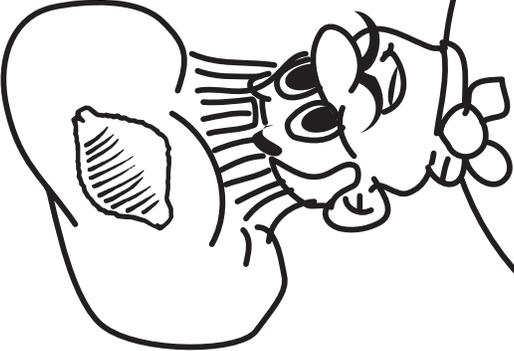
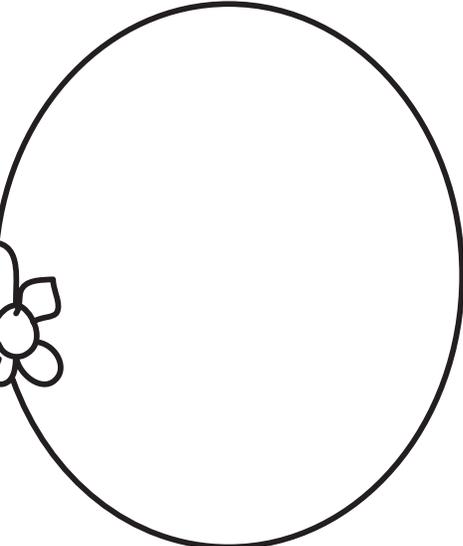
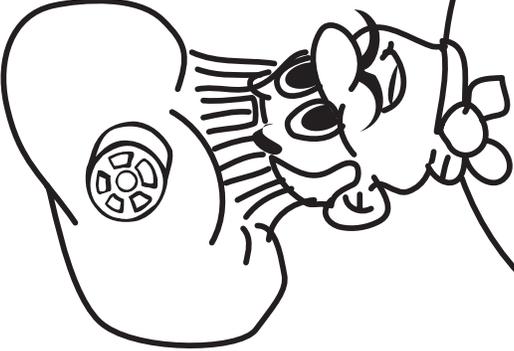
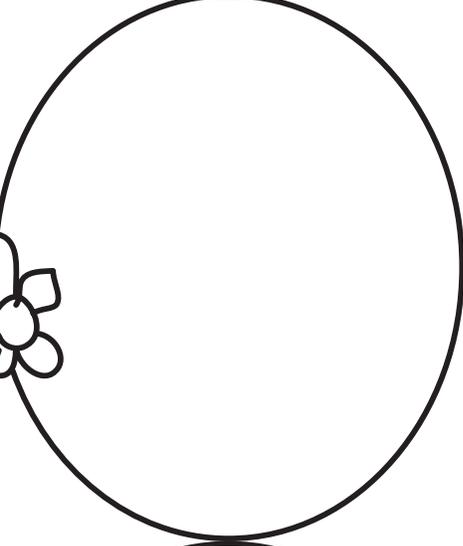
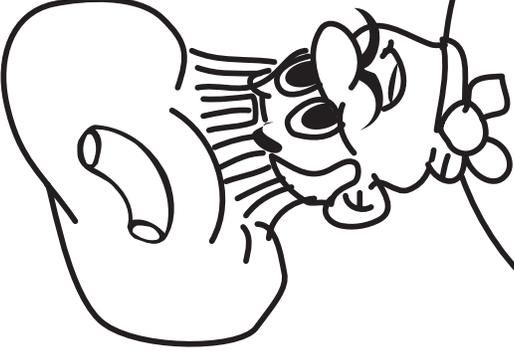
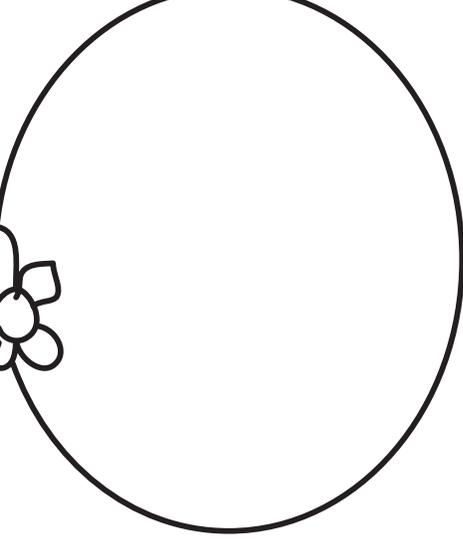


