ELEMENTARY
CORE Academy
UTAH STATE OFFICE OF EDUCATION & UTAH STATE UNIVERSITY

Participant Handbook

2006

UTAH STATE OFFICE OF EDUCATION

ELEMENTARY CORE ACADEMY

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Utah State Office of Education (USOE)
Utah State University (USU)
State Science Education Coordination Committee (SSECC)
State Mathematics Education Coordination Committee (SMECC)
Special Education Services Unit (USOE)
WestEd Eisenhower Regional Consortium

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UTAH STATE OFFICE OF EDUCATION

Leadership…Service…Accountability

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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 Elementary 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

Funding Sources

Appreciation is expressed for the tremendous educational input and monetary commitment of several organizations for the successful delivery of the Elementary CORE Academy. This year's Elementary CORE Academy was developed and funded through a variety of sources. The Utah State Office of Education (USOE), in collaboration with Utah State University (USU) and local school districts of Utah, have supported kindergarten through sixth grade teachers with professional development experiences that will enhance the educational experience for Utah children.

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

District Funds:

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

School Funds:

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Utah State Office of Education Special Education Services

The state and district funds are allocations from the state legislature. ESEA is part of the "No Child Left Behind" funding that comes to Utah.

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 the 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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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.

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

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

educators, State Office of Education specialist, 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.

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

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 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.

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

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 First Grade Core Curriculum

First grade 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.

In first grade, students are immersed in a literature-rich environment to develop an awareness of phonemes and print materials as sources of information and enjoyment. They listen and speak to participate in classroom discussions and use a variety of strategies to read new words and familiar selections aloud with fluency and expression. Understanding the main idea and sequence of events in a story are important comprehension skills that are applied in all other content areas.

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

First graders continue their development of number sense. They learn basic addition and subtraction facts through joining and separating sets with twelve or fewer objects. Students draw and describe specified two-dimensional figures and use nonstandard units to measure length and weight. They are introduced to the idea of fractions and continue the development of sorting and patterning skills. While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers.

In first grade, students learn about themselves and their relationship to the classroom, school, family, and community. Students develop the skills of questioning, gathering information, making measurements using nonstandard units, constructing explanations, and drawing conclusions. 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.

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.
   d. Include others in learning and play activities.
   e. Participate with others when making decisions and solving problems.
   f. 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.

First Grade 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. Identify specific purpose(s) for listening (e.g., to gain information, to be entertained).

b. Listen and demonstrate understanding by responding appropriately (e.g., follow multiple-step directions, restate, clarify, question).

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. Identify specific purpose(s) for viewing media (i.e., to identify main idea and details, to gain information, distinguish between fiction/nonfiction).

b. Use a variety of formats (e.g., show and tell, drama, sharing of books and personal writings, choral readings, informational reports, retelling experiences and stories in sequence) 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. Discriminate between letters, words, and sentences in text.

b. Match oral words to printed words while reading.

c. Identify punctuation in text (i.e., periods, question marks, and 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 syllables in words.

b. Count the number of syllables in a first name.

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

a. Identify words with same beginning consonant sounds (e.g., man, sat, sick) and ending consonant sounds (e.g., man, sat, ten) in a series of words.

b. Identify words with same medial sounds in a series of words (e.g., long vowel sound: take, late, feet; short vowel sound: top, cat, pan; middle consonant sound: kitten, missing, lesson).

Objective 3: Orally blend word parts (blending).

a. Blend syllables to make words (e.g., /ta/…/ble/, table).

b. Blend onset and rime 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 and final sound (e.g., replace first sound in mat to /s/, say sat; replace last sound in mat with /p/, say map).

b. Substitute vowel in words (e.g., replace middle sound in map to /o/, say mop).

c. Delete syllable in words (e.g., say baker without the /ba/, say ker).

d. Deletes initial and final sounds in words (e.g., say sun without the /s/, say un; say hit without the /t/, say hi).

e. Delete initial phoneme and final phoneme in blends (e.g., say step without the /s/, say tep; say best without the /t/, say bes).

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. Write letters to represent spoken sounds of all letters of the alphabet in random order.

b. Identify and pronounce sounds for consonants, consonant blends (e.g., br, st, fl) and consonant digraphs (e.g., ch, sh, wh, th) accurately in words.

c. Identify and pronounce sounds for short and long vowels, using patterns (e.g., vc, vcv, cvc, cvvc, cvcv, cvc-silent e), and vowel digraphs (e.g., ea, ee, ie, oa, ai, ay, oo, ow) accurately in words.

d. Identify and pronounce sounds for r–controlled vowels accurately in one-syllable words (e.g., ar, or, er).

e. Identify and blend initial letter sounds with common vowel patterns to pronounce one-syllable words (e.g., /g/…/oa/…/t/, goat).

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 one-syllable words (e.g., blends, digraphs, vowel patterns, r-controlled vowels).

c. Demonstrate an understanding of representing same sound with different patterns by decoding these patterns accurately in one-syllable words (e.g., ee, ie, ea, e).

d. Use knowledge of root words and suffixes to decode words (i.e., -ful, -ly, -er).

e. Use letter patterns to decode words (e.g., phonograms/word families/onset and rime: -ack, -ail, -ake).

Objective 3: Spell words correctly.

a. Write sounds heard in words in the correct order.

b. Hear and write beginning, middle, and ending consonant sounds to spell one-syllable words.

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

c. Spell short vowel words with consonant blends and digraphs (e.g., bl, st, nt, sh, wh, th).

d. Spell an increasing number of grade level high-frequency and irregular words correctly (e.g., bear, gone, could).

e. Learn the spellings of irregular and difficult words (e.g., river, house, animal).

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 and word patterns.

c. Use spelling generalities to assist spelling of new words (e.g., one vowel between two consonants, silent "e" on the end of a word, two vowels together).

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 grade level text at a rate of approximately 60 wpm.

b. Read grade level text with an accuracy rate of 95-100%.

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

a. Read grade level text in three- to four-word phrases using intonation, expression, and punctuation cues.

b. Read with automaticity 100 first grade high-frequency/sight words.

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

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 meanings 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, simple dictionaries).

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 using the root word and known endings (e.g., car, cars; jump, jumped, jumping).

b. Use context to determine meanings of unknown key words (e.g., The gigantic dog couldn't fit in his new doghouse.).

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.**

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 read aloud and independently.

c. Make predictions using picture clues, title, text, and/or prior knowledge.

d. Make inferences and draw conclusions from text.

e. Identify topic/main idea from text noting details.

f. Retell using important ideas/events and supporting details in sequence.

g. Compile information from text.

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

a. Identify beginning, middle, and end; characters; setting; problem/resolution.

b. Identify different genres: nursery rhymes, fairy tales, poems, realistic fiction, fantasy, fables.

c. Identify information from pictures, captions, and diagrams.

d. Identify multiple facts in grade level informational text.

e. Locate facts from informational texts (e.g., picture books, grade level informational books).

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

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

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 reading, discussing literature and informational text, drawing, looking at books, being read to, and reflecting on personal experiences.

b. Select topics from generated ideas.

c. Identify audience for writing.

Objective 2: Compose a written draft.

a. Draft ideas on paper in an organized manner (e.g., beginning, middle, end) utilizing words and sentences.

b. elect appropriate words to convey meaning.

Objective 3: Revise by elaborating and clarifying a written draft.

a. Revise draft to add details.

b. Revise draft using descriptive words.

c. Write in complete sentences.

Objective 4: Edit written draft for conventions.

a. Edit writing for capitals in names, first word of a sentence, and the pronoun "I" and correct ending punctuation (i.e., periods, question marks).

b. Edit for spelling of grade level-appropriate words (e.g., would, down, made, write).

c. Edit for standard grammar (i.e., complete sentences).

d. Edit for appropriate formatting features (i.e., spacing, margins, titles).

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. Produce legible documents with manuscript handwriting.

Objective 6: Write in different forms and genres.

a. Produce personal writing (e.g., journals, lists, friendly notes and letters, personal experiences, family stories, literature responses).

b. Produce traditional and imaginative stories, narrative and formula poetry as a shared writing activity.

c. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

d. Share writing with others using illustrations to add meaning to published works.

e. Publish group and individual products.

First Grade Mathematics Core Curriculum

Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Standard I: Students will acquire number sense and perform simple operations with whole numbers.

Objective 1: Represent whole numbers in a variety of ways.

a. Relate number words to the *numerals* that represent the quantities 0 to 10.

b. Sort objects into groups of tens and ones and write the numeral representing the set.

c. Represent *whole numbers* up to 100 in groups of tens and ones using objects.

d. Write a numeral when given the number of tens and ones.

e. Write a numeral to 99 in *expanded form* (e.g., 39 is 3 tens and 9 ones or 30+9).

f. Use zero to represent the number of elements in the empty set or as a placeholder in a two-digit numeral.

Objective 2: Identify simple relationships among whole numbers.

a. Identify the number that is one more or one less than any *whole number* from 1 to 99.

b. Use the vocabulary "greater than," "less than," and "equal to" when comparing sets of objects or numbers.

c. Order sets of objects and numbers from 0 to 20.

d. Use *ordinal numbers* 1st through 5th (i.e., 1st, 2nd, 3rd, 4th, 5th).

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

a. Demonstrate the joining and separating of sets with twelve or fewer objects and record the results with pictures or symbols.

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.

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).

d. Use zero in addition and subtraction sentences.

Objective 4: Use fractions to identify parts of the whole.

a. Share sets of up to ten objects between two students and identify each part as half.

b. Divide geometric shapes into equal parts, identifying halves and fourths.

Objective 5: Solve whole number problems using addition and subtraction in horizontal and vertical notation.

a. Compute addition and subtraction facts to twelve.

b. Add three whole numbers with sums to twelve.

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

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

Objective 1: Recognize and represent patterns with one or two attributes.

a. Sort and classify objects by one or two *attributes*.

b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB . . ., □ ○ △ □ ○ △ . . .).

c. Identify patterns in the environment.

d. Identify horizontal and vertical patterns on hundreds charts.

e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100.

f. Count backward from 10 to 0 and identify the pattern.

Objective 2: Recognize and represent relations using mathematical symbols.

a. Recognize that "=" indicates a relationship in which the quantities on each side of an equation are equal.

b. Recognize that symbols such as □, △, or ◇ in an addition or subtraction equation represent a missing value that will make the statement true (e.g., □ + 3 = 6, 5 +7 = △, 4 = 5 – ◇).

c. Demonstrate that changing the order of *addends* does not change the *sum* (e.g., 3+2=5 and 2+3=5).

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

Objective 1: Describe, identify, and create simple geometric shapes.

a. Identify, name, draw, create, and sort circles, triangles, rectangles, and squares.

b. Identify circles, triangles, rectangles, and squares in the students' environment.

c. Recognize that combining simple geometric shapes can create more complex geometric shapes.

Objective 2: Describe simple spatial relationships.

a. Use and demonstrate words to describe position (i.e., between, before, after, middle, left, right).

b. Use and demonstrate words to describe distance (i.e., closer, farther).

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

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 the appropriate tools for measuring length, weight, volume, temperature, and time.

b. Identify the values of a penny, nickel, dime, and quarter.

c. Estimate the length of an object by comparing to a nonstandard unit (e.g., How many new pencils wide is your desk?).

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

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

a. Compare objects, using nonstandard units, according to their length, weight, or capacity (e.g., pencils/length, books/weight, boxes/volume).

b. Read and tell time to the nearest hour.

c. Name the days of the week, months of the year, and seasons in order.

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¢).

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 physical objects to use as data.

b. Collect, represent, and interpret data using tables, tally marks, *pictographs*, and bar graphs.

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).

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

First Grade 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. Practice appropriate personal hygiene (e.g., bathe, wash hands, clean clothes).

b. Describe the benefits of eating a variety of nutritious foods.

c. Describe the benefits of physical activity.

d. Describe substances that are helpful and harmful to the body.

e. Practice basic safety and identify hazards.

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

a. Participate daily in short periods of physical activity that require exertion (e.g., one to three* minutes of walking, jogging, jump roping).

b. Perform fundamental locomotor (e.g., skip, gallop, run) and nonlocomotor (twist, stretch, balance) skills with mature form.

c. Develop manipulative skills (e.g., cut, glue, throw, catch, kick, strike).

d. Create and perform unique dance movements and sequences that strengthen skills while demonstrating personal and spatial awareness.

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

a. Recognize and express feelings in a variety of ways (e.g., draw, paint, tell stories, dance, sing).

b. Express how colors, values, and sizes have been controlled in artworks to create mood, tell stories, or celebrate events.

c. Sing a melody independently, with developing accuracy and a natural voice that is free from strain.

d. Create simple rhythm, movement, and melody patterns with body percussion and instruments.

* Some students may not be able to sustain activity for one minute due to various medical concerns.

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

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

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

a. Explain how family members support each other.

b. Describe tasks at home and school.

c. Explain how families change over time.

d. Recognize that choices have consequences which affect self, peers, and family.

e. Describe behaviors that initiate and maintain friendships.

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

a. Practice democratic processes (e.g., follow family and classroom rules, take turns, listen to others, share ideas).

b. Describe physical features surrounding the home, school, and community.

c. Identify changes in the school and neighborhood over time.

d. Identify and use technology in your home, school, and community (e.g., computer, TV, radio).

e. Show respect for state and national symbols and patriotic traditions; recite the Pledge of Allegiance.

Objective 3: Express relationships in a variety of ways.

a. Describe traditions, music, dances, artwork, poems, rhymes, and stories that distinguish cultures.

b. Develop dramatic storytelling skills through flexibility in movement and voice, accurate sequencing, and listening and responding to others.

c. Create and perform/exhibit dances, visual art, music, and dramatic stories from a variety of cultures expressing the relationship between people and their culture.

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

Objective 1: Investigate plants and plant growth.

a. Observe and draw pictures of plants.

b. Compare seeds of plants and describe ways they may be carried through the environment (e.g., wind, water, animals).

c. Observe and describe plants as they grow from seeds.

d. Identify how people use plants (e.g., food, clothing, paper, shelter).

e. Investigate and report conditions that affect plant growth.

Objective 2: Investigate water and interactions with water.

a. Observe and measure characteristics of water as a solid and liquid.

b. Compare objects that float and sink in water.

c. Measure and predict the motion of objects in water.

d. Describe how plants and people need, use, and receive water.

Objective 3: Demonstrate how symbols and models are used to represent features of the environment.

a. Use map skills to identify features of the neighborhood and community.

b. Create representations that show size relationships among objects of the home, classroom, school, or playground.

c. Identify map and globe symbols (e.g., cardinal directions, compass rose, mountains, rivers, lakes).

d. Locate continents and oceans on a map or globe (i.e., North America, Antarctica, Australia, Pacific Ocean, Atlantic Ocean).

K-6 Elementary Mathematics Core Curriculum in Table Format

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard I: Students will understand simple number concepts and relationships.	Standard I: Students will acquire number sense and perform simple operations with whole numbers.	Standard I: Students will acquire number sense and perform operations with whole numbers.	Standard I: Students will acquire number sense and perform operations with whole numbers and simple fractions.	Standard I: Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.	Standard I: Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.	Standard I: Students will acquire number sense and perform operations with rational numbers.
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 1: Represent whole numbers in a variety of ways. a. Relate number words to the *numerals* that represent the quantities 0 to 10. b. Sort objects into groups of tens and ones and write the numeral representing the set. c. Represent *whole numbers* up to 100 in groups of tens and ones using objects. d. Write a numeral when given the number of tens and ones. e. Write a numeral to 99 in *expanded form* (e.g., 39 is 3 tens and 9 ones or 30+9). f. Use zero to represent the number of elements in the empty set or as a placeholder in a two-digit numeral.	Objective 1: Represent whole numbers in a variety of ways. a. Relate number words to the *numerals* that represent the quantities 0-100. b. Represent *whole numbers* up to 1,000 in groups of hundreds, tens, and ones using base ten models, and write the numeral representing the set. c. Read and write a three-digit numeral, relating it to a set of objects and a pictorial representation. d. Write a numeral to 999 in *expanded form* (e.g., 539 is 5 hundreds, 3 tens, 9 ones or 500+30+9). e. 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). f. 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).	Objective 1: Represent whole numbers in a variety of ways. a. Model, read, and write *whole numbers* up to 10,000 using base ten models, pictures, and symbols. b. Write a *numeral* when given the number of thousands, hundreds, tens, and ones. c. 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). d. Identify the place and the value of a given digit in a four-digit numeral. e. 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).	Objective 1: Represent whole numbers and decimals in a variety of ways. a. Model, read, and write numerals from tenths to 100,000. b. Write a *whole number* up to 99,999 in *expanded form* (e.g., 76,539 is 7 ten-thousands, 6 one-thousands, 5 hundreds, 3 tens, 9 ones or 70,000 + 6,000 + 500 + 30 + 9). c. Identify the place and the value of a given digit in a five-digit numeral, including decimals to tenths. d. Demonstrate multiple ways to represent numbers by using models and symbolic representations (e.g., 36 is the same as the square of six, three dozen, or 9x4). e. Identify *square numbers* using models.	Objective 1: Represent whole numbers and decimals in a variety of ways. a. Model, read, and write numerals from hundredths to one millions. b. Write a *whole number* up to 999,999 in expanded form (e.g., 876,539 = 8 hundred-thousands, 7 ten-thousands, 6 thousands, 5 hundreds, 3 tens, 9 ones or 8x100,000 + 7x10,000 + 6x1,000 + 5x100 + 3x10 + 9). c. Demonstrate multiple ways to represent whole numbers by using models and symbolic representations (e.g., 108=2x50+8; 108=10^2 + 8). d. Classify whole numbers from 2 to 20 as *prime* or *composite* and 0 and 1 as neither prime nor composite, using models. e. Represent repeated factors using *exponents* up to three (e.g., 8=2x2x2=2^3).	Objective 1: Represent whole numbers and decimals in a variety of ways. a. Change *whole numbers* with *exponents* to *standard form* (e.g., 2^4 = 2^4=16) and recognize that 10^0 = 1. b. Read and write *numerals* from thousandths to one billion. c. Write a whole number to 999,999 in *expanded form* using *exponents* (e.g., 876,539 = 8 x 10^5 + 7 x 10^4 + 6 x 10^3 + 5 x 10^2 + 3 x 10^1 + 9 x 10^0). d. Express numbers in *scientific notation* using positive powers of ten. e. Classify whole numbers to 100 as *prime, composite,* or neither. f. Determine the *prime factorization* for a whole number up to 50.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
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 2: **Identify simple relationships among whole numbers.** a. Identify the number that is one more or one less than any *whole number* from 1 to 99. b. Use the vocabulary "greater than," "less than," and "equal to" when comparing sets of objects or numbers. c. Order sets of objects and numbers from 0 to 20. d. Use *ordinal numbers* 1st through 5th (i.e., 1st, 2nd, 3rd, 4th, 5th).	Objective 2: **Identify simple relationships among whole numbers.** a. Identify the number that is one more, one less, ten more, or ten less than any *whole number* up to 100. b. Write number sentences using the terms "greater than," "less than," or "equal to," to compare numbers. c. Order four whole numbers less than 100 from least to greatest and from greatest to least. d. Use *ordinal numbers* 1st through 10th.	Objective 2: **Identify relationships among whole numbers.** a. Use a variety of strategies to determine whether a number is even or odd. b. Identify the number that is ten more, ten less, 100 more, or 100 less than any *whole number* up to 1,000. c. Compare the relative size of numbers (e.g., 31 is large compared to 4, about half as big as 60, close to 27). d. Compare whole numbers up to four digits using the symbols <, >, and =. e. Order and compare whole numbers on a number line.	Objective 2: **Identify relationships among whole numbers and decimals.** a. Identify the number that is 100 more, 100 less, 1,000 more, or 1,000 less than any *whole number* up to 10,000. b. Compare the relative size of numbers (e.g., 100 is small compared to a million, but large compared to 5). c. Compare whole numbers up to five digits using the symbols <, >, and =. d. Identify a whole number that is between two given whole numbers. e. Order and compare whole numbers and decimals to tenths on a number line.	Objective 2: **Identify relationships among whole numbers, fractions, decimals, and percents.** a. Order and compare *whole numbers*, fractions (including mixed numbers), and decimals using a variety of methods and symbols. b. Rewrite mixed numbers and improper fractions from one form to the other. c. Find the least common denominator for two fractions. d. Represent commonly used fractions as decimals and percents in various ways (e.g., objects, pictures, calculators).	Objective 2: **Identify relationships among whole numbers, fractions (rational numbers), decimals, and percents.** a. Find the *greatest common factor* and *least common multiple* for two numbers using a variety of methods (e.g., list of multiples, prime factorization). b. Order and compare *rational numbers*, including mixed numbers, using a variety of methods and symbols. c. Locate positive rational numbers on a number line. d. Convert common fractions, decimals, and percents from one form to another (e.g., 3/4= 0.75 = 75%).