Pasta Domino Cards



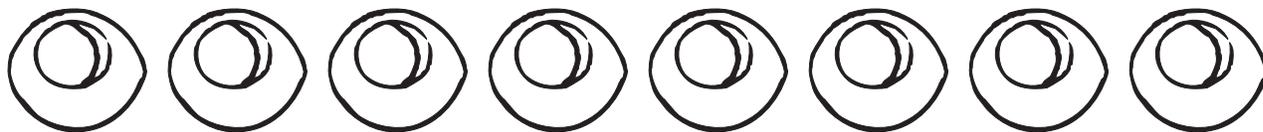
Name _____

Sorting Pasta

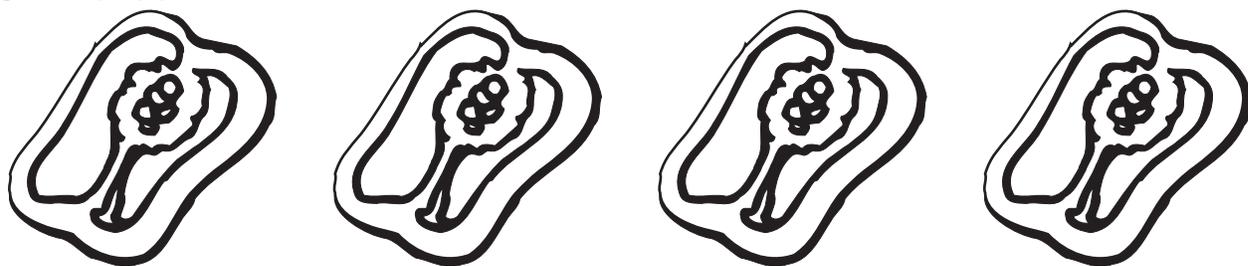
		
		
		
		
		
		
		
		
		
		