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
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 of 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.	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 twelve or fewer objects and record the results with pictures or symbols. 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. 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). d. Use zero in addition and subtraction sentences.	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 eighteen or fewer objects and record the results with pictures or symbols. 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. c. Separate a given set of objects into two, three, five, or ten groups of equal size. d. Model addition and subtraction of two-digit whole numbers in a variety of ways. e. Select an addition or subtraction sentence to solve a problem involving joining or separating of sets with eighteen or fewer objects. f. Recognize that addition number sentences have related subtraction sentences (e.g., 8-5=3, 3+5=8).	Objective 3: **Model and illustrate meanings of the operations of addition, subtraction, multiplication, and division and describe how they relate.** a. Model addition and subtraction of two- and three-digit *whole numbers* in a variety of ways. b. Model multiplication of a one-digit *factor* by a one-digit factor using various methods (e.g., repeated addition, rectangular *arrays,* manipulatives, pictures) and connect the representation to an *algorithm*. c. Model division as sharing equally and as repeated subtraction using various methods (e.g., rectangular arrays, manipulatives, number lines, pictorial representations). d. Demonstrate, using objects, that multiplication and division are inverse operations (e.g., 3x4=12; thus, 12÷4=3 and 12÷3=4). e. Select and write an addition, subtraction, or multiplication sentence to solve a problem related to the students' environment, and write a story problem that relates to a given equation. f. Demonstrate the effects of place value when multiplying whole numbers by 10.	Objective 3: **Model and illustrate meanings of the four operations and describe how they relate.** 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*. b. Recognize that division by zero is not possible (e.g., 6÷0 is undefined). 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. 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. e. Demonstrate that multiplication and division are inverse operations (e.g., 3x4=12; thus, 12÷4=3 and 12÷3=4). f. Describe the effect of place value when multiplying whole numbers by 10 and 100.	Objective 3: **Model and illustrate meanings of operations and describe how they relate.** a. Identify the *dividend*, *divisor,* and *quotient* regardless of the division symbol used. b. Determine whether a whole number is divisible by 2, 3, 5, 9, and/or 10, using the r*ules of divisibility*. c. Represent remainders as *whole numbers,* 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?). d. Model addition, subtraction, and multiplication of fractions and decimals in a variety of ways (e.g., using objects and a number line). e Select or write the number sentences that can be used to solve a two-step problem. f. Model different strategies for whole number multiplication (e.g., partial product, lattice) and division (e.g., partial quotient). g. Describe the effect on place value when multiplying and dividing whole numbers and decimals by 10, 100, and 1,000.	Objective 3: **Model and illustrate meanings of operations and describe how they relate.** a. Represent division of a multi-digit *dividend* by two-digit *divisors,* including decimals, using models, pictures, and symbols. b. Model addition, subtraction, multiplication, and division of fractions and decimals in a variety of ways (e.g., objects, a number line). c. Apply r*ules of divisibility*. 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.

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

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

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
					Objective 6: **Model and illustrate integers.** a. Identify, read, and locate *integers* on a number line. b. Describe situations where integers are used in the students' environment.	Objective 6: **Model, illustrate, and perform the operations of addition and subtraction of integers.** a. Recognize that the sum of an *integer* and its opposite is zero. b. Model addition and subtraction of integers using manipulatives and a number line. c. Add and subtract integers.
Standard II: **Students will identify and use patterns to represent mathematical situations.**	Standard II: **Students will identify and use patterns and relations to represent mathematical situations.**	Standard II: **Students will identify and use patterns and relations to represent mathematical situations.**	Standard II: **Students will use patterns and relations to represent mathematical situations.**	Standard II: **Students will use patterns and relations to represent mathematical situations.**	Standard II: **Students will use patterns and relations to represent and analyze mathematical situations using algebraic symbols.**	Standard II: **Students will use patterns, relations, and functions to represent and analyze mathematical situations using algebraic symbols.**
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 1: **Recognize and represent patterns with one or two attributes.** a. Sort and classify objects by one or two *attributes.* b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB. . ., □ ○ △ □ ○ △ . . .). c. Identify patterns in the environment. d. Identify horizontal and vertical patterns on hundreds charts. e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100. f. Count backward from 10 to 0 and identify the pattern.	Objective 1: **Recognize and represent patterns having multiple attributes.** a. Sort, classify, and label objects by three or more *attributes.* b. Identify and label repeating and growing patterns using objects, pictures, and symbolic notation (e.g., ABAABBAAABBB...). c. Identify repeating and growing patterns in the environment. d. Construct models and skip count by twos, threes, fives, and tens and relate to repeated addition.	Objective 1: **Recognize and create patterns with given attributes.** a. Create and extend *repeating* and *growing* patterns using objects, numbers, and tables. b. Record results of patterns created using manipulatives, pictures, and numeric representations and describe how they are extended.	Objective 1: **Recognize, describe, and use patterns and identify the attributes.** a. Represent and analyze repeating and growing patterns using objects, pictures, numbers, and tables. b. Recognize and extend multiples and other number patterns using a variety of methods.	Objective 1: **Recognize, analyze, and use patterns and describe their attributes.** 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. b. Extend patterns and describe a rule for predicting the next element.	Objective 1: **Recognize, analyze, and use multiple representations of patterns and functions and describe their attributes.** a. Analyze patterns on graphs and tables and write a generalization to predict how the patterns will continue. b. Create tables and graphs to represent given patterns and algebraic *expressions.* c. Draw a graph from a table of values or to represent an equation. d. Write an algebraic expression from a graph or a table of values.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
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.	Objective 2: **Recognize and represent relations using mathematical symbols.** a. Recognize that "=" indicates a relationship in which the quantities on each side of an equation are equal. b. Recognize that symbols such as ☐, △, or ◇ in an addition or subtraction equation represent a missing value that will make the statement true (e.g., ☐ + 3 = 6, 5 +7 = △, 4 = 5 – ◇). c. Demonstrate that changing the order of *addends* does not change the *sum* (e.g., 3+2=5 and 2+3=5).	Objective 2: **Recognize and represent relations using mathematical symbols.** a. Recognize that "≠" indicates a relationship in which the quantities on each side are not of equal value. b. Recognize that symbols such as ☐, △, or ◇ in an addition or subtraction equation represent a value that will make the statement true (e.g., ☐ +3=6, 5+7=△, 7=9-◇). c. Demonstrate that changing the order of addends does not change the sum (e.g., 3+2+7=12, 7+3+2=12) and that changing the grouping of three or more *addends* does not change the *sum* (e.g., (2+3)+7=12, 2+(3+7)=12).	Objective 2: **Recognize and represent mathematical situations using patterns and symbols.** a. Recognize that symbols such as ☐, △, or ◇ in an addition, subtraction, or multiplication equation, represent a value that will make the statement true (e.g., 5+7=△, ☐-3=6, ◇=2x4). b. Solve equations involving equivalent expressions (e.g., 6+4 = ☐+7). c. Use the >, <, and = symbols to compare two *expressions* involving addition and subtraction (e.g., 4+6 ☐ 3+2; 3+5 ◇ 16-9). d. Demonstrate that grouping three or more *addends* does not change the *sum* (e.g., 3+(2+7)=12, (7+3)+2=12) and changing the order of *factors* does not change the *product* (e.g., 3x7=21, 7x3=21). e. Use a variety of manipulatives to model the *identity property of addition* (e.g., 3+0=3), the *identity property of multiplication* (e.g., 7x1=7), and the *zero property of multiplication* (e.g., 6x0=0).	Objective 2: **Recognize, represent, and solve mathematical situations using patterns and symbols.** a. Solve equations involving equivalent expressions (e.g., 6x2= ☐x3 or 6x☐=9+9). b. Use the <, >, = symbols to compare two expressions involving addition, subtraction, multiplication, and division (e.g., 5x4◇9÷3). c. Recognize that a given variable maintains the same value throughout an equation or expression (e.g., ☐+☐=8; ☐=4). d. Demonstrate that changing the order of factors does not change the product (e.g., 2x3=6, 3x2=6) and that the grouping of three or more *factors* does not change the *product* (e.g., (2x3)x1=6; 2x(3x1)=6). e. Demonstrate the distribution of multiplication over addition using a rectangular *array* (e.g., 8x14=8 rows of 10 plus 8 rows of 4).	Objective 2: **Represent, solve, and analyze mathematical situations using algebraic symbols.** a. Recognize a variety of symbols for multiplication and division including x, •, and * as symbols for multiplication and ÷, ⌐¯¯, and a fraction bar (/ or -) as division symbols. b. Recognize that a variable (◇, n, x) represents an unknown quantity. c. Solve one-step equations involving *whole numbers* and a single variable (e.g., n÷7=3). d. Recognize that the answer to a multiplication problem involving a factor of zero is equal to zero (e.g., 0x45=0). e. Use expressions or one-step equations to represent real-world situations. f. Use the *associative, commutative,* and *distributive properties* to compute with whole numbers.	Objective 2: **Represent, solve, and analyze mathematical situations using algebraic symbols.** a. Recognize that a number in front of a variable indicates multiplication (e.g., 3*y* means 3 times the quantity y). b. Solve two-step equations involving *whole numbers* and a single variable (e.g., 3x+4=19). c. Recognize that "≈" indicates a relationship in which the quantities on each side are approximately of equal value (e.g., π ≈3.14). d. Recognize that an *exponent* can be represented in the following ways: 4^3 or 4^3. e. Evaluate *expressions* and formulas, substituting given values for the variables (e.g., 2x+4; x=2; therefore, 2(2)+4=8). 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).

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard III: Students will identify and create simple geometric shapes and describe spatial relationships.	Standard III: Students will describe, identify, and create and simple geometric shapes and describe spatial relationships.	Standard III: Students will describe, identify, and create geometric shapes and describe spatial relationships.	Standard III: Students will use spatial reasoning to describe, identify, and create geometric shapes.	Standard III: Students will use spatial reasoning to recognize, describe, and identify geometric shapes.	Standard III: Students will use spatial reasoning to recognize, describe, and identify geometric shapes and principles.	Standard III: Students will use spatial and logical reasoning to recognize, describe, and identify geometric shapes and principles.
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 1: **Describe, identify, and create simple geometric shapes.** a. Identify, name, draw, create, and sort circles, triangles, rectangles, and squares. b. Identify circles, triangles, rectangles, and squares in the students' environment. c. Recognize that combining simple geometric shapes can create more complex geometric shapes.	Objective 1: **Describe, identify, and create geometric shapes.** a. Identify, name, draw, sort, and compare circles, triangles, and *parallelograms*. b. Identify and name spheres, cones, and cylinders. c. Find and identify familiar geometric shapes in the students' environment. d. Determine whether a circle, triangle, square, or rectangle has a *line of symmetry*.	Objective 1: **Describe, identify, and create geometric shapes.** a. Identify and draw *points, lines, line segments,* and *endpoints*. b. Identify and draw *lines of symmetry* on triangles, squares, circles, and rectangles. c. Determine whether an angle is *right, obtuse,* or *acute* by comparing the angle to the corner of a rectangle. d. Classify polygons (e.g., *quadrilaterals,* pentagons, hexagons, octagons) by the number of sides and corners. e. Identify, make, and describe cubes (e.g., a cube has 6 square *faces,* 8 *vertices*, and 12 *edges*).	Objective 1: **Describe, identify, and analyze characteristics and properties of geometric shapes.** a. Identify and draw *parallel lines* and *intersecting lines*. b. Identify and draw lines of symmetry on a variety of polygons. c. Identify and describe quadrilaterals (i.e., rectangles, squares, rhombuses, trapezoids, kites). d. Identify right, obtuse, and acute angles. e. Compare two polygons to determine whether they are congruent or similar. f. Identify and describe cylinders and rectangular prisms.	Objective 1: **Describe, identify, and analyze characteristics and properties of geometric shapes.** a. Identify and draw *perpendicular* lines. b. Draw, label, and describe rays and describe an angle as two rays sharing a common endpoint. c. Label an angle as *acute, obtuse, right,* or *straight*. d. Identify and describe *equilateral, isosceles, scalene, right, acute,* and *obtuse* triangles. e. Identify the *vertex* of an angle or the *vertices* of a polygon. f. Compare *corresponding angles* of two triangles and determine whether the triangles are *similar*. g. Identify and describe *pyramids* and *prisms*.	Objective 1: **Identify and analyze characteristics and properties of geometric shapes.** a. Identify the *midpoint* of a *line segment*. b. Identify concave and *convex polygons*. c. Identify the center, *radius, diameter*, and *circumference* of a circle. d. Identify the number of *faces, edges,* and vertices of *pyramids* and *prisms*.

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

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

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
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.	Objective 2: **Use appropriate techniques and tools to determine measurements.** a. Compare objects, using nonstandard units, according to their length, weight, or volume (e.g., pencils/length, books/weight, boxes/volume). b. Read and tell time to the nearest hour. c. Name the days of the week, months of the year, and seasons in order. 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¢).	Objective 2: **Use appropriate techniques and tools to determine measurements.** a. Compare and order objects, using nonstandard units, according to their length, weight, or capacity. b. Measure length using inches and feet, weight using pounds, and *capacity* using cups. 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¢). d. Read, tell, and write time to the hour and half-hour. e. Use a calendar to determine the day of the week and date. f. Determine the *perimeter* of a square, triangle, and rectangle by measuring with nonstandard units.	Objective 2: **Use appropriate techniques and tools to determine measurements.** a. Measure the length of objects to the nearest centimeter, meter, half-inch, foot, and yard. b. Measure *capacity* using cups and quarts, and measure weight using pounds. 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. d. Identify the number of hours in a day, the number of days in a year, and the number of weeks in a year. e. Read, tell, and write time to the quarter-hour. f. Identify any given day of the month (e.g., the third Wednesday of the month is the 18th). g. Read and record the temperature to the nearest ten degrees using a Fahrenheit thermometer. h. Estimate and measure the *perimeter* and area of rectangles by measuring with nonstandard units.	Objective 2: **Determine measurements using appropriate tools and formulas.** a. Measure the length of objects to the nearest centimeter, meter, quarter-inch, foot, and yard. b. Measure *capacity* using milliliters, liters, cups, pints, quarts, and gallons and measure weight using grams, kilograms, and pounds. c. Read, tell, and write time to the nearest minute, identifying a.m. and p.m. d. Read and record the temperature to the nearest degree, in Fahrenheit, using a thermometer. e. Determine the value of a combination of coins and bills that total $20.00 or less. f. Count back change for a single-item purchase and determine the amount of change to be received from a multiple-item purchase. 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.	Objective 2: **Determine measurements using appropriate tools and formulas.** a. Measure length to the nearest 1/8 of an inch and to the nearest centimeter. b. Measure *volume* and *weight* using *metric* and *customary* units. c. Measure angles using a protractor. d. Calculate *elapsed time* within a.m. or p.m. time periods. e. Read and record the temperature to the nearest degree (above and below zero) when using a thermometer with a Celsius or Fahrenheit scale. f. Calculate the *perimeter* of rectangles and triangles. g. Calculate the *area* of squares and rectangles using a formula.	Objective 2: **Determine measurements using appropriate tools and formulas.** a. Measure length to the nearest one-sixteenth of an inch and to the nearest millimeter. b. Estimate and measure an angle to the nearest degree. c. Calculate the *circumference* of a circle using a given formula. d. Calculate *elapsed time* across a.m. and p.m. time periods. e. Calculate the *areas* of triangles, rectangles, and *parallelograms* using given formulas. f. Calculate the *surface area* and *volume* of right, rectangular prisms using given formulas.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard V: **Students will collect and draw conclusions from data and understand basic concepts of probability.**	Standard V: **Students will collect and draw conclusions from data and understand basic concepts of probability.**	Standard V: **Students will collect and draw conclusions from data and understand basic concepts of probability.**	Standard V: **Students will collect and organize data to make predictions and identify basic concepts of probability.**	Standard V: **Students will collect and organize data to make predictions and use basic concepts of probability.**	Standard V: **Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.**	Standard V: **Students will collect, analyze, and draw conclusions from data and apply 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 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, *pictographs*, and bar graphs.	Objective 1: **Collect, organize, and display simple data.** a. Gather data by vote or survey. b. Sort, classify, and organize data in a variety of ways. c. Use a variety of methods to organize, display, and label information, including keys, using *pictographs*, tallies, bar graphs, and organized tables. d. Report information from a data display.	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., pictographs, bar graphs). b. Make predictions based on a data display.	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 *clusters* and *outliers* of a data set.	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., *line plots*, bar graphs, pictographs, circle graphs, line graphs). c. Identify minimum and *maximum* values for a set of data. d. Identify or calculate the *mean, mode*, and *range*. e. Propose and justify inferences based on data.	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., bar graphs, line graphs, *line plots*, circle 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.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
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).	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).	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).	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?).	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.	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.	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.

K-2 Mathematics Glossary

addend	Any number being added. In 32+4=36, 32 and 4 are *addends*.
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 *parallel* and *congruent*.
difference	The amount that remains after one quantity is subtracted from another.
e.g.	This abbreviation means "for example." When used in the Core, *e.g.* 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.e.* is limited to the specific examples given.
line of symmetry	A line that divides a figure into two *congruent* 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 90º and less than 180º.
obtuse triangle	A triangle with one *obtuse angle*.
one-to-one correspondence	The relationship between the spoken word and the written symbol.
ordinal number	A *whole number* that names the position of an object in sequence. First, second, and third are *ordinal numbers*.
parallelogram	A *quadrilateral* with two pairs of *parallel* and *congruent* 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 *sum*.
two-dimensional	A figure that has length and width, but not height. Having *area*, but not *volume*. The image on a movie screen is *two-dimensional*.
whole number	Any of the numbers 0, 1, 2, 3, 4, 5, and so on.

Facilitated

Activities

Math I-1

Activities

Whole Numbers

Groovy Grouping

Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1:
Represent whole numbers in a variety of ways.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.

Content Connections:
Math, estimation and place value

Math Standard I

Objective 1

Connections

Background Information

The system of numbers we use is a base ten system. Numbers are organized into groups of ten. Ten ones can be exchanged for one ten and vice versa. In subsequent grades, 10 tens can be exchanged for 100, etc. These activities are designed to help students see how grouping objects into tens—when possible—does bring organization to amounts of objects to be counted. These activities are also meant to introduce students to the various ways a number may be written (e.g. standard form and expanded form).

Before doing this activity students need to possess a good understanding of what ten is and looks like. Whether you use a ten frame, Unifix® cubes or base ten blocks, students need to know what represents one ten without needing to count.

Research Basis

Armstrong, T. (1994). ***Multiple intelligences in the classroom***. pp.65-85. Thousand Oaks, CA. Corwin Press

There should be materials in the classroom that provide opportunities for students to manipulate, build, or encounter other hands-on experiences.

Marazano, R.J., Pickering, D.J., & Pollock, J.E. (2001). Classroom nstruction that works. ***Research and theory related to cooperative learning***, pg. 85-88. Alexandria, VA. McRel

This book supports many different teaching methods that are successful in today's classroom. Cooperative Learning, hands on activities, and multiple intelligences are among the things covered in this book.

Invitation to Learn

Begin by reading *The M&Ms Addition Book*. Hold up a gallon sized bag with about 50 gumballs and tell the students that you have in this bag a certain number of gumballs. You would like to share these gumballs with them but you are not sure if there are enough for everyone. Maybe, you might even have enough for everyone to have two. Have the class estimate the number of gumballs in the bag.

Instructional Procedures

Materials

- ❑ 100 Unifix® cubes per group
- ❑ *Baggie Bonanza*
- ❑ Three-section plastic plates
- ❑ Jumbo Gumballs
- ❑ Dry-erase markers/ eraser
- ❑ Ten-section tackle box

Jumbo Gumbo

1. Bring the class to a circle in the front of the room.
2. Instruct students to think of ways the gumballs can be counted.
3. Have students put their knees together with a partner and discuss ideas.
4. After about a minute ask the students to turn back to the circle and discuss ideas. If the students do not come up with the idea of sorting by tens, guide then in that direction by asking questions. How can the gumballs be sorted to make them easy to count? What is the easiest number to count by?
5. Show students the tackle box and ask how many gumballs can fit in the tackle box if you put one gumball in each section?
6. Tell the students that each time a tackle box is filled, the 10 gumballs need to be put into a plastic sandwich bag so you will know that there are ten gumballs in the bag without needing to count.
7. Remind students of the amount of gumballs they estimated. Decide as a group how many plastic sandwich bags will be needed if their estimate is correct.
8. Put out that many sandwich bags.
9. Fill the tackle box with one group of ten and transfer the gumballs into a sandwich bag.
10. Repeat until there are less than ten left.
11. Gumballs that can't be put into a group of ten will be left in the tackle box.
12. After the gumballs are sorted into groups of tens ask students how many groups of ten were made?
13. Count by tens to get a total for the groups of ten.

14. Have the students count the leftover gumballs. Explain that to find the total number of gumballs, the total for the groups of ten needs to be combined with the leftovers.
15. Ask the students to share the method they used to find out how many gumballs they have altogether?
    - Say the total for the groups of ten and then just say the leftovers.
    - Put the ten's total number in your head and count by ones from there.
16. Explain that you would like each group to make the total number of gumballs with Unifix® cubes.
17. Demonstrate that by using a 3-section plastic plate, stacks of ten Unifix® cubes can be put in the big section of the plate and leftovers placed unconnected in the small section. Use a dry-erase marker to write the total in the last section.
18. Allow groups to work together to show the total amount of gumballs with cubes.
19. Demonstrate how to fill out the Baggie Bonanza worksheet.
20. Give each student a gumball.
21. Warning to teachers: gumballs can be a choking hazard. Monitor students carefully.

Baggie Bonanza

This is a take home activity that will be completed in class.

1. Send home the bag the week before, which will be filled by the parents and returned.
2. In the bag is a note to parents explaining the guidelines for filling the bag (amount, size, and deadline for bag return).

Materials

- ❑ Gallon sized plastic bags
- ❑ *Baggie Bonanza Letter*
- ❑ *Baggie Bonanza*
- ❑ 100 Unifix® cubes per group
- ❑ Three-section plastic plates
- ❑ Plastic sandwich bags
- ❑ Dry-erase markers/ erasers
- ❑ 4 ten-section tackle boxes
- ❑ Ten plastic sandwich bags per group

Baggie Bonanza Parent Letter

Dear Parents,

Next week we will be learning about place value in math. In order to do this in a fun way I am sending home this large plastic bag for you to fill. One day next week the group that your child is in will take the items you put in the bag and sort them into groups of tens and ones. Please do not put more than 100 of the same item in the bag. Items that are a square inch or smaller work best (marbles, starbursts, buttons, paperclips, etc.). We need a variety of numbers

so any amount between 20 and 99 would be the best. You will get the items back after we sort them (unless you send a wrapped treat that can be shared with the class). Thanks for all your support and all your hard work with your children.

Respectfully,

3. Have students wash their hands.
4. Split the class into groups of five or six. Each group will get one bag to sort into groups of tens and ones using the tackle box and plastic bags.
5. Then each group will use Unifix® cubes to show the total number of objects in the bag.
6. Students will put stacks of ten Unifix® cubes in the large section of the plate, leftovers in one of the small sections, and write the total in the other small section.
7. Students will then record the daily sort on the Baggie Bonanza worksheet or in a math journal.

Digit Dash

1. Give each student a dry-erase board, marker and eraser.
2. Set the red "hundreds" plate, the yellow "tens" plate, and the green "ones" plate in the top row of a pocket chart.
3. Pass out the yellow and green plates with the digits 0-9. Give one plate to each student.
4. Pass out the red plate with the digit one to a student.
5. For students that do not get a digit plate set up a building station. If you have five students that do not have plates, then you need five building stations. A building station can be an area on the floor, a desk, etc. Each building station needs 100 Unifix® cubes, a three-section plate, and a dry-erase marker.
6. Call out a number between zero and one hundred. Students with the digits that make up the number in the right color will quickly take their plate and put it in the pocket chart under that correct place value.
7. Once the plates are in the pocket chart give students the command to go.
8. The builders will build that number as fast as they can with Unifix® cube while the rest of the class writes the number in expanded form on their dry erase boards.

Materials

- ❑ Dessert plates (11 of red, yellow, and green)
- ❑ Digits 0 – 9 written on each color
- ❑ One green plate labeled "ones"
- ❑ One yellow plate labeled "tens"
- ❑ One red plate labeled "hundreds"
- ❑ Dry erase boards, markers, and erasers per student
- ❑ 100 Unifix® cubes per student that does not receive a plate

9. Example: Teacher calls out the number 43. The student with the yellow number four plate will run up and place the plate in the pocket chart under the yellow "tens" plate. Likewise for the student with the green number three plate. When the teacher gives the command to go, the builders quickly get four stacks of tens and three ones. The rest of the class is writing 40 + 3 = 43 or 4 tens and 3 ones on their dry erase boards.
10. After each number has been made with plates, Unifix® cubes, and written in expanded form, the builders will pick a student with a plate to trade places with.

Serviceable Sweets

1. Ask students what they think would be a fun job to have. Allow students some time to talk about some fun job possibilities. After students give responses, tell students that when you were their age you used to dream you worked in a candy factory and you stood in candy up to your knees every day.
2. Explain that today the room is going to be a candy factory and each student has a job in the factory.

   Hold up a bulk sized bag of Tootsie Rolls and tell the students that in your candy factory the actual candy is made and wrapped by robots. The name of the factory is Serviceable Sweets—the candy factory that cares. Robots are very good at making candy but we need people to pack the candy in amounts that make them ready to be shipped.
3. Arrange room to be shipping sections of the candy factory. Six desks make up each shipping section. These are:

"Ones Department" "Tens Department" "Hundreds Department"

4. Place materials at each department in a shipping section.
5. Explain that there are three departments in each shipping section of the factory: ones department, tens department, and hundreds department.
6. Two people work in each department.
7. Explain the jobs for each department.
8. Ones Department: one worker puts a Tootsie Roll in each section of the tackle box, closes the lid, and slides the tackle to the tens department desk. The other worker puts a tally in the Ones Department Record Sheet. After one tackle box is filled the two workers trade jobs.

Materials

- ❑ Bulk sized bag of Tootsie Rolls
- ❑ Cart
- ❑ Plastic gloves (optional)
- ❑ Writing paper/journal
- ❑ *Ones Department*
- ❑ Ones Department sign
- ❑ 2 ten-section tackle boxes
- ❑ *Ones Department Record Sheet*
- ❑ *Tens Department*
- ❑ Tens Department sign
- ❑ Plastic sandwich bags
- ❑ Plastic tote
- ❑ *Tens Department Record Sheet*
- ❑ *Hundreds Department*
- ❑ Hundreds Department sign
- ❑ Paper lunch sacks
- ❑ Serviceable Sweets Delivery Labels
- ❑ *Hundreds Department Record Sheet*
- ❑ Stickers

9. Tens department: One worker takes the tackle box, opens the lid, dumps the Tootsie Rolls into a sandwich bag, zips the bag shut, places the bag in the tote and returns the tackle box to the ones department. The other worker records a ten in the first box in the tens department records sheet. After the Tootsie Rolls have been put in a baggy the workers switch jobs. When the Tens Department Records Sheet has 10 tens, the tote with the ten bags is delivered to the hundreds department.
10. Hundreds Department: when the hundreds department receives a tote they need to double check the tens department. One worker will take the bags out of the tote while the other worker writes counting by ten numbers for each bag on the Hundreds Department Record Sheet. If there are not ten bags in the tote then the tote must be sent back to the tens department to be recounted. (Talk about quality control and how this would slow down production, the factory would loose money, workers would have to stay at work longer, and the factory would have to charge more for their candy.) If the tens department was right then the hundreds department workers put the ten plastic bags in a paper sack, fold it over, and use stickers to keep it shut. A delivery label needs to be placed on the sack and then taken to the shipping manager, the teacher, who will place the bag in a box to be delivered to another class as an act of kindness. The Hundreds Department has some time before they receive their first shipment to stick the labels on to the sack with stickers.

Serviceable Sweets Delivery Labels

> Inside of this bag is a jolly good treat.
> We give it to you because you are sweet.
> 100 tasty candies for everyone to share.
> From "Serviceable Sweets" because we care.

11. Model.
12. Give each ones department their portion of Tootsie Rolls to be packaged for shipping.
13. Explain that when you ding the bell the workday begins and they will keep working until the bell dings for them to take a break. If they finish early, they will report to the shipping manager, the teacher.

14. Explain that each section is done when the ones department is out of work.
15. If there are not more questions ding the bell.
16. Walk around the room checking to see that they are doing things correctly.
17. When each section is done have each group decide how many Tootsie Rolls they have left that didn't make it to the hundreds department. The leftovers can be used for the "Trading Tootsies" activity.
18. Clean up and have the students write about their experience working at Serviceable Sweets in their journal.

Trading Tootsies

Trading Tootsies Recording Chart

10's	20's	30's	40's	50's	60's	70's	80's	90's	100

Materials

- ❑ Music
- ❑ Chart paper for recording totals
- ❑ Tackle boxes with one to nine Tootsie Rolls for half the class
- ❑ one to nine sandwich bags with ten Tootsie Rolls for half the class

1. Give half the class a ten-section tackle box with a number of Tootsie Rolls ranging from zero to nine.
2. Give the other half of the class a random number of sandwich bags filled with ten Tootsie Rolls. They can get a number of sandwich bags from one to nine.
3. Explain that when the music starts, students trade what they have with anyone in the room.
4. When the music stops students pair up with someone with the opposite packaging.
5. Students with sandwich bags need a partner with a tackle box.
6. Partners need to combine what they each have to figure out the Tootsie Roll total.
7. Partners write their total on the Tootsie Roll chart and sit down.
8. When all totals are recorded, discuss what number is the biggest. Explain that whatever number has the most tens (or the most ones if the number of tens is the same) is the biggest.
9. Start the music again for another round of Trading Tootsies.

Assessment Suggestions

- The Baggie Bonanza has a worksheet that is to be filled out each day. This worksheet is an excellent form of assessment.
- Most of these activities are hands on activities, which require the teacher to roam about the room and observe students as they work. A simple table with each students name and a space for observations could be created and carried around on a clipboard. As the teacher moves from student to student simple observations could be recorded. The observations could be used to create groups for differentiation.
- Students could be required to record their thoughts and findings in their journals. Reviewing their journal entries is an effective assessment strategy.

Curriculum Extensions/Adaptations/ Integration

- For the activity Baggie Bonanza students could estimate the amount of objects in the bag each day.
- For the activity Baggie Bonanza students could compare their group's total with another group's to see what group had the greatest/least amount.
- Many of these activities are easy to integrate into writing activities. Students could describe their part in the activity, make predictions, and write about the outcomes.
- Probability can be part of the activity Trading Tootsies. Ask the class if they think the same number could be made more than once. After the activity look for any repeat numbers and circle them. Decide if there is a high or low probability that a number will be repeated.
- For the activity Jumbo Gumbo, read the book *3 Little Firefighters* as an invitation to learn to activate their knowledge about sorting.
- The activity Digit Dash can be turned into a race between the builders and the writers. Give the writers a five-count head start.
- For the activity Digit Dash, before the teacher says "go," he/she can change the number and challenge the class by saying, "oh I really wanted a number ten more/less or one more/less than this number."

Family Connections

- For the activity Baggie Bonanza send home a bag of objects for the students to sort with their family.

Additional Resources

Books

3 Little Firefighters, by Stuart J. Murphy; ISBN 0-06-000120-8

The M&M's Addition Book, by Barbara Barbieri McGrath; ISBN 0-439-80362-4

Ten Black Dots, by Donald Crews; ISBN 0-688-13574-9

A Place for Zero, by Angelina Sparagna LoPresti; ISBN 1-57091-196-7

Earth Day Hooray, by Stuart J. Murphy; ISBN 0-06-000129-1

A Fair Bear Share, by Stuart J. Murphy; ISBN 0-06-446714-7

Anno's Magic Seeds, by Mitsumasa Anno; ISBN 0-698-11618-6

The Blast Off Kid, by Laura Driscoll; ISBN 1-57565-130-0

Baggie Bonanza

We sorted _____.

We made _____ groups of tens.

We had _____ leftover.

We had _____ in all.

Now I will draw what our objects looked like with cubes.

Tens	Ones

Another group sorted _____.

They made _____ groups of ten.

They had _____ leftover.

They had _____ in all.

"Ones" Department Record Sheet

Total _____

Total _____

Total _____

Total _____

Total _____

"Tens" Department Record Sheet

Write ten in each box every time you fill a plastic bag with ten Tootsie Rolls.

Total _____

Total _____

Total _____

Total _____

Total _____

"Hundreds" Department Record Sheet

Inspectors need to count by tens to make sure there are 100 Tootsie Rolls in each paper sack.

Total _____

Total _____

Total _____

Total _____

Total _____

Whole Number Game Time

Math Standard I

Objective 1

Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1:
Represent whole numbers in a variety of ways.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.

Content Connections:
Math, number sense

Connections

Background Information

These activities are to be taught to a whole class or small group and then practiced independently in centers, stations, or workshop time. Students should have been introduced to the concept of tens and ones in previous lessons. By using manipulatives and having many opportunities to practice students develop a better understanding of whole numbers.

Research Basis

Marazano, R.J., Pickering, D.J., & Pollock, J.E. (2001). *Classroom instruction that works*. Research and theory related to practice, pg. 66-71. Alexandria, VA. McRel.

This section of the book states the importance of practice and how it is necessary for learning knowledge of any type. The two generalizations from the research on practice are that mastering a skill requires a fair amount of focused practice and while practicing, students should adapt and shape what they have learned using maipulatives and hands on activities.

National Association for the Education of Young Children. (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Washington, DC: NAEYC.

Most six-year-olds and many seven-and eight-year-olds may be more mature mentally than physically. Therefore, hands-on activity and experimentation is more appropriate for this group than fatiguing mechanical seatwork.

Invitation to Learn

Begin by reading *One to One Hundred*. This book starts out with a counting by one pattern to ten. After nine the pattern changes to

counting by ten to 100. After reading the book one time through, pick any "counting by ten" page and any "counting by one" page and combine them to have students add "tens" and "ones".

Instructional Procedures:

Roll to 100

Materials

- ❑ Three-section plastic dinner plate for each pair
- ❑ 100 Unifix® cubes per pair
- ❑ *Roll to 100*
- ❑ *One to One Hundred*
- ❑ Two dice per pair

1. Pair up students and provide each pair with a three-section plate, two dice, 100 Unifix® cubes and a Roll to 100 worksheet.
2. Ask students how many times they would have to roll two dice before they would get to 100. Students record their estimates on the Roll to 100 worksheet.
3. Partner one rolls the two dice and adds the dots together.
4. Partner one gets the number of cubes equal to the total.
5. Cubes are put in one of the sections of the three-section dinner plate. Any cubes less than ten are kept separate and placed in one small section. Any time a stack of ten can be made, cubes are hooked together and placed in the big section of the plate.
6. Partner two puts a one in the number of rolls column, reads the total and records the total in the total column of the *Roll to 100* worksheet.
7. Partner two rolls the dice and adds the dots.
8. Partner two gets the number of cubes equal to the total for the roll and adds them to the total from roll one.
9. Partner one puts a two in the number of rolls column, reads the new total, and records the total in the total column of the Roll to 100 worksheet.
10. Repeat steps three to nine until they have rolled to 100.
11. Compare the number of rolls it took with their estimated number of rolls.

Big O

Materials

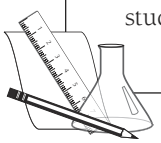
- ❑ 16 dominoes per pair
- ❑ *Big O*

1. Pair up students and provide each pair with sixteen dominoes and a Big O worksheet.
2. Each person picks a domino and lays it horizontally.
3. The first square of the domino defines how many tens.

4. The second square defines how many ones.
5. Each partner should lay their domino in the direction that will give them the greatest number.
6. Each partner will draw the domino and record their number in expanded and standard form on the Big O worksheet.
7. The person that has the biggest number gets to take their partner's domino.
8. Two new dominos are chosen and compared.
9. The player with the most dominos at the end of the game wins.

Materials

- ❑ Bull's Eye Chart
- ❑ *Bull's Eye*
- ❑ 10 paper clips per student

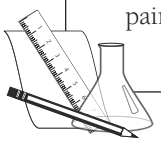


Bull's Eye

1. Put the Bull's Eye chart on the floor.
2. To make a Bull's Eye chart draw two circles. The outside circle is labeled "1s". The inside circle is labeled "10s"
3. Give each student participating 10 paper clips.
4. Students take turns tossing the paper clips onto the Bull's Eye and then total their score. Ten points are awarded for each paper clip that lands in the tens circle and 1 point is awarded for each paper clip that lands in the ones circle.
5. Students record their score on the Bull's Eye record sheet. The student with the highest score for that round gets a point.
6. At the end of the game, the student with the most points wins the game.

Materials

- ❑ Two dice per pair
- ❑ *Nice Dice*
- ❑ 66 Unifix® cubes per pair



Nice Dice

1. Pair up students and provide each pair with two dice and a Nice Dice paper.
2. Player one rolls two dice and arranges the dice to make the greatest number.
3. Player one makes that number with Unifix cubes.
4. Player two rolls two dice and arranges the dice to make the greatest number possible with cubes.
5. Players compare their numbers to see who has the greatest number. Totals are recorded on the Nice Dice record sheet. The player with the greatest number gets to circle their number.

Give Me a Dollar

1. Pair up students and provide each pair with materials.
2. Player one rolls the money die and gets the coin. If "one cent" is rolled the player puts a penny in the Penny Bank. If "ten cents" is rolled the player puts a dime in the Dime Bank.
3. Player one records the total money in their bank.
4. Player two takes a turn.
5. Players continue taking turns.
6. If a player collects ten pennies they exchange their pennies for a dime and put it in the Dime Bank.
7. When a player earns ten dimes they say, "Give Me a dollar!" The first player with a dollar wins the game.

Materials

- ❑ 20 plastic pennies and dimes per pair
- ❑ *Give Me A Dollar*
- ❑ *Penny Bank*
- ❑ *Dime Bank*
- ❑ Money die (3 sides labeled 1 cent, 3 sides labeled 10 cents)

Assessment Suggestions

All of the activities have a worksheet that students complete while working on the activity. These worksheets are excellent sources of assessment that can be evaluated for diagnosis and prescription for future activities.

Students can be asked to respond to questions in their journal that would give evidence of understanding. Some possible questions are:

- If you have the numbers 47 and 74, how can you tell what number is greater?
- Have students explain what 48 gumballs sorted into groups of tens and ones would look like. Why would you want the gumballs sorted into groups of tens and ones?
- Write the number 72 in expanded form and explain why you wrote the number like that.
- Are three tens the same amount as thirty? Explain why or why not.

Curriculum Extensions/Adaptations/ Integration

- For the activities *Roll to 100* and *Give Me A Dollar* the amount the students are trying to reach could be lower. Instead of rolling to 100, students could roll to 50.

- For the activities *Big O, Bull's Eye*, and *Nice Dice* the winning number could be the smallest number rather than the greatest number.
- Many of these activities are easy to integrate into writing activities. Students could describe their part in the activity, make predictions, and write about the outcomes.
- For the activity *Nice Dice*, playing cards one to nine could be used instead of dice. Thirty craft sticks with the digits zero to nine written on them could be placed in a can and picked two at a time.
- Base ten blocks could be used instead of Unifix® cubes to give students a different visual representation.
- For the activity *Give Me A Dollar* read the story *Alexander Who Used to Be Rich Last Sunday* before playing the game. Before, or after, the *Give Me A Dollar* activity do a fluency development lesson by having the students create a list of the many, varied and unusual things they could buy for a dollar.
- For the activity *Give Me a Dollar* use a regular die. Students get a number of pennies equal to the number of dots on the roll. Each time a student gets ten pennies they trade in for a dime and put the dime in the penny bank. When they get ten dimes the game is over.

Family Connections

- All of these activities would be excellent homework assignments for students to do with their families. Copy the description of the activity and send it home with the students along with any necessary supplies. This is a fun way to involve family members in math education.
- After the Give Me A Dollar activity give the students a grocery store add to take home and make a grocery list of things they could buy for one dollar.

Additional Resources

Books

One to One Hundred, by Teri Sloat; ISBN 0-590-48661-6

Alexander Who Used to Be Rich Last Sunday, by Judith Viorst; ISBN 0-590-46896-0

The Penny Pot, by Stuart J. Murphy; ISBN 0-06-446717-1

Roll to 100

How many rolls do you think it will take to get to 100?

Number of Rolls	How many cubes?