Pizza Parts

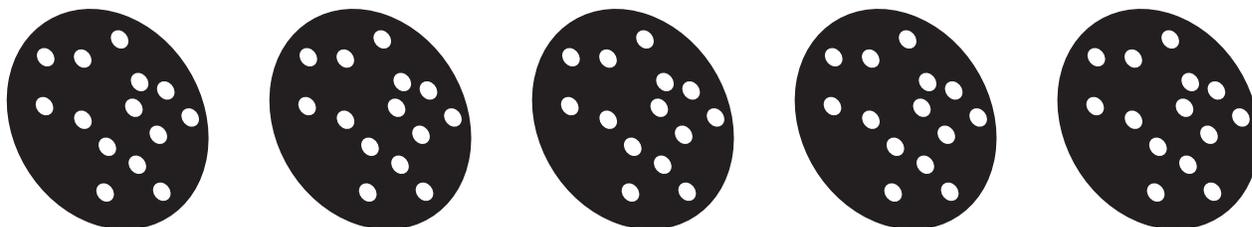
olives



green pepper



pepperoni



pineapple



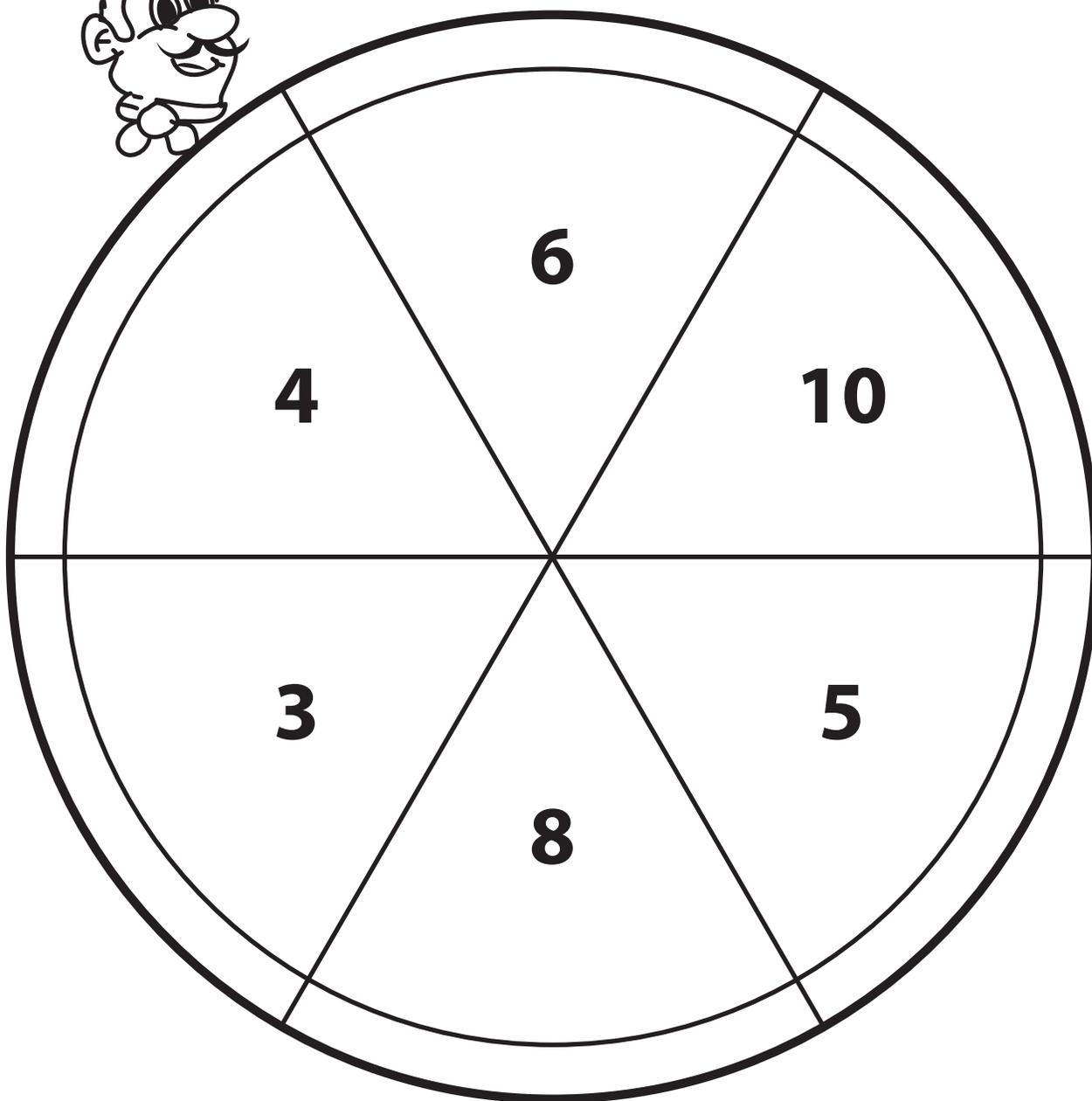
mushrooms



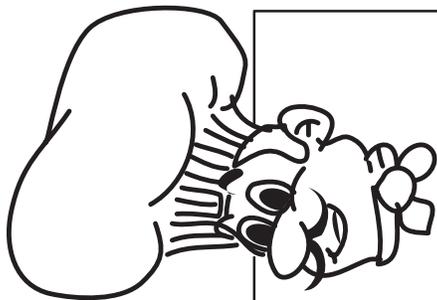
Name _____

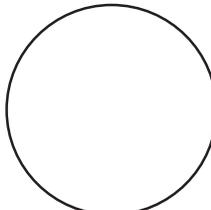
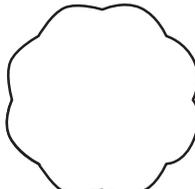
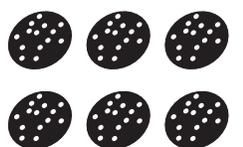
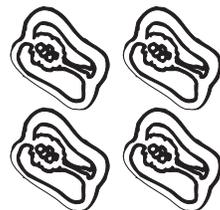
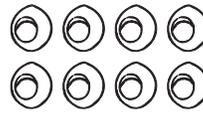
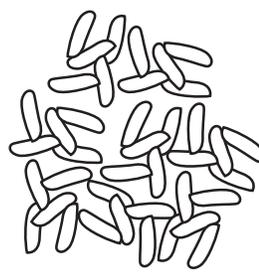
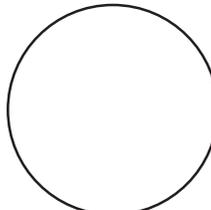
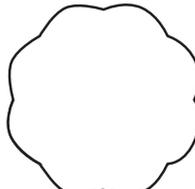
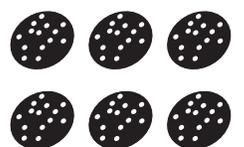
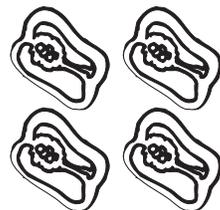
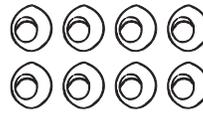
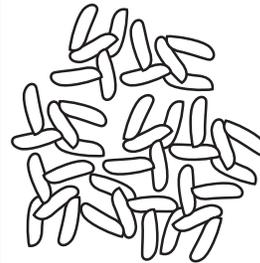
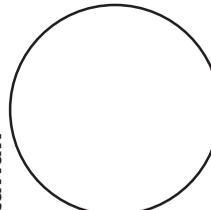
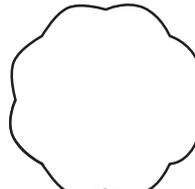
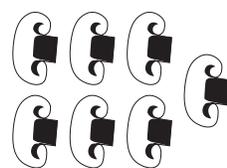
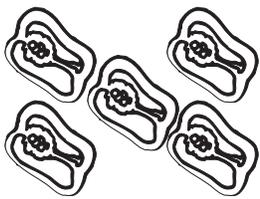
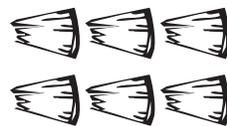
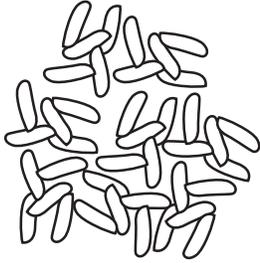
Arrange a Pizza

Read the numeral. Make a set to match.



Pizza Making Sequence



<p>Pepperoni</p>  <p>crust</p>  <p>sauce</p>  <p>6 pepperoni</p>  <p>4 mushrooms</p>  <p>4 green peppers</p>  <p>8 olives</p>  <p>cheese</p>	<p>Supreme</p>  <p>crust</p>  <p>sauce</p>  <p>6 pepperoni</p>  <p>4 mushrooms</p>  <p>4 green peppers</p>  <p>8 olives</p>  <p>cheese</p>	<p>Vegetarian</p>  <p>crust</p>  <p>sauce</p>  <p>7 mushrooms</p>  <p>5 green peppers</p>  <p>6 olives</p>  <p>6 pineapple</p>  <p>cheese</p>
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Word Strips

English

Hello

Spanish

Hola
(OH-lah)