Big O

________ Tens ________ Ones ________ + ________ = ________	________ Tens ________ Ones ________ + ________ = ________
________ Tens ________ Ones ________ + ________ = ________	________ Tens ________ Ones ________ + ________ = ________
________ Tens ________ Ones ________ + ________ = ________	________ Tens ________ Ones ________ + ________ = ________
________ Tens ________ Ones ________ + ________ = ________	________ Tens ________ Ones ________ + ________ = ________

Bull's Eye

	Tens	Ones	Total
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Nice Dice

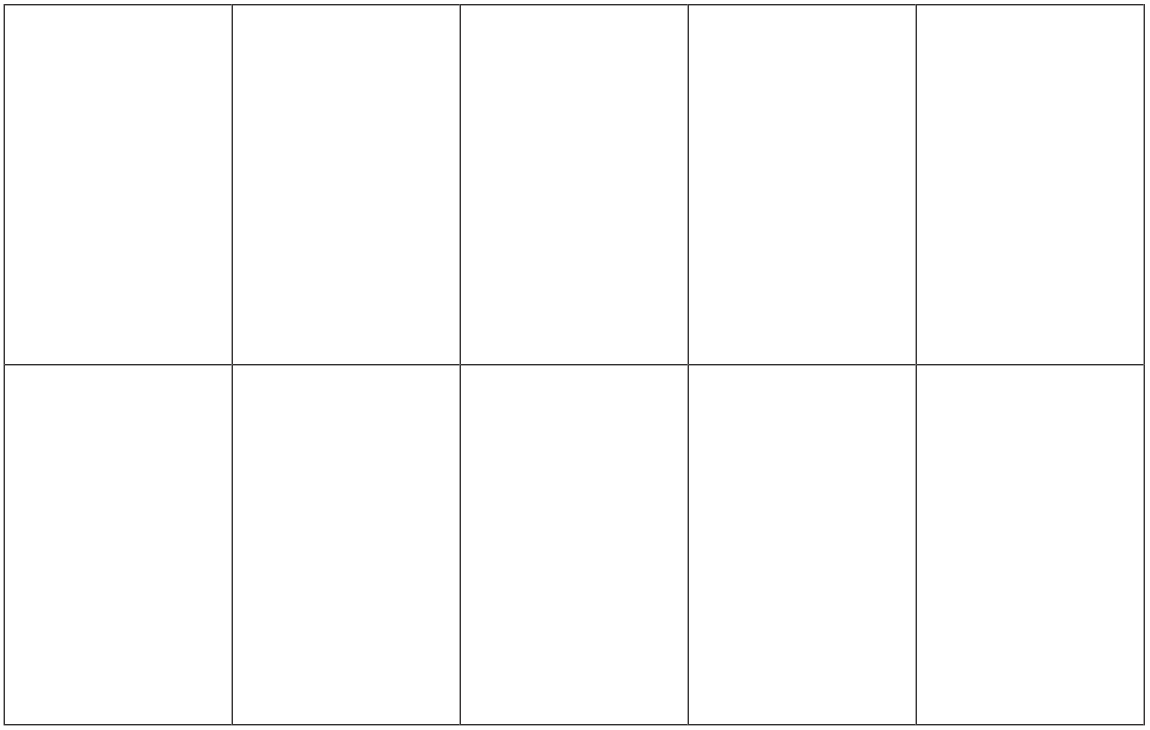
Tens Ones

Roll	Tens	Ones	Total
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

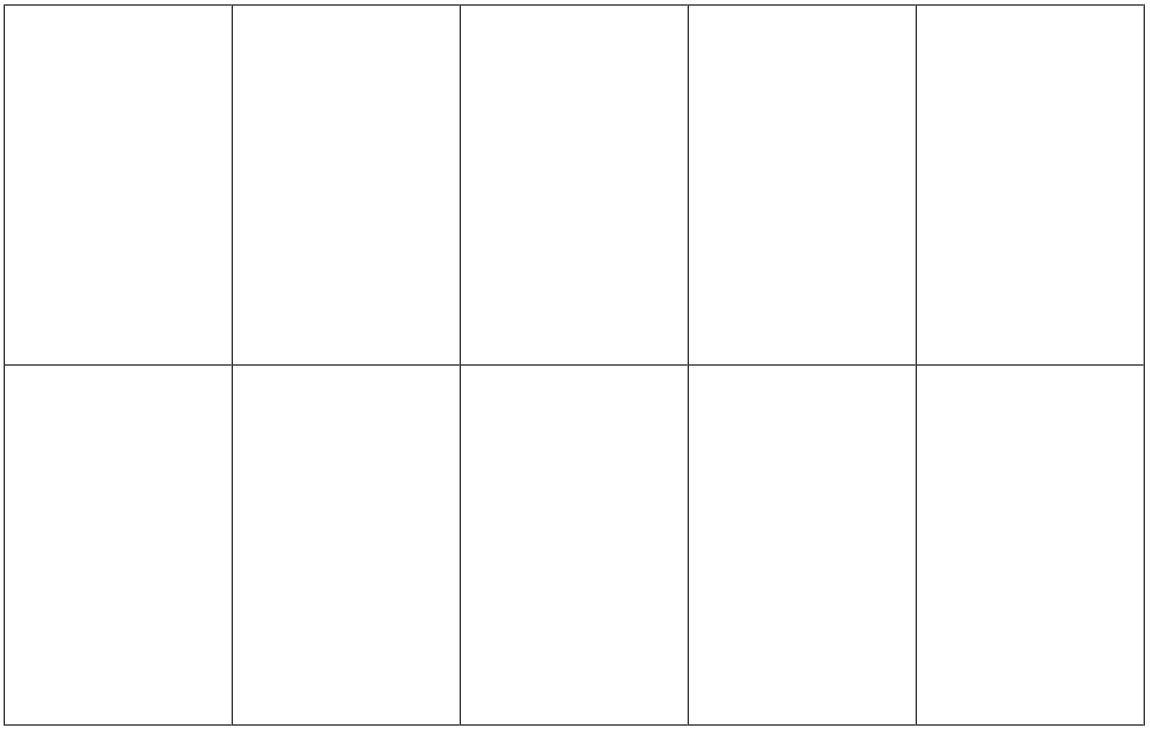
Give Me A Dollar

Roll	Bank Total
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Dime Bank



Penny Bank



Enjoyable Assessments

Standard I:
Students will acquire number sense and perform simple operations with whole numbers..

Objective 1:
Represent whole numbers in a variety of ways.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.

Content Connections:
Math and assessment

Math Standard I

Objective 1

Connections

Background Information

These activities can be used as a formative assessment midway through a unit, a review before the test or as an alternative to a paper and pencil test. For this activity the questions will all focus on place value but in your own class you can use these activities in any content area.

Before participating in these competitive type activities, class-building activities need to have taken place. Students need to understand that even though the games are competitive the goal is not to win in the sense that winning makes you better. The goal of each game is to show what you know and have fun.

Research Basis

Bjorkland, D.F. & Brown, R.D. (1998). Physical play and cognitive development: Integrating activity, cognition and education. *Child Development*, pg 604-606.

This section of the book explains how the mechanisms involved when students are playing a game are just as cognitive as when students are doing math seatwork.

Association of State Supervisors of Mathematics & Eisenhower Network, (2002). *Edthoughts: What We Know About Mathematics and Learning,* pg. 33-41.Aurora, CO. McRel

This section of the book discussed how assessment should provide evidence about students' knowledge, be congruent with state and local standards, and be a good fit with curriculum and instructional methods being used by the teacher. The book also states how multiple methods of assessment allows student to diversify thinking and response patterns.

Invitation to Learn

Materials

- ❏ Eggspert®
- ❏ Round 1 cards
- ❏ Round 2 cards
- ❏ Category cards
- ❏ Pocket chart

When students enter the room the game Eggspert® will already be set up. Give each student a starburst that matches one of the Eggspert® buzzer colors. Explain that today students are going to play a game and the color of starburst tells what team they will be on. Remind students that the rules of the game are to show what you know and to have fun.

Instructional Procedures

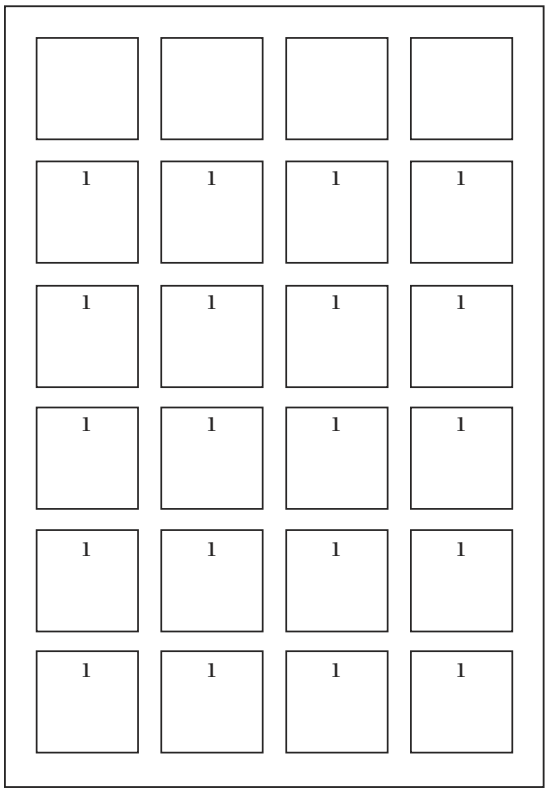
Eggspert®

Materials

- ❑ Eggspert®
- ❑ Game questions
- ❑ 20 Round 1 cards
- ❑ 20 Round 2 cards
- ❑ Four category cards
- ❑ Pocket chart

1. Put the game cards for round 1 in the pocket chart. Four categories, five questions for each category, each question worth one point.

   Top cards are category cards: Tens, Tens and Ones, Expanded Form, Standard Form



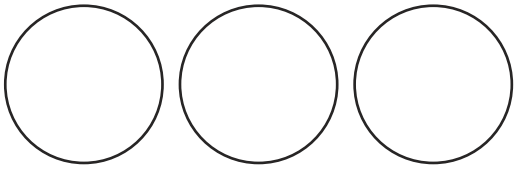
2. Organize the class into six teams based on Starburst color and have each team sit behind an egg buzzer that is the same color as their Starburst.
3. The first person in each line moves up to hold an egg buzzer.
4. One student is chosen to pick a category and the teacher picks a card and reads the question.
5. When a student holding an egg buzzer knows the answer they squeeze the egg.
6. A light will go off to show to show who pushed their buzzer first.
7. The student who pushed the buzzer first gets to answer the question. If the answer is correct their team gets the point card.

If they get the answer wrong the teacher pushes the white egg to clear the board and another player can squeeze their egg.

8. Once the question is answered the students who held the buzzer go to the back of the line and the next row moves up.
9. Play continues until one team gets ten points.
10. When a team gets to ten points or you run out of questions move to round 2.
11. For round 2, the team that gets the right answer gets ten points. The first team to 100 points wins.
12. Follow the same steps as you did for round 1. The questions are worth more points so the questions should be more difficult.

Triple Circle Dingy Bell Game

1. Divide the class into three circles sitting on the floor.



2. Each circle gets a beanbag to pass hot potato style.
3. When the teacher instructs the students to go, each circle begins to pass their beanbag.
4. The beanbags are passed until the teacher rings the bell.
5. The student that has the beanbag when the bell rings stands up. One student from each group should stand up for a total of three.
6. The teacher asks a question.
7. As soon as one of the students standing up knows the answer they call it out.
8. The first person to provide the correct answer gets to sit back down. The other two are out for this round and they go back to their seat.
9. If nobody gets the correct answer all three are out.
10. If there is a tie, those who were involved in the tie get to sit down in their circle.
11. The round is over when only one circle has any players left. That circle gets a point.

Materials

- ❏ Silver "Ring for Service" bell
- ❏ *Eggspert Game Questions*
- ❏ Three bean bags

12. When a round ends all players come back to their circle for another round.

Assessment Suggestions

- Both activities are assessments. Make a checklist with each students name and keep record of students that answer incorrectly.

Curriculum Extensions/Adaptations/ Integration

- For both activities teams can work together to answer questions rather than working independently.
- For the *Eggspert*® activity kids can be grouped by ability, sitting next to students of similar level, so the question can be differentiated.
- Questions for both activities can focus on any content area.
- *Eggspert*® can be set so a student is randomly selected.

Eggspert Game Questions

Round 1 Game Questions (Each question worth 1 point)

Tens	Tens and Ones	Expanded Form	Standard Form
2 tens = _____	What do I have if I have 2 tens and 5 ones?	What is the number sentence for 15 in expanded form?	How many tens are there in the number 23?
5 tens = _____	What do I have if I have 4 tens and 9 ones?	What is the number sentence for 36 in expanded form?	How many ones are there in 42?
6 tens = _____	How much do I have if I have 6 tens and 3 ones?	What is the number sentence for 48 in expanded form?	How many tens are there in 51?
8 tens = _____	How much do I have if I have 8 tens and 8 ones?	What is the number sentence for 74 in expanded form?	How many ones are there in 89?
9 tens = _____	How much do I have if I have 9 tens and 7 ones?	What is the number sentence for 91 in expanded form?	How many tens are there in 13?

Round 2 Game Questions (Each question worth 10 points)

Tens	Tens and Ones	Expanded Form	Standard Form
How many tens in the number 68?	What do I have if I have 1 tens and 0 ones?	What is the number sentence for 40 in expanded form?	How many tens are there in the number 90?
How many tens in the number 39?	What do I have if I have 4 tens and 9 ones?	What is the number sentence for 82 in expanded form?	How many ones are there in 33?
How many tens in the number 40?	How much do I have if I have 0 tens and 9 ones?	What is the number sentence for 18 in expanded form?	How many tens are there in 7?
How many tens in the number 81?	How much do I have if I have 2 tens and 3 ones?	What is the number sentence for 11 in expanded form?	How many ones are there in 60?
How many tens in the number 14?	How much do I have if I have 10 tens and 0 ones?	What is the number sentence for 100 in expanded form?	How many tens are there in 100?

Content I-2

Activities

Gross &
Fine Motor Skills

ABC Fun

Standard I:
Students will develop a sense of self.

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

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.

Content Connections:
Language Arts VIII-2; Language Arts VIII-5

Content Standard I

Objective 2

Connections

Background Information

The beginning of first grade is a time when teachers can assess and find out how familiar their students are with letters and words. This lesson is designed to help find that out and also give students an opportunity to develop their fine motor skills. It is recommended that this activity be given early in the school year. Previous to this activity, make sure students have had a chance to explore manipulatives and are familiar with sorting objects and using the information. Also, be sure to have used a Venn diagram as a class to ensure students are familiar with them.

Research Basis

Neuman, S.B. (2005). Readiness for reading and writing – What does it mean? *Early Childhood Today,* Volume 20 (Issue 1), Page 8.

This article discusses the importance of children having a readiness to read and write. One big key to being ready is knowing the letters of the alphabet and being able to say their sounds.

Invitation to Learn

Say to your students, "We've been doing a lot of different sorting in class using many different manipulatives. Today we are going to do a sort using letters. This is your chance to go through the letters, explore them, and see what you notice about them." Place magnetic letters on each table and let students explore.

Instructional Procedures

1. Invite students to come to a central area in the classroom.
2. Say to your students, "what did you notice about the different letters?"

Materials

- ❑ ABC magnetic letters (one set per pair)
- ❑ Paper bags (one per pair)
- ❑ Large demonstration Venn Diagram
- ❑ *Venn Diagram*
- ❑ *Chicka Chicka Boom*
- ❑ *Alphabet Names*
- ❑ *Word Maker*

3. As they share, write their observations down on the board. Some examples they may share might be: curved lines, straight lines; vowels, consonants; long, short; tails, no tails.
4. Say to your students, "we are going to learn more about letters by reading a fun story. As we read it, pay attention to how the letters are similar and different."
5. Read *Chicka Chicka Boom* to them, and as you read model the letters coming on and off the tree using a magnetic board and magnetic letters.
6. After completing the story, say to the students, "what did you notice about the different letters in the story? How are they the same and how are they different?"
7. Compare what they share to the list that you made at the beginning of the lesson. Add any new observations they may have made.
8. Say to the students, "now we are going to use a *Venn Diagram* to demonstrate that the letters of the alphabet have characteristics that are similar and different. Let's use the categories curved lines and straight lines first."
9. Put all the letters of the alphabet in a paper bag and then say to the students, "before I pull out a letter, let's predict which letter I might pull out." Make a prediction of what your letter could be. This would be a good time to discuss that some of the letters look and feel the same, it just depends on how you are holding them. For example the letter d could be confused for a letter p. Explain to your students that it's okay if they say one or the other on their prediction, but when they pull it out, they must decide which letter they want it to be and hold it the correct way for that letter.
10. Pull out your letter and look at it. Say to the students, "look at my letter closely. Does it have curved lines, straight lines, or both?" After they respond, place it in the correct spot on the *Venn Diagram*.
11. Repeat the process with nine to ten letters to ensure that students understand how to play the game.
12. Tell the students they are going to play a game using a *Hidden ABC Bag*. Pair them up and give them each a Paper bag with the letters of the alphabet in it, and a *Venn Diagram* worksheet and let them play the game! Some sorts to suggest are:
    - curved lines, straight lines

- vowels, consonants (check to see if they understand that they can't be both)
- confusing and not confusing letters
- tall letters, short letters

Assessment Suggestions

- As students are playing the game, watch to see if they know the names of the letters and the sounds they make.
- Make a checklist for each student and mark off which letters they are familiar and unfamiliar with.
- Watch to see if they are able to make a prediction beforehand and compare it to the real answer afterward.
- Pull out the letters p, d, q, and b. See if your students know the difference between them and how to tell them apart.

Curriculum Extensions/Adaptations/ Integration

Names of the alphabet (Advanced Students)

- Have students take the paper bags and draw out one letter at a time. After drawing out their letter, they must write down a name that starts with that letter. Encourage them to use the names of the students in the class. Fill out the Alphabet Names worksheet.

Word maker (Middle Students)

- Sort letters into two paper bags. Put the consonants into one bag and the vowels into another bag. Have students draw out one vowel and four consonants, and see what words they can make. Have them write their words down on the *Word Maker* worksheet. After each try, they put the letters back in and mix them up.

Animalia letter search (Low Students)

- Using the book *Animalia*, students pull out a letter from the paper bag and say the name of the letter and its sound. They then open *Animalia* find the letter and look at the pictures that start with that letter.

Family Connections

- Send home *ABC Homework* worksheet and *Venn Diagram* worksheet. Have students cut out the letters and graph them a different way at home and bring it back to class.
- Have students look for different letters around their house, talk about and write down how they are different and alike, and share them with the class.

Additional Resources

Books

Chicka Chicka Boom. By Bill Martin Jr.: ISBN 006443348X

Developing Literacy Using Reading Manipulatives, by Sandi Hill; ISBN 1-57471-222-5

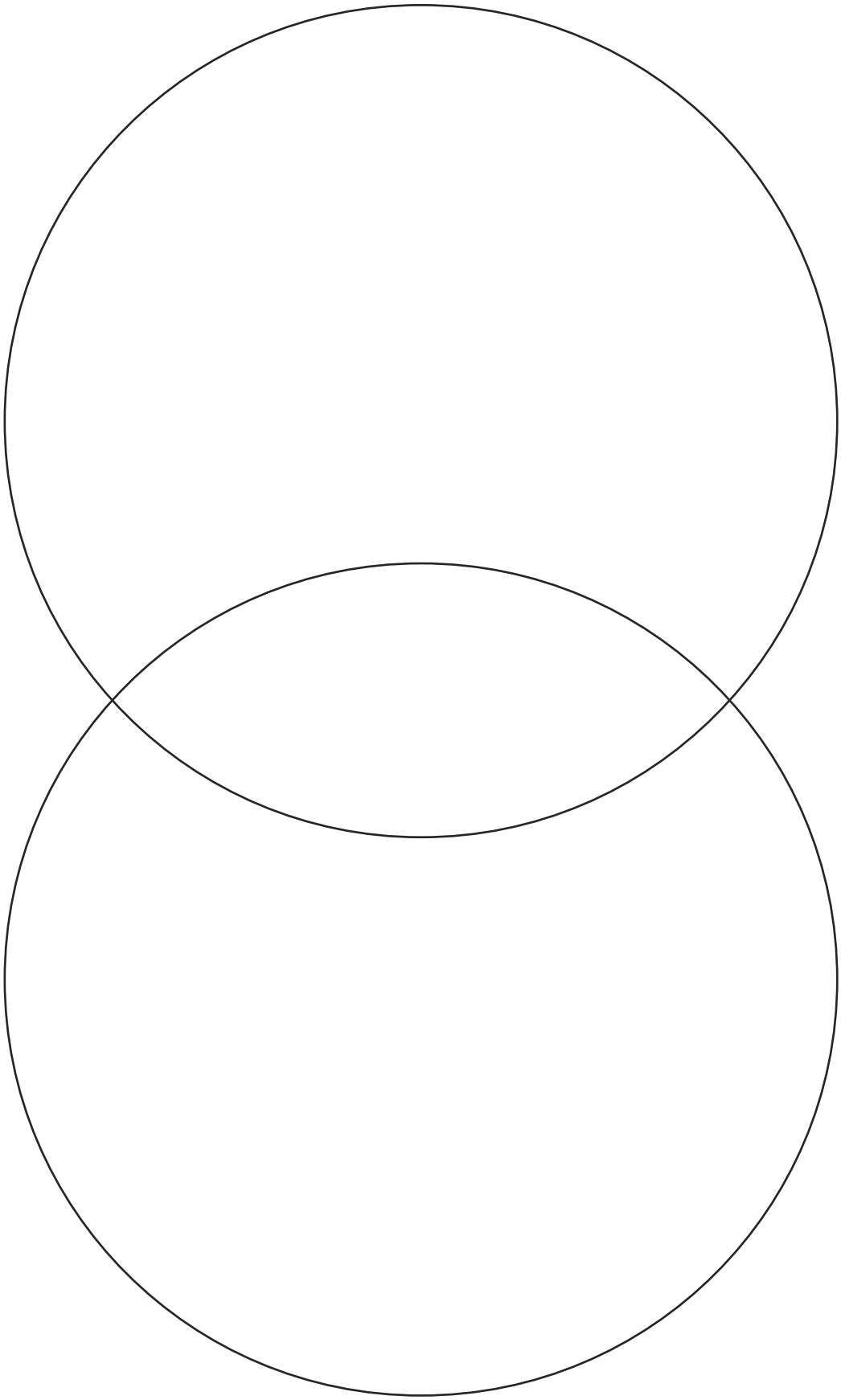
Web sites

http://www.leapfrog.com/do/findpage?pageKey=home

http://www.shrewbury-ma.gov/schools/beal/readiness/finemotoractivites.html

http://www.littlegiraffes.com/abc_homepractice.html

Venn Diagram



ABC Homework

Cut out the letters, sort them into two groups, and then glue them on the Venn Diagram.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

Alphabet Names

Next to each letter, write a name that starts with that letter.