Swahili

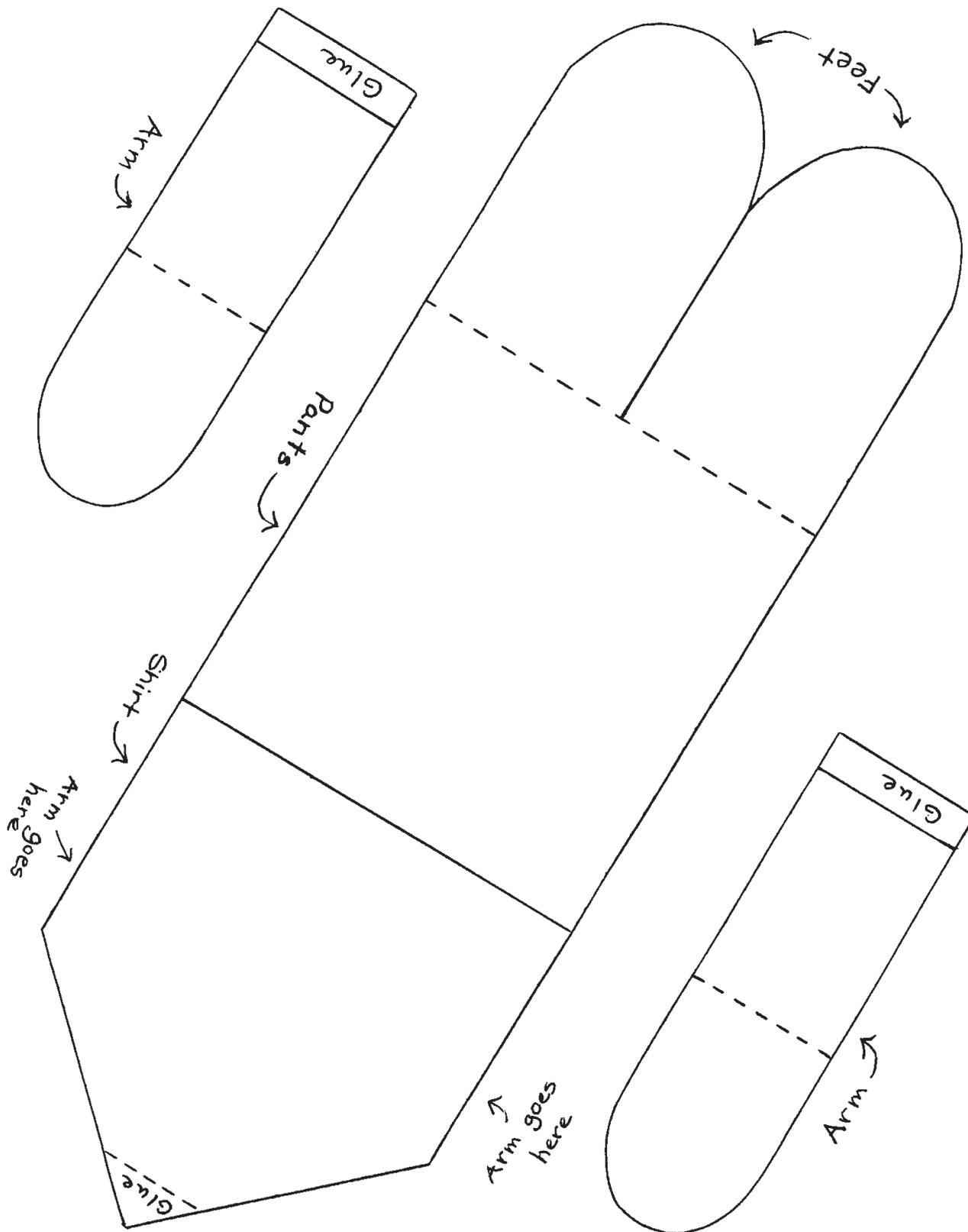
Jambo
(JAH-mboh)

<p>French</p>	<p>Bon-jour (BONE-zhure)</p>
<p>Portuguese</p>	<p>Oi (OY)</p>
<p>Japanese</p>	<p>Konnichi wa (ko-KNEE-chee wah)</p>

Abiyoyo Storyboard

Abiyoyo Storyboard

Body and Arms



Heads and Hands