A _____

B _____

C _____

D _____

E _____

F _____

G _____

H _____

I _____

J _____

K _____

L _____

M _____

N _____

O _____

P _____

Q _____

R _____

S _____

T _____

U _____

V _____

W _____

X _____

Y _____

Z _____

Word Maker

Pull out four consonants out of the consonant bag and one vowel from the vowel bag. See what words you can make!

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

Let's Get Skipping

Standard I:
Students will develop a sense of self.

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

Intended Learning Outcomes:
4. Develop physical skills and personal hygiene.

Content Connections:
Language Arts VIII-2; Language Arts VIII-5

Content Standard I

Objective 2

Connections

Background Information

One common gross motor activity that first grade students struggle with is skipping. As teachers, it is easy for us to look past this, but we have come to find that skipping is a big part of a student's readiness to move on to other activities, such as reading. Beforehand, to see if students can skip, bring them to an open area, play music, and invite the students to move around however they want. Suggest to them that they may skip, run, and hop, among many other things. As they move, observe to see what students are comfortable with, and who can skip.

Research Basis

Greenspan, S. I. (2005). Helping a child with motor difficulties. *Scholastic parent & child,* Volume 12 (Issue 4), Page 50-51.

This article discusses the need for students to develop their motor skills and points out that those who have difficulty with gross motor skills can also have problems with their fine motor skills. It also shares ways we can help to improve children's motor skills.

Invitation to Learn

Gather students together and read the story, *Leo the Late Bloomer.*

Instructional Procedures

1. Say to your students "in our story, we learned that Leo started doing some things later than others. Has this ever happened to you before?" Have the children share some things that they couldn't do and their friends could.
2. Say to your students, "in the story Leo kept trying and practicing until he was able to do things others could. Today

Materials

- ❏ Balls (five to six)
- ❏ *Battleship commands*
- ❏ Whistle
- ❏ *Leo the Late Bloomer*

we are going to practice working on something we can get better at: skipping." Although some students may already know how to skip and may be good at it, discuss that we can always get better at things.

3. Say to your students, "to practice skipping, we are going to remember three words: step, bump, and hop. Here is how they work."
   - Hold a ball between both hands.
   - Take a step forward with one foot.
   - Take the other knee and bump it on the ball.
   - Hop on the first foot.
   - Repeat, using the other foot.
4. Demonstrate to your students how to do this two to three times and then have two to three students come up and also demonstrate it.
5. Give students a chance to practice this by putting them in 5 different groups. Put them in lines and give the ball to the first student. Have them take turns going across and practice skipping the way you demonstrated. Encourage them to say, "step, bump, and hop" as they move across the floor. Make sure to stop students who are doing it wrong and demonstrate for them the proper way to do it.

Assessment Suggestions

- Using a rubric, have students self-assess according to how well they felt they skipped each time they finished practicing.
- Pick a nursery rhyme and have students skip to it across the floor.

Curriculum Extensions/Adaptations/ Integration

Shipwreck

- Once students are comfortable with skipping and can do it well, introduce "Shipwreck". This is a game that can be used all year long because it has parts to it that are slowly added on.
- To introduce the game, say to the students, "We are going to play a new game called, 'Shipwreck.' In this game, we will be able to practice our skipping. To start the game, you will do

what is called 'at ease.' This means that every time you hear the whistle blow, you will skip in a circle and smile at me." First, show the students what it should look like and the direction you want your circle to move. You may want to designate a student to lead the circle, so that everyone will be going the same direction. Have students practice doing this.

- Once you feel they understand and are doing it correctly, say to them, "Now we are ready to learn two other commands in shipwreck. One is called, 'attention.' When you hear me say this, you will line up in a line right in front of me, with your hands at your side, not saying a word. I will be looking for those that can *walk* quickly to the line and do it silently." As you demonstrate it for them, make sure to emphasize walking to their spot, which will help prevent some accidents that could occur. Have the students practice doing so. Add it on and practice going back and forth from "at ease" to "attention."
- Say to the students, "now we are ready for our second command, 'the galley.' When you hear me say galley, you will make a line in front of me again, but this time you will be lying on the ground. The tricky part is that you have to be different than the person in front of you. If I am laying down this way, then the person behind me has to lay with their head by my feet instead of by my head. But here is the tricky part: you can't lie down until the person in front of you has. While you are waiting for your turn, just stand quietly in line and be ready to move quickly. Don't forget to *walk* over to the line and not run!" Demonstrate using other students, and then practice it until they understand. It is really important that they wait their turn to get down, otherwise the line gets messed up and confusing. Once they have practiced and you feel they really understand, add it on to the game.
- Continue to play using these three commands for this day. The next time you play the game, review the previous commands, and then add on more. Remember that this game will not be mastered quickly and will take the students quite a while to get all the commands. This is wonderful because it gives them any opportunities to practice their skipping as you play the game throughout the year.
- All the "Shipwreck" commands are listed below
    a. Attention: stand at the side of the gym at attention facing the teacher

b. The Galley: lay in the middle of the gym, alternating every other kids head/feet
c. Chow Time: one line facing the teacher, holding an imaginary tray
d. Crew Party: one big circle, holding hands
e. Jaws: three people, one stands, and the other two are on the ground, each holding a leg
f. Torpedo: lay flat on ground, arms extended, legs together, face down
g. At Ease: skipping in a circle, smiling
h. Rise and Shine: two partners, each does five sit-ups and then runs to attention
i. Man the Lifeboat: four people standing in a circle holding hands
j. Drill: do 3 push-ups and run to the attention line

Feel free to make up and add in any additional commands.

Family Connections

- Have students create a rhyme they could skip to, at home, and practice skipping to it.
- Discuss with students different places at home that would be appropriate to skip and then ask them to practice skipping there.

Additional Resources

Books

Leo the Late Bloomer, by Robert Kraus; ISBN 006443348X

Web sites

http://ehlt.flinders.edu.au/education/DLiT/2000/FINAL/grossmotors.htm

http://members.tripod.com/~Patricia_F/ssmotor.html

Handy Dandy Handwriting

Standard I:
Students will develop a sense of self.

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

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.

Content Connections:
Language Arts VIII-2; Language Arts VIII-5

Content Standard I

Objective 2

Connections

Background Information

These activities have been provided to help your students improve their fine motor skills. By doing so, it will help to increase students' handwriting and also their fine motor use in painting and other areas. Even if you feel that some of your students already have good use of their fine motor skills, keep in mind that they can always work to improve those skills.

Research Basis

Ellison, C.M., Boykin, A.W., Tyler, K.M., & Dillihunt, M.L. (2005). Examining classroom learning preferences among elementary school students. *Social Behavior & Personality: An International Journa*l, Volume 33 (Issue 7), Page 699-708.

In this article we learn of a study that was done on a variety of students and that most students preferred to learn in a cooperative learning environment. It also states many of the benefits for using cooperative learning in your classroom.

Devany, M. (2005). Why i organized learning centers in my classroom. *Teaching Music*, Volume 13 (Issue 1), Page 44-47.

In this article we learn why a teacher felt it was important to set up learning centers in her room. She shares the importance of them and how they can help to reach the many different levels of students in your classroom.

Invitation to Learn

Put out *My Very Best Handwriting* on desks and have students write their names in their very best handwriting on the top line. Tell them to imagine that they are the teacher, and must show their students what good handwriting would look like. When they are done, collect them and save them to use at a later time.

Materials

- ❑ Clay
- ❑ Whiteboards
- ❑ Whiteboard markers
- ❑ Whiteboard erasers
- ❑ Timer
- ❑ Lacing Cards
- ❑ Pins
- ❑ *Pin Pictures*
- ❑ Paper
- ❑ *Handwriting Alphabet Page*
- ❑ Pencils
- ❑ Crayola Erasable Markers
- ❑ Lacing Cards
- ❑ *My Very Best Handwriting*

Instructional Procedures

Explain to the students that today they are going to have a chance to do some fun activities that will help them to become better at writing their letters. Then go through and explain each center to the students.

Magnificent Molding

1. Prior to this activity, as a class, come up with a list of objects that remind them of that month. For example, for September you could have listed: book, apple, school, desk, leaves, football, etc.
2. Post this list in the room where all students can see it and go over it occasionally, so that students are familiar with the words and recognize them.
3. Say to your students, "today you are going to play a fun game using our words from this month. Let's review over our words first to make sure we remember them."
4. After reviewing the words, say to the students, "one of you is going to pick one of the words from our list and you are going to use this clay to make the object. If I picked the word, book, I would then take the clay and mold it to make it look like a book. The tricky part is I only have one minute to make it. So, when I am ready to start molding, I will start the timer. The rest of you are going to watch and without saying a word, you will make the word with clay. So if I choose to mold a book you will mold the letters: b, o, o, k, which spells book. When the timer goes off, you show your guesses to each other. The person that used the clay will then say the correct answer and you will see if you got it correct. When you are done, you will then move to the next person and they will now make an object from the list using the clay."
5. Practice playing as whole class until everyone understands.

Extensions

Middle Students

When students have an idea of what the object is, they write a sentence about the object. If I have made a book, then an example of a sentence they may have written would be: I read a book.

High Students

Students make a list of three clues about the object. For the word book, they could write:

1. I like to read this.
2. It is full of pages.
3. We read them every day.

Lace It Up!

1. Say to the students, "remember our list of words from this month? I have made some lacing card pictures of each word. Here is a picture of a book. If you notice, there are holes around the edge of the book. This is so you can lace around the edges using this shoelace. Let me show you what it would look like."
2. Slowly lace around the edge of the object, demonstrating for the students how they need to go in every hole and then out and around to the next hole.
3. Say to the students, "you are going to have a chance to lace around our different objects. I will have the cards all in this container and the laces in another container. You will come up, pick one object and then lace around it. When you are done, you will unlace it, and then put the picture and the laces back in their containers. Then you may pick a different picture to lace around."
4. Demonstrate unlacing the card and putting away the picture and laces for the students. Have a students also demonstrate it.

Extensions

Middle Students

After lacing the cards, students will pick a picture and write a sentence about it on their whiteboard. They will then share their sentence with someone in their group.

High Students

Students will lace a card, and then write a short story using that object.

Poke a Picture

1. Say to the students, "how many of you have ever poked a hole in a paper? Do you know what happens when you hold it up to the light? The light will shine through. Today we are going

to be able to make pictures using pins a paper. When we are done, we will be able to hold it up to the light and see it shine through our picture."

2. Show the students the picture that you are going to have them use. Say to your students, "Here is the picture we will use today. Did you notice that it is a picture of one of the words on our word list? You will each get to take one of these pictures and carefully pick out a pin to use. The safest way to do our pin picture is to make sure that no one gets pricked of hurt with the pin, so we will carefully move our pin and picture to the floor or carpet area."
3. Move your students to the carpet if you have it in your classroom, if not, you can get carpet samples and then move them to the floor. Have them sit in a circle and watch you demonstrate.
4. Say to your students, "pick a spot that you want to start at. Poke a hole right on the line using your pin. Then make another hole right next to it. Make sure not to make it on top of the other hole, but right next to it. Continue to do this until you have the whole picture done. Then hold it up to the light and see how your picture shines through!"

Extensions

Middle and High Students

If students get done in time, have them draw their own picture for someone else to poke. Have them exchange pictures with a friend and then have fun!

Magical Markers

1. Say to the students, "for this activity you are going to use some very special markers. These markers are fun because you can write with them, but if you make a mistake, you can erase them! So, if we make a mistake, we can erase it and fix it.
2. Show your students a Crayola Erasable marker. "This is our special marker. Today we are going to use them to trace our ABC letters and practice our handwriting. I will take this ABC sheet and track over each letter using our special markers. Watch how I carefully trace over the letter A using our special marker."
3. Demonstrate this by doing three to four letters. Make a mistake on one of them. Say to the students, "Oh look, I made a

mistake. But that's okay, because I can erase my mistake using this eraser. Now I can write the letter again and this time do a nice, neat job."

4. Have a student come up and demonstrate also.
5. Say to the students, "When I get done with the alphabet, I can look back see what a nice neat job I did! Remember, this is not a race to see who can get done first. We are all going to do this in our best handwriting!"

Extensions

Middle Students

After practicing the alphabet, have students write their spelling words with the erasable markers. Then have them pick two letters to erase from each spelling word. They exchange papers and see if they figure out which letters are missing.

High Students

After practicing the alphabet, have students write a sentence for each of their spelling words. When they are done, they go back and erase each spelling word. Have them trade papers with a partner and then see if they figure out which word goes in each sentence.

Divide students up into different groups and get them started at a center. They can stay there for a set amount of time and then switch (10 min). Due to the amount of centers and time, you can do this activity for a number of days.

Using the examples provided, you can accommodate to the different levels in your classroom and also use these centers throughout the year as your students become better with their writing.

Assessment Suggestions

- At a predetermined later date have students write their name again in their best handwriting. Have them compare it to the first time and mark if they did a better job.
- Have students write the alphabet, lower and upper case, on paper and then grade it based on neatness.

Family Connections

- Have students take home the pin picture they created and share it with their family.

- Assign students to write all their families names in their best handwriting at home and have them return it.

Additional Resources

Web sites

http://www.handwritingforkids.com/handwrite/

http://www.handwritingworksheets.com/

http://members.tripod.com/~imaware/fmotor.html

My Very Best Handwriting

Write your name in your very best handwriting.

Write your name again in your best handwriting.

How did you do?

_____

I did better.

_____

I can do better next time.

Handwriting Alphabet Page

Trace each letter using your best handwriting.

Aa Bb Cc Dd

Ee Ff Gg Hh

Ii Jj Kk Ll Mm

Nn Oo Pp Qq

Rr Ss Tt Uu Vv

Ww Xx Yy Zz

Math I-2

Activities

Simple Relationships

Number Sequences

Standard I:

Students will acquire number sense and perform simple operations with whole numbers.

Objective 2:

Identify simple relationships among whole numbers.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts VIII-2, 5; handwriting and communication

Math Standard I

Objective 2

Connections

Background Information

In the following lessons, students participate in activities that focus on the role of numbers and language in the world around us. Students are asked to discuss, describe, read, and write about numbers they find in familiar situations. The emphasis on using components of language helps students build a broader vocabulary of numbers than the traditional symbolic representation of numbers. The activities also help develop good number sense. These lessons can be taught at any point in the year as long as students can write and count in sequence.

Research Basis

Andrews, Angela Giglio. Number and operations- developing spatial sense—A moving experience. *Teaching children mathematics 2* (January 1996): 290-93.

This research emphasizes that representing numbers with various physical materials should be a major part of mathematics instruction in the elementary grades. One of the findings suggests that using manipulatives and symbolic representations for math concepts enhances students understanding of the content.

Bransford, J.D., Brown, A.L., & Cocking, R.R. (Eds.). (1999). *How people learn; Brain, mind, experience, and school*.

Instructional practice should promote explorations supported by easy access to a wide variety of tools that are designed to accomplish a task. The tools students use influence the kind of understandings they develop.

Materials

- ❏ Three dice per pair
- ❏ Unifix® cubes
- ❏ More-less Spinner- one per pair

Invitation to Learn

I like to roll dice. Numbers interest me. I like to put them in order. I am going to give you dice to roll with a partner. The first

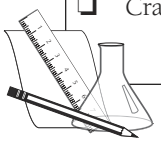
person will role the dice and put them in sequential order while the second person models with Unifix® cubes the numbers represented on each dice. The players will rotate turns.

Instructional Procedures

Numbered Squares

Materials

- ❑ *Numbered Squares*
- ❑ Pencil
- ❑ Crayons



1. Students will write numbers on the worksheet beginning each matrix with one. For example, if a student is practicing the numerals up to five, the series, 1, 2, 3, 4, 5, is repeated in each matrix as many times as possible.
2. When each matrix is complete, the children color in all the ones and look for patterns. As time allows students can color the two's in another color and so on.
3. This activity can also be used with names, vocabulary words, or spelling words using the same procedure as before.

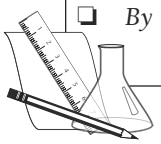
1	2	3	4	5	1
2	3	4	5	1	2
3	4	5	1	2	3
4	5	1	2	3	4
5	1	2	3	4	5
1	2	3	4	5	1

C	A	R	S	O	N
C	A	R	S	O	N
C	A	R	S	O	N
C	A	R	S	O	N
C	A	R	S	O	N
C	A	R	S	O	N

By the Number

Materials

- ❑ 100 fish
- ❑ Five re-sealable plastic bags
- ❑ Five *More-Less spinners*
- ❑ *By the Number (Key)*



1. Use the pattern to make 20 fish in five different colors for a total of 100 fish.
2. On one color of fish write the numbers 0–19. On another color write the numbers 20-39. On the third color write the numbers 40–59. The fourth color will have the numbers 60–79. The last color will have the numbers 80-99.
3. Laminate the fish and answer key and cut them out.
4. Store each color of fish with the appropriate answer key in a separate resealable plastic bag.
5. Place each bag at a center or with a small group of students.
6. Students sequence the fish in each color and use the answer key to check their work.

Zoom

1. Put the class into small groups. Give each group a number of Unifix® cubes.

2. Have each group build a city. Each city has to have six skyscrapers. No skyscraper can be the same height. Skyscrapers are made by stacking Unifix® cubes into towers.
3. Allow students time to build their cities.
4. Once the cities are built, have each group show their buildings and tell how they came up with the different heights.
5. Have each group put their skyscrapers in order from the shortest building to the tallest.
6. Have each student write in their journal the number of Unifix® cubes they used for each skyscraper and draw a corresponding picture.
7. Look through the book *Zoom* with the class and talk about each page.
8. Ask the students for details on each page. Have them predict what is going to happen on the next page.
9. Once you have gone through the book, write on the back of each page the number and cover it with a sticky note. Take the book apart and randomly distribute pages from the book to students and have them work to put the book back together in sequential order. You may want to break the book into sections of six. The book can start and stop at any point.
10. For an interactive writing assignment, post a page on the board. Come up with ideas of what is happening on the page, what items are in the picture, or have students do a creative writing from the picture on their own.

Materials

- ❏ *Zoom* by Istvan Banyai
- ❏ Unifix® cubes
- ❏ Journals

Clip-itz Activities

123 Order

1. In small groups, have students make an accordion display to show number order. Ask students to find all the cards with numerals.
2. Clip the numbers in order from zero to ten. Count out loud to check the order. Repeat the activity with numbers up to 20.
3. Challenge students to repeat the activity using the counting dots, animal, and object cards.

Materials

- ❏ Clip-itz Numbers

Three of a Kind

1. Students will work in pairs. Sort the cards into three piles: a pile of number words (zero to ten), a pile of numerals, and a pile of pictures.
2. Students will take turns picking a card from each pile and clipping them together to make a three dimensional triangle matching a word, picture, and number.
3. If a match can't be made, the card is placed at the bottom of the pile. Once all the cards are taken, the student with the most three dimensional triangles displayed wins.

What's Missing?

1. Put five number cards in a pile, such as 1, 2, 3, 4, and 5. Show the numbers to students. Take one card away, and shuffle the cards.
2. Ask students to clip the numbers together to find which number is missing.
3. Students will then find the missing number and clip it into the appropriate place in the sequence.
4. Play again with another sequence of five numbers.

Assessment Suggestions

- Use student work pages, utilize journaling, and observe students working with manipulatives to assess understanding.
- Meet with student's one on one or in small groups. Give them numbers in random order and have them put the numbers in sequential order.

Curriculum Extensions/Adaptations/ Integration

- Make your own practice pages for the Numbered Squares activity using http://www.aplusmath.com
- Make a matching game with the fish from the activity "By the Number." Copy the numbers on one set of fish and then put pictures of objects on another set of fish. Students can match the number of objects on one fish with the number on another fish.
- Make different sets of fish in different colors, for example, blue fish are numbers one through 20, red fish are numbers one

through 30, yellow fish are numbers one through 40 and so on. Students will practice with sequential order.

- Make a set of number cards with pictures below the numbers to help ESL learners understand ordering by sequence.
- Allow children with disabilities to use manipulatives while completing any of the above lessons.
- Ideas for students with special needs could be to pair them with other students for assistance with the activity. For children with vision problems, enlarge the print on the activities.

Family Connections

- Send home a concentration game that the family can make and play together to practice identifying numbers. They can make the rules of the game so they have to identify the number that is one more or one less then the number you pick up. Another game could be to pick up the cards in sequential order after remembering where they are placed face down.
- Encourage students to share with their parents about the pattern they uncovered in the matrix chart.
- Have them come up with another pattern using a different set of numbers in a matrix. Find the pattern and explain it.
- Have students take turns bringing the book *Zoom* by Istvan Banyai home. The students can work with family members to take the book apart and put it back together in the correct order. The students can teach their family members about numbers in sequential order.

Additional Resources

Books

The Cheerios Counting Book, by Barbara Barbieri McGrath; ISBN 0-590-68357-8

Just Enough Carrots, by Stuart Murphy; ISBN 0-06-446711-2

Every Buddy Counts, by Stuart J. Murphy; ISBN 0-064-46708-2

Looking For Numbers, by Margie Burton, Cathy French, and Tammy Jones; ISBN 1-58344-208-1

Six Sleepy Sheep, by Jeffie Ross Gordon; ISBN 0140548483

Ten Little Mice, by Joyce Dunbar; ISBN 0152007709

Count and See, by Tana Hoban; ISBN 0027448002

Mouse Count, by Ellen Stoll Walsh; ISBN 0152002235

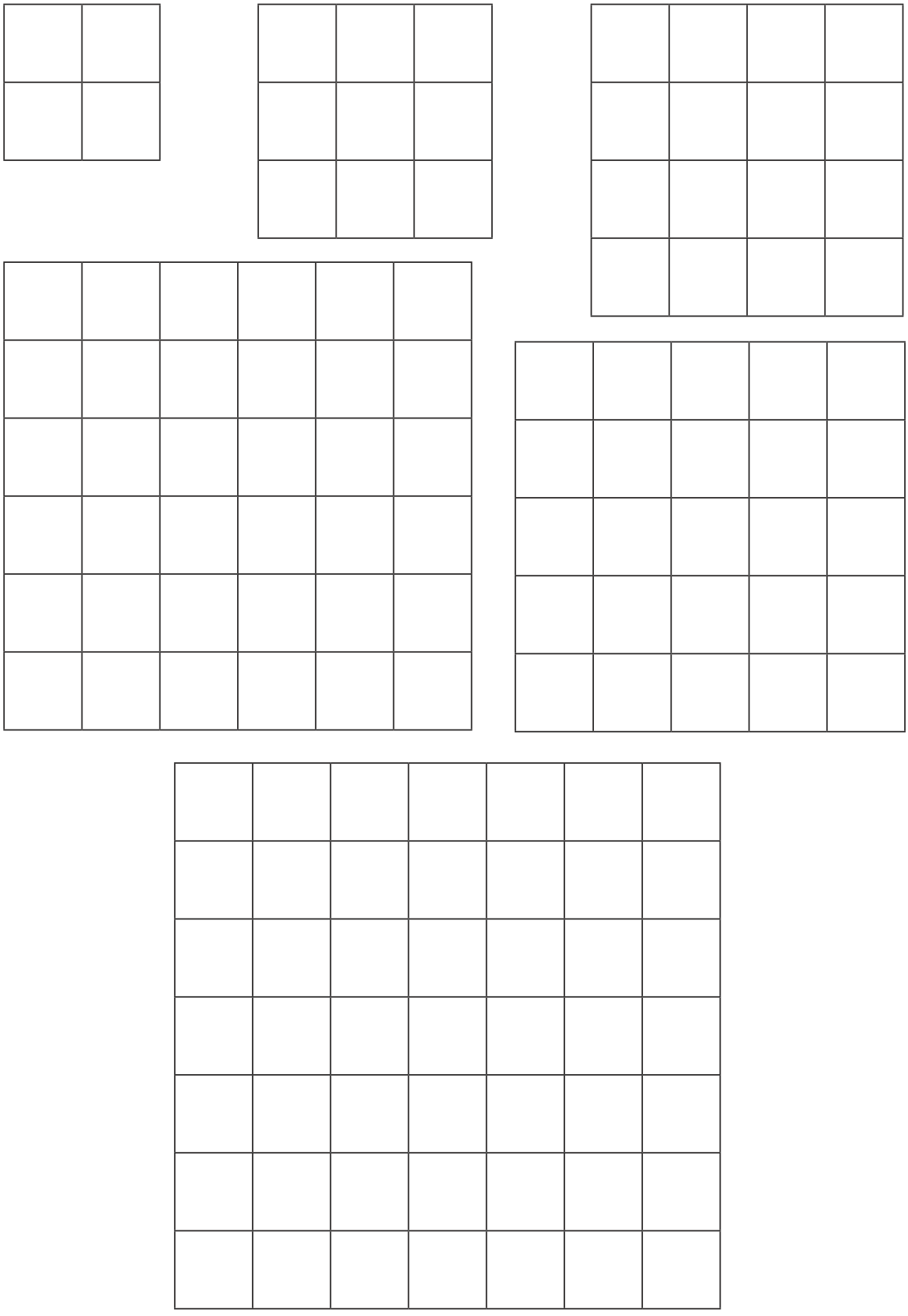
Web sites

http://www.nctm.org

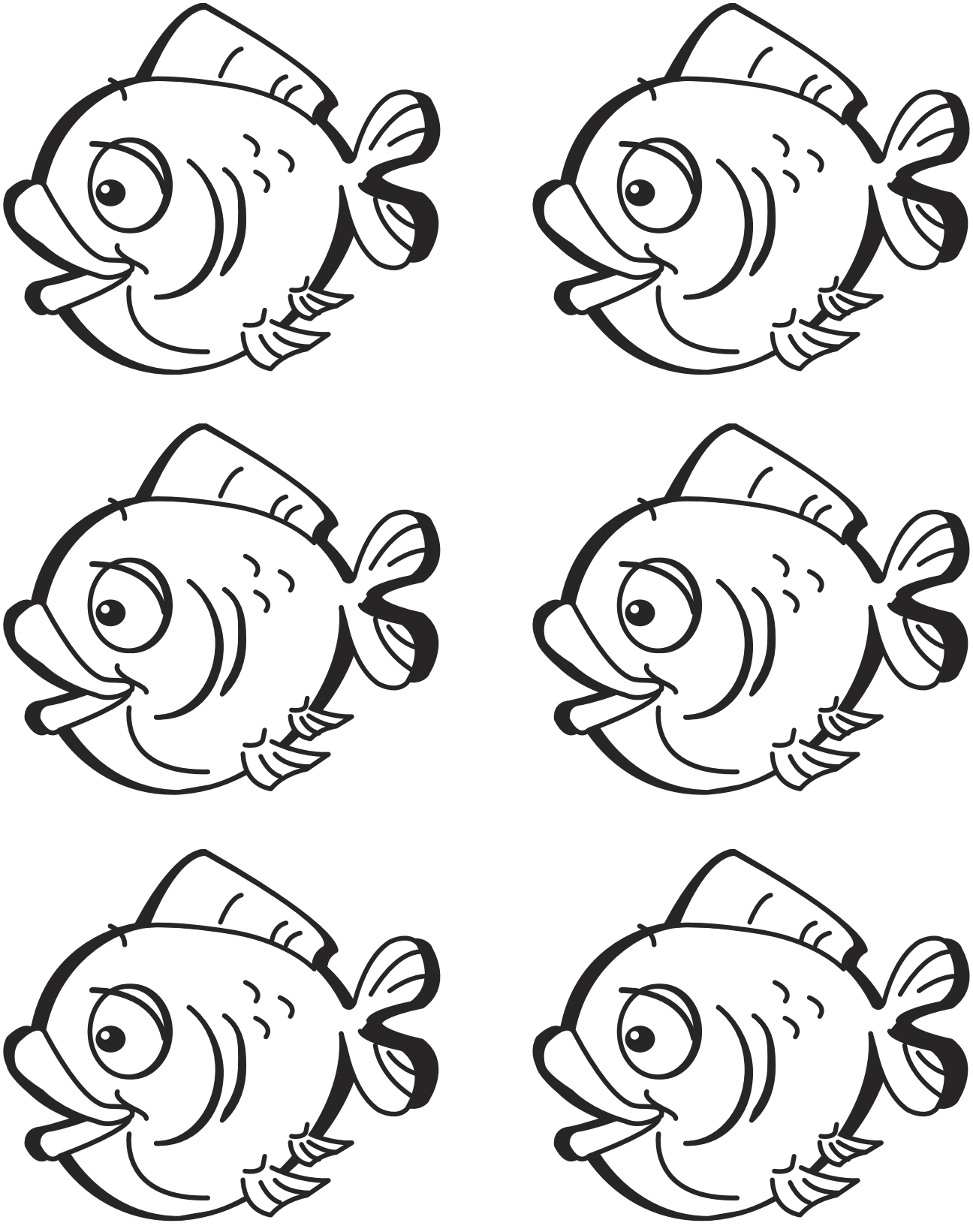
http://illuminations.nctm.org/

http://www.teachers.net

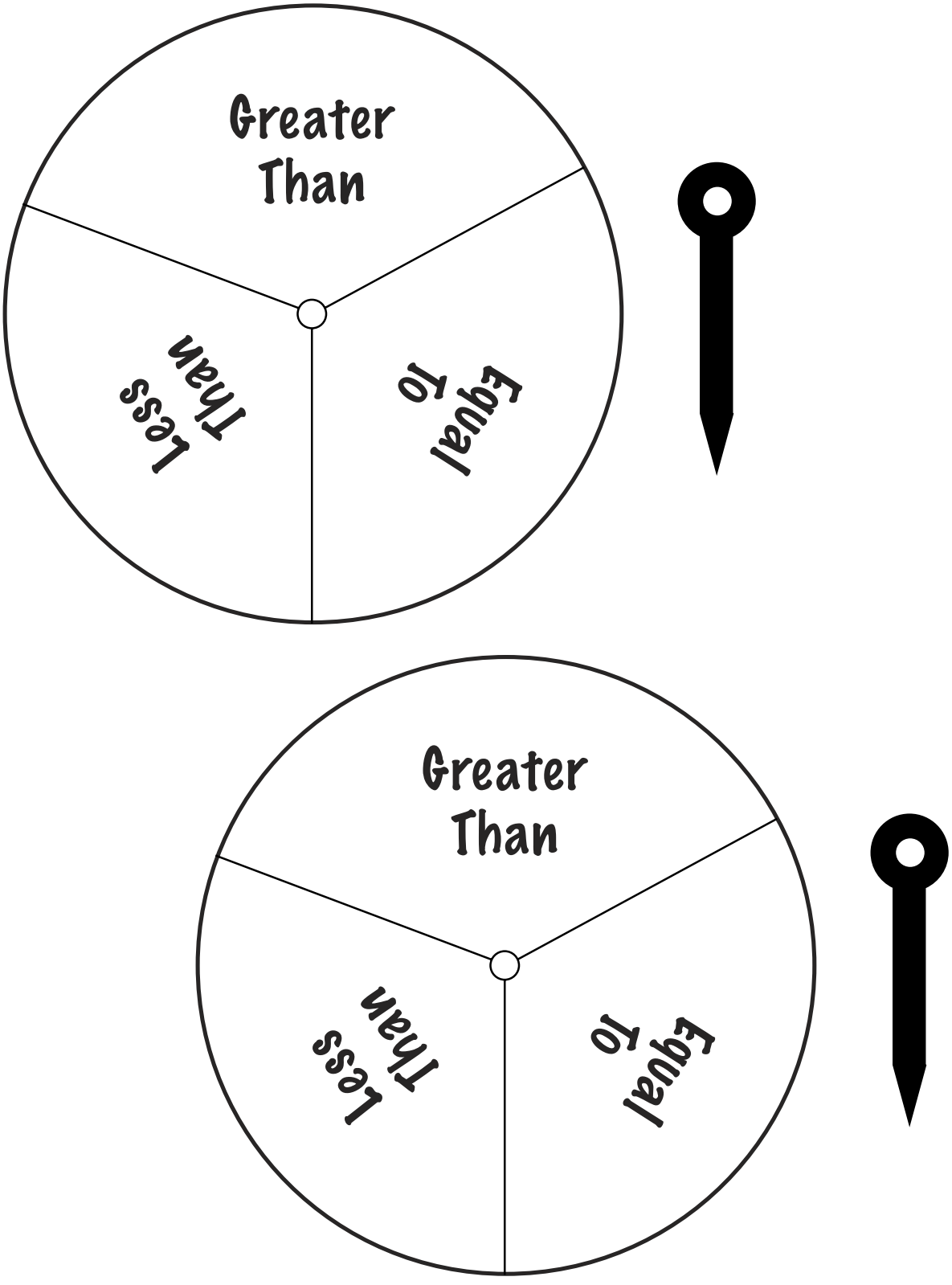
Numbered Squares



Fish



More-Less Spinner



By the Number (Key)

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19

20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39

40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59

60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79

80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

Greater Than and Less Than with Numbers

Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 2:
Identify simple relationships among whole numbers.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts I-1, VIII-5; listening, speaking, writing

Math Standard I

Objective 2

Connections

Background Information

This lesson can be taught once you have introduced number words (zero to ten) to students. Students should be able to count in sequence and use manipulatives to count. To set the stage for learning, choose a counting book to read. Any book in which the pictures for the numbers are instantly recognizable will work, but a book that also presents the written or numerical form of the numbers is preferable. *Ten Little Rabbits* or *Ten Black Dots* are two books that use the number words; *The M & M's Counting Book* uses both numerals and words for the numbers.

Research Basis

Marzano, R.J., Pickering, D.J., & Pollock, J.E. (2001). *Classroom instruction that works: research-based strategies for increasing student achievement*, pg 131-133

Students need opportunities to satisfy their curiosities, test their imaginations, create, wonder, and invent. Classrooms that allow students to enjoy learning and encourage playfulness, sensitivity, humor, and joy are inviting and stimulating. Environments that allow students to approach mathematics in many ways- with manipulatives, technological tools, and hands-on activities- engage students' multiple intelligences.

Walsh & Sattes, (2000). Effective instructional strategies. *ERIC Source* (AN 18100419). Retrieved September 2005, from http://www.eric.ed.gov

This article interviewed students and asked them what motivates them to learn and participate in school. The main factors were a good relationship with the teacher, clear expectations, hands-on activities, and assignments related to real life. Studies on cooperative learning indicate a strong impact on student achievement as well as increased motivation and improved interactions with adults and peers.

Researchers have identified instructional strategies that show positive, measurable effects on student achievement.

Invitation to Learn

This is a versatile five-minute mystery number activity. In advance, post a large number line. If desired, place an adhesive dot below each even number to reinforce the odd-even number pattern. To begin, secretly select a displayed number. Then announce one or more grade-appropriate clues for that number. For example, you might say, "I'm thinking of an odd number. It is less than six and greater than four," (five) or "I'm thinking of the odd number whose digits have a sum of two," (1 + 1). Invite students to identify the number, guiding their guesses as needed. When a student names the correct number, have him explain how he determined it.

Materials

- ❑ Piece of white paper approximately 4" x 4"—one per student
- ❑ Crayons
- ❑ String or jump rope
- ❑ 30 clothespin

Instructional Procedures

Number Line Ordering

1. Assign children numbers from one to 30.
2. Have children create pictures to show their numbers. Each picture should have the number written at the top.
3. Use the pictures to create a number line using string and clothes pins. As children hang their pictures, encourage them to use the words "greater then" or "less than" to describe their number in relation to the number preceding it. For example, "My number is 15. Fifteen is greater than 14."
4. Hang the number line around the room.

Neck and Neck

Materials

For each pair of students:

- ❑ Giraffe Pattern (2)
- ❑ 11 dominoes
- ❑ Number cards 0-9
- ❑ More-Less Spinner
- ❑ Resealable bags

1. Stretch students' ability to compare numbers. Prepare a tag board copy of the giraffe pattern to make two giraffes. Store the 11 dominoes and the giraffe pieces with the number cards in a reseal- able bag. Note: the dominoes are only used as game pieces; students will not refer to the dots on the domino for this activity. Therefore, it does not matter which dominoes students choose. The dominoes may be placed upside down.
2. Students will play with a partner. To set up, each player uses one set of game pieces and one domino to assemble a giraffe. One player shuffles the cards and then stacks them facedown.
3. Each player takes two cards.

4. Players arrange their cards to create the greatest possible two-digit number. For example, a player draws a number three and number eight card. They would arrange the cards to make the number 83.

5. One player uses the phrase *greater than* or *less than* to compare his number with his opponent's number.
6. The player with the greater number adds a domino to his giraffe's neck. Then each player places his cards in a discard pile.
7. The game continues, with players reshuffling the cards as necessary and taking turns comparing numbers. The first player to make a five-domino giraffe wins.
8. To put a spin on the game, have the students use a *More–Less spinner*. Once the students have created their greatest possible two-digit number, the students take turns spinning the spinner to determine who will add a piece to their giraffe neck, the student with the *greater than* number or the student with the *less than* number.
9. Another activity to incorporate the dominoes is to place the dominoes upside down. Students draw one domino, add the dots together, and spin the spinner. The students with the *greater than*, or *less than* number adds a domino to the giraffe neck. Continue play until one student has six dominoes for the neck of their giraffe
10. Students may be required to draw a domino the first time, write the math equation and sum in their journals. Their next turn students must draw a domino with a sum *greater than* or *less than* the first domino placed on the neck of the giraffe. If the sum of the domino is not *greater than* or *less than* their turn is over and the second player begins their turn.

Mystery Number

1. Give each student a copy of a lens pattern and a jumbo craft stick.
2. Have students cut along the outer edge of the pattern and then carefully cut out the inner rectangle (provide assistance as necessary). Instruct the students to glue the lens to the craft stick and then sign their name on the resulting handle.

Materials

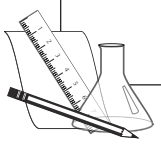
- ❏ Lens Pattern
- ❏ Jumbo craft stick or tongue depressor
- ❏ Hundred Chart

3. To present a case to be solved, give each student a hundred chart.
4. Secretly choose a number between one and 100.
5. Use the terms "greater than" and "less than" to identify the numbers immediately preceding and following the chosen number.
6. Challenge students to use the clues and their number finders to locate the mystery number on their charts.
7. When they have found the mystery number, they can put their lens finder over the number until the teacher asks for the mystery number to be revealed.
8. Challenge students in the class to give clues using the terms greater than and less than to locate a mystery number.

Letter-Perfect

Materials

- ❑ *Hundred Charts*
- ❑ One crayon, any color



1. On one copy of a hundreds chart, color the appropriate squares to form a selected letter.
2. To begin, give each student a copy of an unmarked hundreds chart.
3. Announce that there is something special about the hundreds chart—a letter is concealed in it!
4. To provide proof of this claim, verbally provide step-by-step directions for finding and making each square needed to form the letter. For example, a direction for 64 might be the following: "Find 66. Color the number that is two less."

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

5. Have students make their own letter in a hundreds chart and then give directions to a partner to uncover their letter. Observe to see that correct vocabulary is used to uncover the letter in the chart. For example, using the term one more or one less than any whole number from one to 99.

Unifix® Stacks

1. Students work in pairs. Each student rolls their die and places a vertical stack of Unifix® cubes on the first square to represent the number on their die.
2. After each roll students will compare the cubes to determine who has more or less. Students will use the vocabulary *greater than, less than* and *equal to* as they compare cubes.
3. Students will write their number and their partner's number in their journal and draw a corresponding picture after each turn.
4. Students will spin the spinner to determine if they will circle the *greater than, less than* or *equal to* number.
5. Instead of a journal, students can use a t-chart to keep their numbers separate with their names at the top. When they spin the spinner they will circle the correct number, *greater than, less than* or *equal to* and the student with the most numbers circled on the t-chart will be the winner.
6. Students will continue playing in this manner until all six squares are filled.

Materials

- ❏ *Unifix® Cube Six Count Mat*
- ❏ Unifix® cubes
- ❏ Dice- one per child
- ❏ *More-Less Spinner*
- ❏ Journal

Assessment Suggestions

- Observe to see that students are using the correct vocabulary such as *greater than, less than* and *equal to*.
- Observe individual students giving directions to find a letter pattern in the hundreds chart. Watch to see that students are using the correct vocabulary.
- Check student journals for their understanding of the concepts taught.
- Observe students as they use manipulatives to complete an activity. Watch to see that they use the materials appropriately to understand the concepts taught.

Extensions/Adaptations/Integration

- For high ability students, provide additional number cards or draw three cards and have the players create three and four-digit numbers while completing the Neck and Neck activity.
- Journaling: have students write the math problems they create in the Neck and Neck activity in their journals with the correct sum.

- Have students with special needs use manipulatives to create two different numbers and indicate by pointing to the number that is greater than or less than.
- Greater than and less than may be difficult math terms for students who are acquiring English. Connect the words more and fewer to the words greater than and less than. Show magazine pictures of two groups of people or objects. Talk about the groups, using more and greater, and fewer and less. Have children find two pictures of things or people and use greater than and less than to describe the groups. Use picture clues.

Family Connections

- Encourage students to play the games at home and/or share with their parents what they learned.
- Have students find items around the house, count the items for a family member, and then tell the family member which number is greater than, less than, or equal to.

Additional Resources

Books

One hungry monster: A counting book in rhyme, by Susan Heyboer O'Keefe; ISBN 0316633887

Counting one to five, by Margie Burton, Cathy French, & Tammy Jones, Benchmark (emergent)

Math curse, by Jon Scieszka; ISBN 0140563814

Ten black dots, by Donald Crews; ISBN 0688135749

Domino addition, by Lynette Long; ISBN 0881068772

Ten sly piranhas, A Counting Story in Reverse, by William Wise; ISBN 0142400742

Web sites

http://www.dominoes.com/dominoinfo

http://www.netm.org

http://illuminations.nctm.org/

http://www.teachers.net

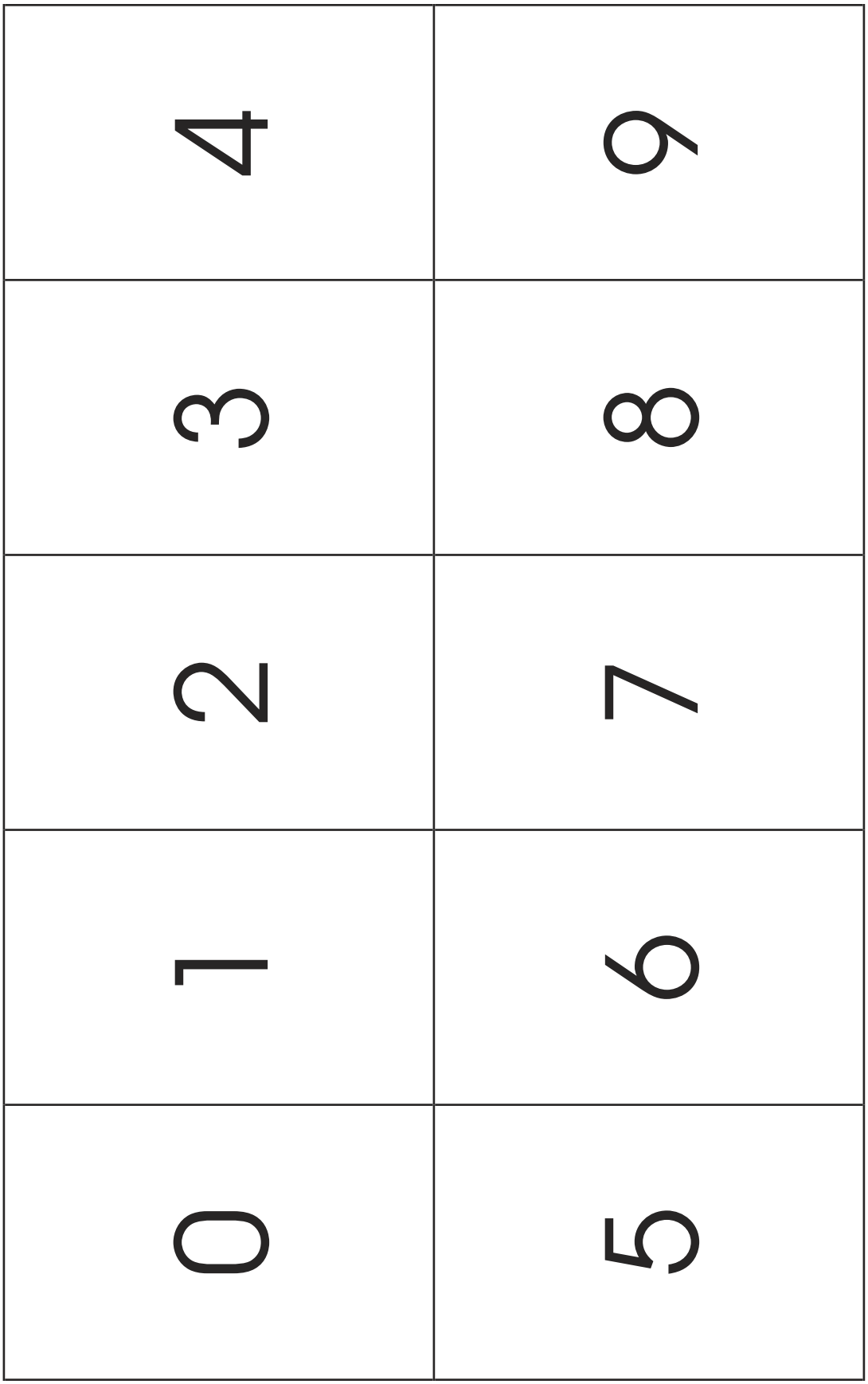
http://www.enchantedlearning.com

http://ilovethatteachingidea.com

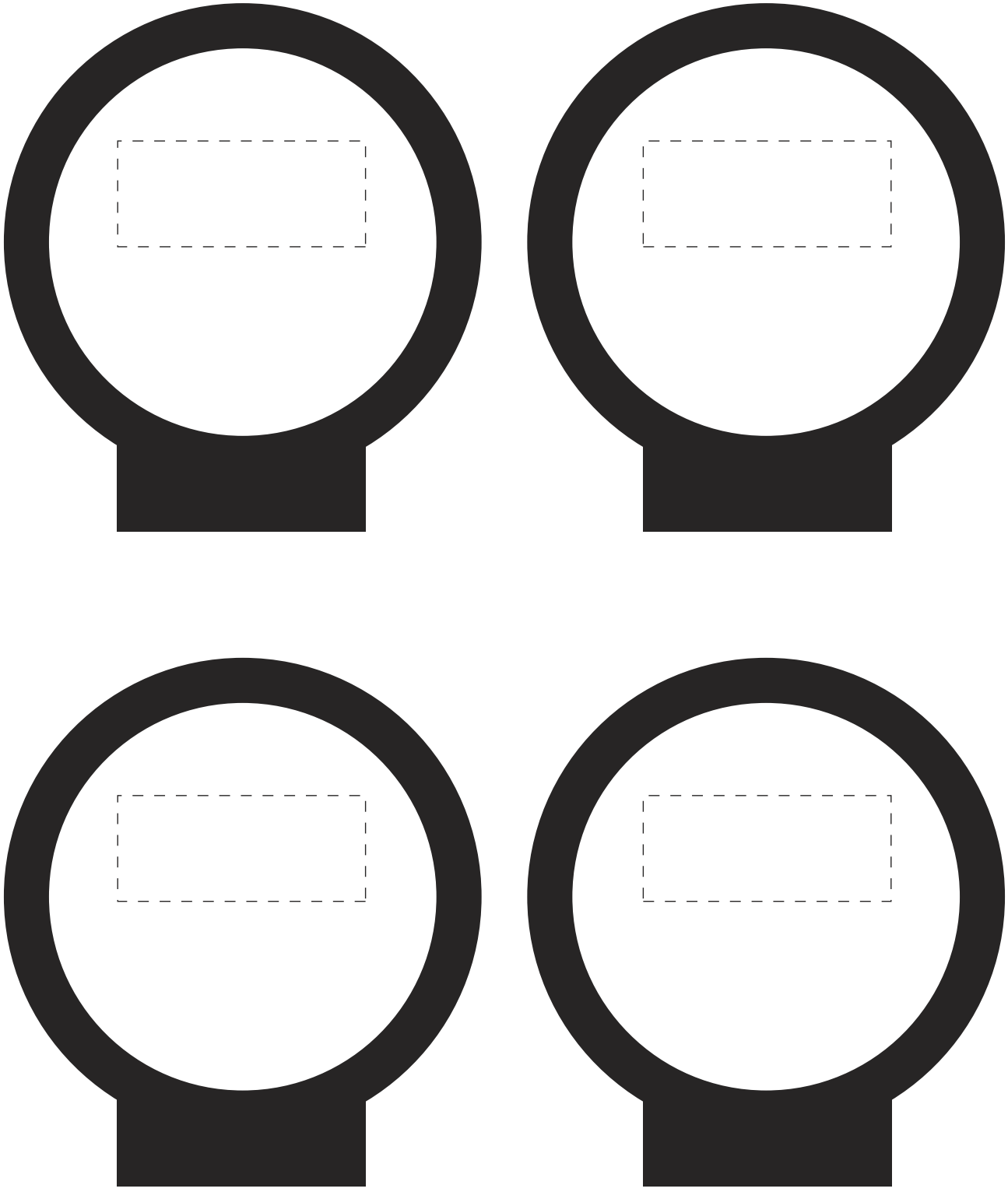
http://www.aplusmath.com

Giraffe

Number Cards

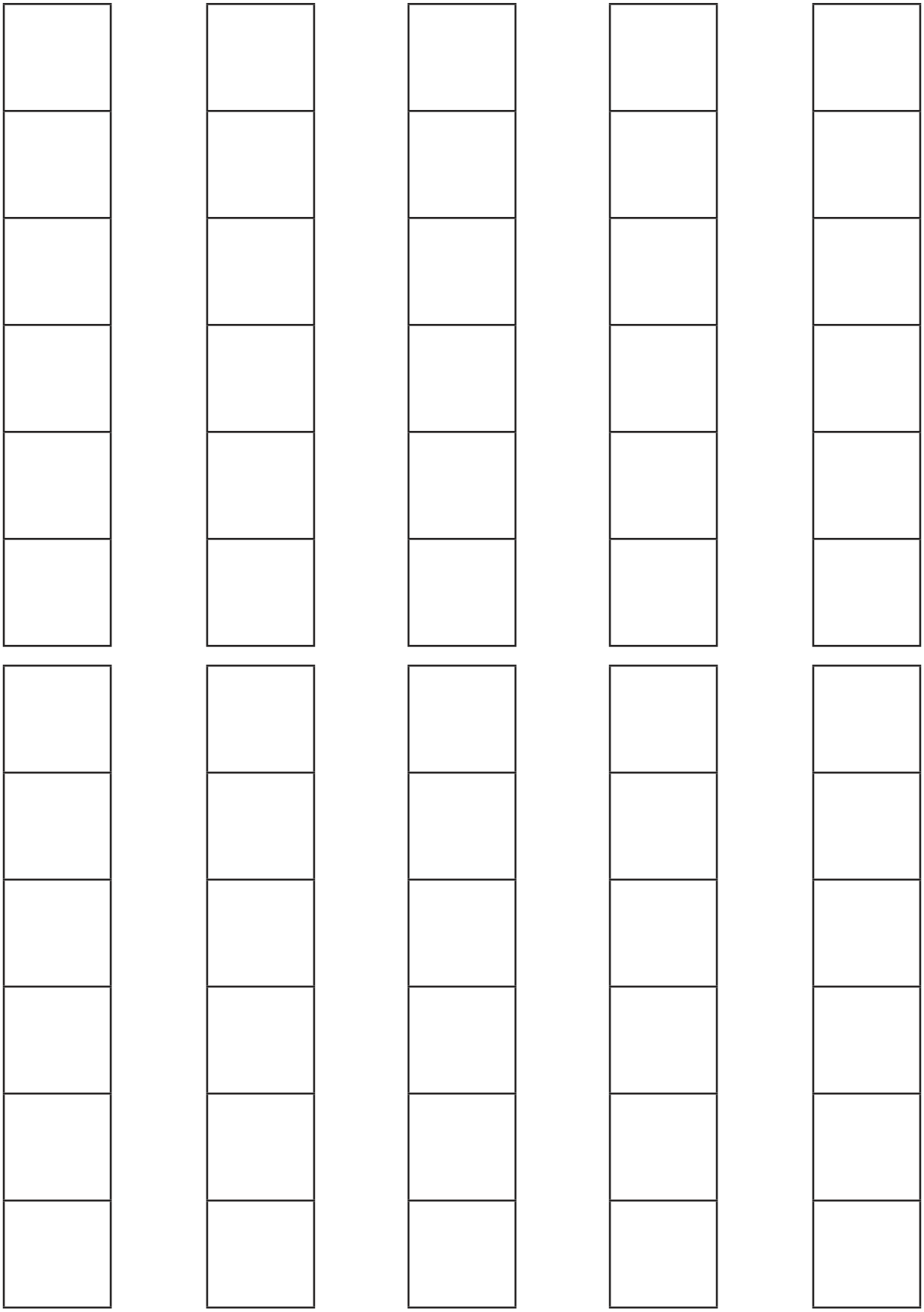


Lens Pattern



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Unifix® Cube Six Count Mat



Literature and Ordinal Numbers

Math Standard I

Objective 2

Standard I:

Students will acquire number sense and perform simple operations with whole numbers.

Objective 2:

Identify simple relationships among whole numbers.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:

Language Arts VI-1; learn new words through listening and reading

Connections

Background Information

Before teaching this lesson, ordinal numbers should be introduced. This lesson should be taught no earlier then second quarter.

In the book, *The Mitten*, by Jan Brett, Nicki drops his white mitten in the snow, he continues without realizing that it is missing. One by one, woodland animals find the mitten and crawl in; first a curious mole, second a rabbit, third a badger and others, each one larger than the last. Finally, a tiny brown mouse follows in a big brown bear, and what happens next makes a wonderfully funny climax. As the story of the animals in the mitten unfolds, the reader can see Nicki in the borders of each page, walking through the woods unaware of what is going on. Students can begin learning the ordinal numbers by stating what animals come in what order throughout the story using the ordinal numbers.

Research Basis

Stright, Anne Dopkins: Supplee, Lauren H. Children's self-regulatory behaviors during teacher-directed, seatwork, and small-group instructional contexts. ***Journal of educatioinal research***, Mar/Apr 2002, Vol. 95 Issue 4, p235, 11p, 5 charts.

The authors examined differences between children's self-regulatory behaviors in three instructional contexts; teacher directed, seat work, and small group. During teacher directed instruction, students were less likely to attend to instructions, monitor their work, and ask for help than during seat work or small-group instruction. This article states that a variety of teaching techniques is best suited for students.

Box, Jeanie A., and Little, David C. (2003). Cooperative small-group instruction combined with advanced organizers and their relationship to self-concept and social studies achievement of elementary school students. ***Journal of instructional psychology***, Vol. 30 Issue 4, p285-287

Research has shown the use of small-group instruction in the classroom may positively affect students' self-concept, as well as academic achievement. The researchers believe that teachers should consider the use of cooperative small groups with advance organizers as a method of improving self-concepts and academic achievement levels.

Invitation to Learn

Materials

- ❑ Music-appropriate for first grade
- ❑ Student chairs—one per student
- ❑ Five craft sticks

This activity is called Musical Math. This large group game puts students in tune with ordinal numbers to the fifth place. Arrange 25 student chairs in five rows with five chairs in each row. Each row needs to have enough room for students to walk through. The chairs in each row may be placed so each student is facing the back of another student or they may be placed so students sit side by side. Play recorded music while students walk among the chairs. When the music stops, every child should quickly find a seat. Have students give the ordinal number that describes the position of their chair in the row where they are seated. Then restart the music. Continue play in this manner for as long as desired. For a fun finale, label five craft sticks with ordinal numbers through the fifth place. Stop the music and then randomly remove single sticks from the container. Announce each ordinal number and direct the students in the corresponding chairs to exit the game.

Instructional Procedures

The Mitten by Jan Brett

Materials

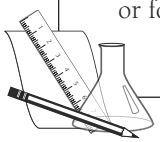
- ❑ *The Mitten*
- ❑ *Left mitten*
- ❑ *Right mitten*
- ❑ *Mitton Animals*
- ❑ White 8 ½ x 11 construction paper (2)
- ❑ Crayons
- ❑ Scissors
- ❑ Yarn

1. Read the book *The Mitten* by Jan Brett. As the story is read, point out the order in which the animals appear and the different sizes of the animals.
2. Once the story has been read, have students recall the animals in the story. List the animals on the board as the students recall them.
3. Once the animals are listed on the board, ask students what animal came first, second, third, fourth, fifth, sixth, seventh, and eighth. Write the correct ordinal number next to each animal name.

4. Pass out a copy of the mittens and the animal page to each student. Have students begin to color and cut out their animals and mittens.
5. Have students punch the holes according to the pattern and weave the yarn through the holes to hold the mittens together.
6. When students have finished making their mitten, they can begin to write the correct ordinal number on the back of the animal and begin placing them inside their mitten.
7. For a fun finale, have a student reread the story to the class while the other students use their cut out animals and mitten to put the animals inside the mitten as they are reread in the story. Students are listening for ordinal numbers.

Materials

- ❑ *10 Little Rubber Ducks*
- ❑ *Rubber Duck*
- ❑ Paper cut outs of ducks or food shaped ducks



10 Little Rubber Ducks by Eric Carle

1. Read the book *10 Little Rubber Ducks* by Eric Carle. While reading the book point out the ordinal words.
2. Once the book has been read, have students recall, using ordinal numbers, what happened in the story.
3. Review with students the position words which are talked about in the book: north, east, south, west, right, left, up, down, this way, and that way.
4. Give each student a page of paper ducks and have them cut out their ten ducks. Have students use the ducks to follow the directions given. For example, the first duck goes north, the fifth duck goes south, and the ninth duck goes to the left of the first duck.
5. Using the paper ducks, have students line them up on their desk. Have them identify different ordinal positions of the ducks as directed by the teacher.
6. As a creative writing extension, have students take a page and write a story about the possible adventures of the ducks.

Assessment Suggestions

- For the lesson *The Mitten*, check the back of each student's animals to see that they have written the correct ordinal number for each animal.
- Visually watch while the story, *The Mitten,* is reread to see what order students are putting the animals in the mitten.

- For the lesson, *10 Little Rubber Ducks*, use student journals to see if students are writing with details, good word choice, and sentence fluency. While students manipulate the paper ducks, observe to see that students understand position words, directions, and ordinal numbers.

Curriculum Extensions/Adaptations/ Integration

- Use the book, *The Hat*, by Jan Brett, to recreate this same activity using a hat and the animals in this story.
- Compare the two stories, *The Mitten* and *The Hat*.
- Have students make up their own creative writing story using a piece of winter clothing and their own animals. Have the students use the ordinal numbers in their story. Make sure the students use the ordinal numbers to at least the fifth place.
- Use any literature book and have kids retell what happened using ordinal numbers. A great story to use would be Patricia Polacco's *Thunder Cake*.
- Ordinal numbers may be difficult for children acquiring English to pronounce because the "th" sound may not be in their original language; some may say "fours" instead of "fourths", etc. Have them draw five objects in a row and print the corresponding ordinal numbers. Then have children look at your mouth as you distinctly say the numbers. Have each child practice reading the numbers aloud with a parent or sibling at home. Students could practice with a friend in class.
- Use transparency shapes, small triangle, big circle, little square, little circle, big triangle. Line them up in the order listed here and say to the class, "suppose I move the small circle to be first in line. In what place in line will the square be?" Continue with other questions.
- Instead of using white construction paper for the Mitten lesson, you can use felt. While students are coloring and cutting their animals, you can work with individuals to trace their mittens onto their felt, cut them out, and weave yarn through holes to hold the mittens together.
- To challenge students with the lesson, *10 Little Rubber Ducks*, have students put the ducks in order by twos, fives, and tens to 100 while creating a pattern with all the colors.

Family Connections

- Students can go home and retell the story to their parents using the mitten and their cutout animals. Ask the students to teach their parents the ordinal numbers.
- Check out a copy of the book to one student a night. Ask the student to read the story or have their parents read the story to them and recreate the story with the animals and mittens made in class.

Additional Resources

Books

Six Dinner Sid, by Inga Moore; ISBN 0671796135

The M&m's Count to One Hundred Book, by Barbara Barbieri McGrath: ISBN 1570915709

Nedobeck's Numbers Book, by Don Nedobeck; ISBN 0824980158

Web sites

http://www.janbrett.com

http://www.nctm.org

http://illuminations.nctm.org/

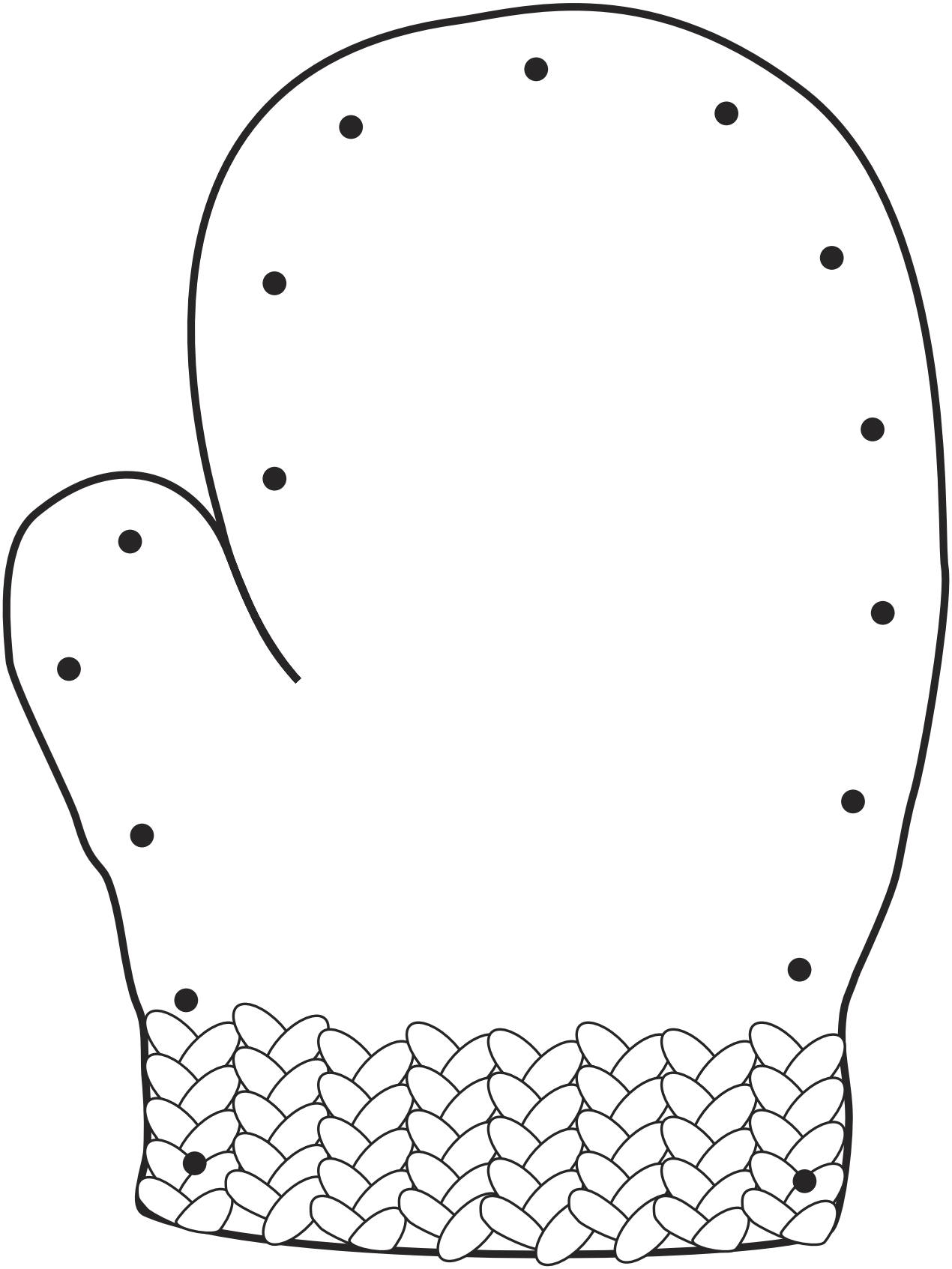
http://www.teachers.net

http://www.enchantedlearning.com

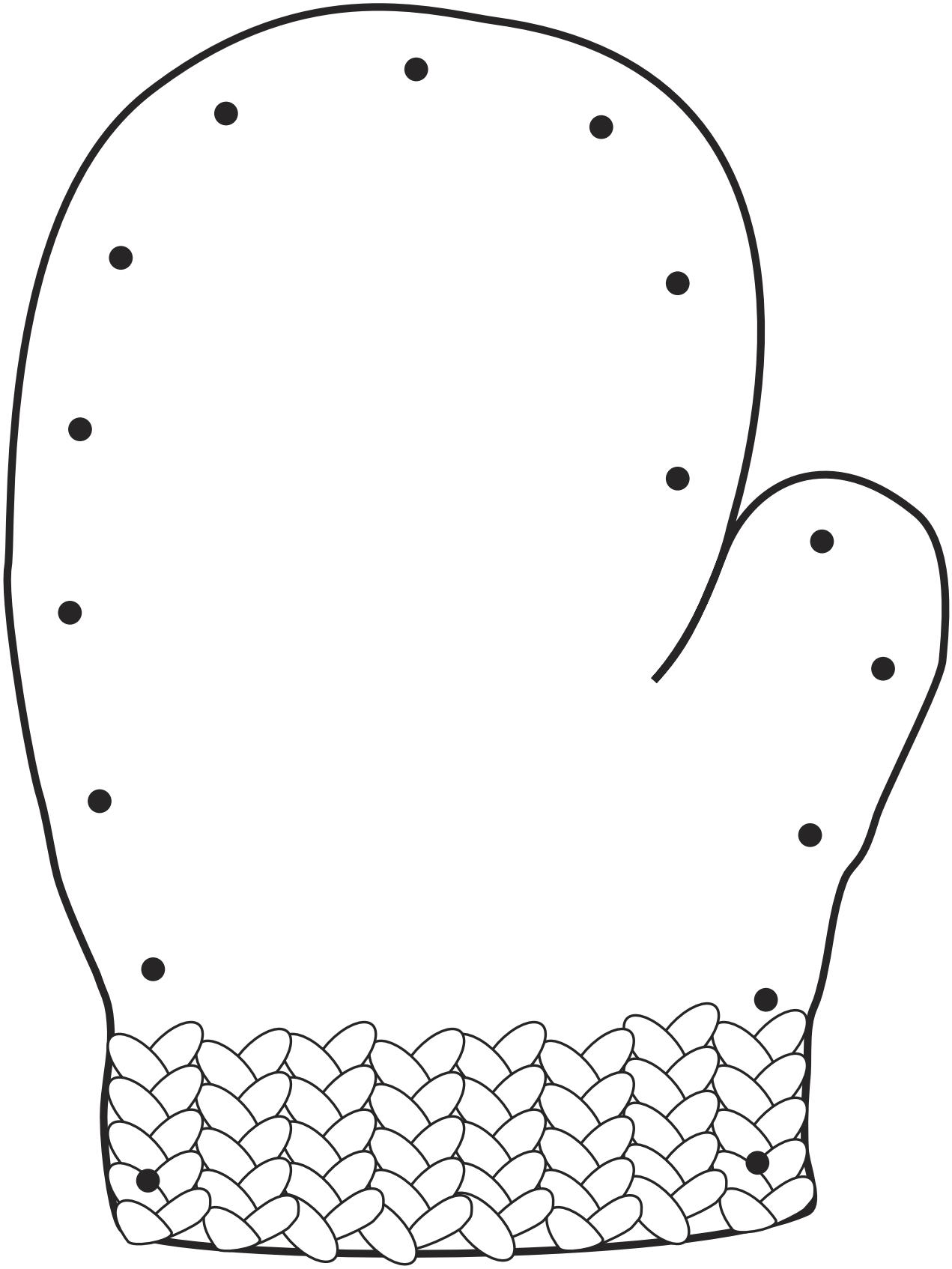
http://ilovethatteachingidea.com

http://www.aplusmath.com

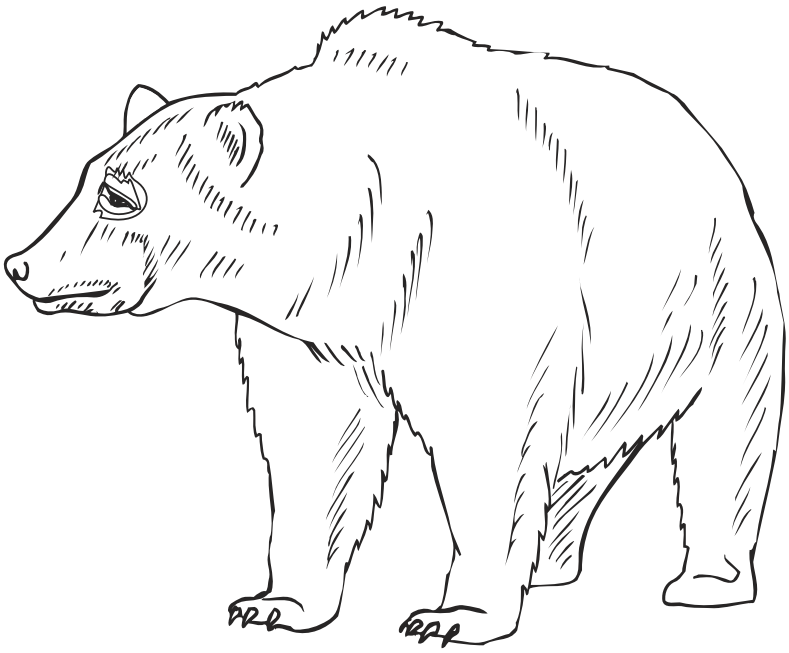
Right Mitten



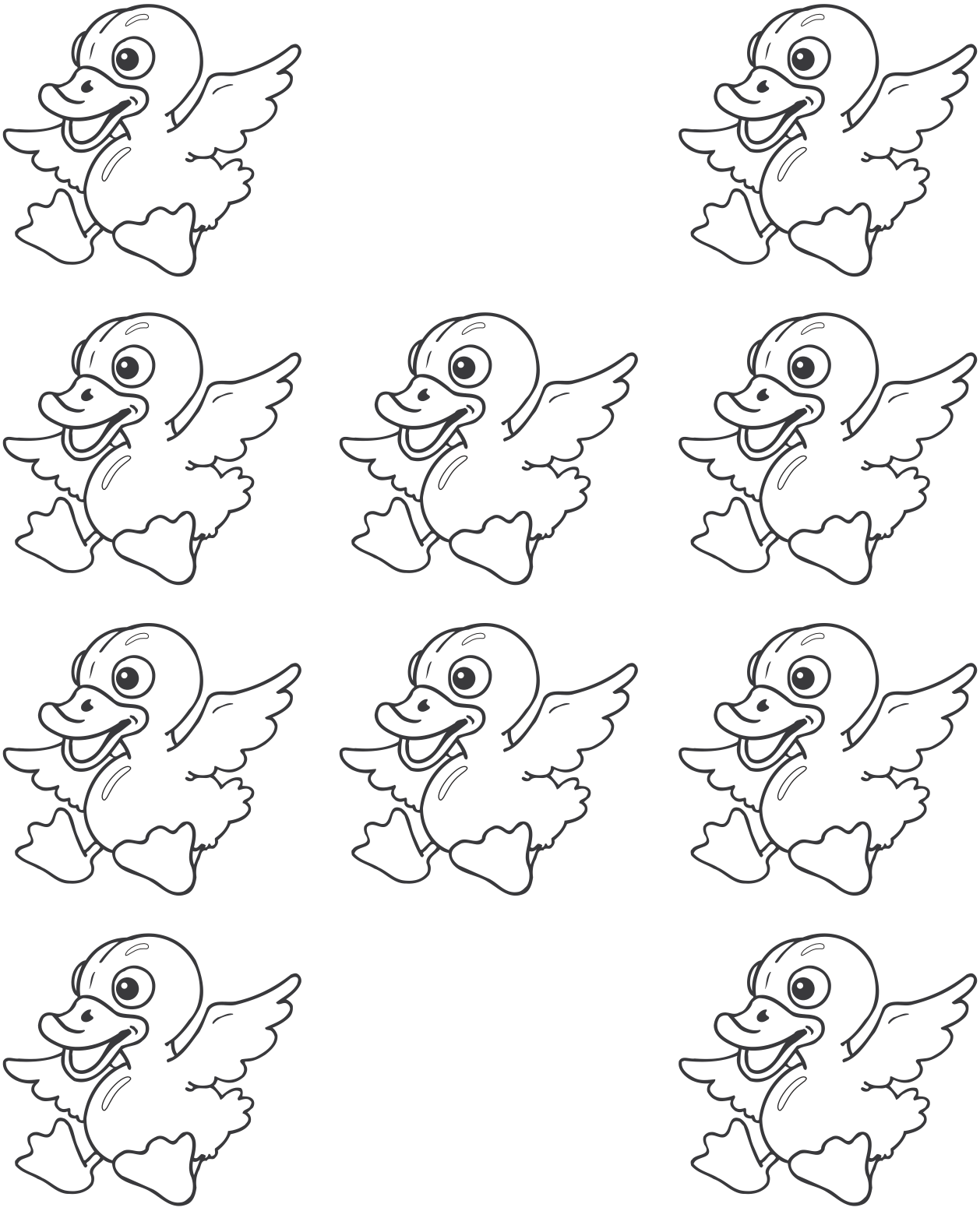
Left Mitten



Mitten Animals



Rubber Duck



Content II-3

Activities

Culture & Dance

Folk Dancing Fun

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

Content Connections:
Spatial Relationships

Content Standard II

Objective 3

Connections

Background Information

Teachers don't need to be dancers to teach dance to their students. Through inviting music and simple choreography, dance is an exciting way to help students understand different cultures, including their own. Students should have background knowledge in the concepts of personal and group space before learning folk dancing. Simple musical concepts, including rhythm, are helpful but not necessary for students to achieve success. If you have students with limited movement abilities, refer to the adaptations section at the end of this lesson.

Although the following lesson will detail only one dance from the people of Hawaii, dances from other countries and cultures could easily be taught throughout the year following the same instructional procedures. Each teacher will have a different cultural focus based on the population and background of her classroom. Students will be interested in different dances based on the countries of both their relatives and their friends. Specific dances can be connected to events, like the Olympics, and holidays, like Chinese New Year.

The following words will also facilitate dance education. These words were taken directly from the Utah First Grade Core Curriculum, Math III-2. Spatial relationship vocabulary: between, before, after, middle, left, right, closer, and farther.

Folk dancing can be taught in a classroom or a bigger space if available. Clear the dancing space of objects.

Keep in mind that children will mirror their teacher when learning a dance. Practice doing the dance in the opposite direction of the students if you are facing them or face the same direction as the students if you want to move the same direction as the dancers.

Materials

- ❏ CD player
- ❏ *Children's Folk Dances* CD
- ❏ Large world map or globe

Research Basis

Goetz Zwirn, S., & Graham, M. (2005). Crossing borders: The arts engage academics and inspire children. *Childhood Education,* 81(6), 267-273.

Successful arts education influences effective, multicultural experiences. Dance and other fine art activities make connections between what the student learns at school and what he knows at home. These connections can further understanding of the mingling of cultures.

Clark, R. (2002). Performance assessment in the arts. *Kappa Delta Pi Record*, Volume 39 (Issue 1), pp. 29-32.

Performance assessment methods, including well-constructed rubrics, allow teachers to assess students easily and equitably. Rubrics inform students of specific criteria that will be assessed.

Invitation to Learn

Ask students to think-pair-share with a partner about the different kinds of music they have heard. Have several students tell the class their ideas.

Next, ask students to think-pair-share with a partner about places they know. These could include cities, states or countries where the child or his family has lived, where he has visited, or where he would like to go. As before, have several students tell their ideas to the whole class.

Ask students if they know if some of the places they have mentioned have music specific to that culture. Lead a short discussion on how music can relate to different places and cultures.

Ask students to again think-pair-share about certain music their families use at different times. For instance, a special song at bedtime or a song learned from a grandparent. Allow several students to talk.

Explain to students that they are going to hear music and learn a dance about the culture of Hawaii.

Instructional Procedures

(Use the following directions with any song from any folk dancing CD. Details such as the country and the specific dance steps will change, but the format will stay the same.)

1. Ask students to listen to a short part of "Ulili E," track 13 from the *Children's Folk Dances* CD. Ask students if the sound of the music made them think of a specific place. Guide their answers

toward Hawaii by talking about the sound of the music and the references to the sea. Ask students to think-pair-share anything they know about Hawaii. Again, have several students tell their ideas. Discuss and clarify. Using a globe or map, show students where Hawaii is located.

2. Ask students to listen carefully to the entire song. Explain to them that the words alternate between Hawaiian and English. The English words tell what the Hawaiian words mean.
3. Discuss with students what they think the song means. "Ulili E" talks about a sandpiper; define sandpiper and any other words the students might not know.
4. Teach students to find their own space on the floor facing you. Tell them to think about what is happening in the story and to make-up movements to parts of the song. Some students may choose to watch.
5. Compliment students on any movements they tried. Tell them when people folk dance, there are certain movements everybody does together.
6. Teach the students the following sequence of steps. These steps are also described in the CD booklet. Explain the steps, practice the steps, and start and stop the CD as needed.
   a. Children stand, knees slightly bent, arms out to the side. Body sways with a slight circular motion.
   b. On "a little sandpiper," children hop gently, alternating feet, gradually moving forward.
   c. On "a great big wave," they raise both arms in front over head and swoop them down towards the floor, as if it were a big wave splashing.
   d. With tiny steps, they run backwards and begin the sequence again.
7. Continue practicing until students are able to perform the entire dance comfortably. This may take several days.

Assessment Suggestions

- Continually observe and provide help to students.
- Divide the children into smaller groups. Allow them time to practice. Then have them take turns performing while the rest of the group watches as the audience.

- Ask students to self-assess their dancing using the *My Folk Dance* rubric. See rubric at the end of the lesson.

Curriculum Extensions/Adaptations/ Integration

- Invite students to draw or describe the dance in their journals.
- Ask students to bring items they might have from Hawaii (or the country of the song you are teaching).
- Provide copies of the English lyrics to advanced learners and have them memorize and sing the words.
- Encourage advanced students to find cultural music and choreograph their own dances.
- Adapt the choreography for students who may not be able to use their whole body. Students could tap their hands to the beat or sit in a chair while performing.
- Allow reluctant performers or those who need more assistance to perform the dance while holding a partner's hand.
- Teach more vocabulary to ESL students. Explain the dance with words while you do the dance.
- Have students write a story about an idea from the dance.
- Ask students to write a description about the setting of the song.
- Assign students to write a poem about part of the song.
- Ask students to figure out how many times the lyrics repeat.
- Teach patterns and counting in music.
- Demonstrate to students how to clap, snap, and pat the rhythm of the song.

Family Connections

- Encourage students to explain the song (since families won't have the music) and perform the dance at home.
- Perform the dance or dances at a Folk Dancing Night for parents.

Additional Resources

Books

Dance a while: handbook of folk, square, contra, & social dance, by Jane Harris, Anne Pittman, and Marlys S. Waller; ISBN 0-02-350581-8

Web sites

http://www.folkdancing.org

http://www.wwar.com/categories/Dance/

http://www.usoe.k12.ut.us/curr/FineArt/

Curriculum and Instruction

Fine Arts

Elementary Resources

First Grade

Dance Student Target Portfolio

CDs

Children's Folk Dances, by Georgiana Stewart (Kimbo Educational, http://www.kimboed.com, 1-800-631-2187); Item #KIM 9149CD; ISBN 1-56346-090-4

Folk Dance Fun, by Georgiana Stewart (Kimbo Educational, http://www.kimboed.com, 1-800-631-2187); Item #KIM 7037; ISBN 1-56346-021-1

Joining Hands With Other Lands, by Jackie Weissman Silberg (Kimbo Educational, http://www.kimboed.com, 1-800-631-2187); Item #KIM9130CD; ISBN 5829-29130-2

Sea Tunes for Kids, by Brent Holmes (Fun Tunes For Kids, http://www.funtunesforkids.com, 1-800-431-1579); ISBN 0-9719357-0-X

Simple Folk Dances, by Georgiana Stewart (Kimbo Educational, http://www.kimboed.com, 1-800-631-2187; Item #KIM 07042CD; ISBN 1-56346-120-X

Name _____

Folk Dance Rubric

My Answers (circle yes or no)

1.	I listened to the directions.	yes	no
2.	I did the steps in the right order.	yes	no
3.	I started and stopped when the music did.	yes	no
4.	I smiled at the audience.	yes	no
5.	I did my personal best.	yes	no

Teacher Answers

1.	Student listened to the directions.	yes	no
2.	Student did the steps in the right order.	yes	no
3.	Student started and stopped when the music did.	yes	no
4.	Student smiled at the audience.	yes	no
5.	Student did his personal best.	yes	no

Reader's Theater

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

Objective 3:
Express relationships in a variety of ways.

Intended Learning Outcomes:
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Development and Reading Fluency

Content Standard II

Objective 3

Connections

Background Information

Reader's theater can be spelled many ways (reader's theater, readers' theater, readers theater, reader's theatre, readers' theatre, readers theatre), but it offers students an effective tool for connecting literature, oral reading, and drama in the classroom. Students have legitimate reasons to reread text and to practice fluency. Reading tasks are made more appealing and students are also able to interact cooperatively.

Reader's theater is convenient for teachers. Students need only scripts, voices, facial expressions, and bodies. Costumes, make-up, props, stage sets, and memorization are generally not included in reader's theater. Students can use voice level, stress, intonation, pitch, and movement to vary performances.

Students who participate in reader's theater are subtly learning the following: how language is used in written text, how to communicate to an audience, and how to interpret text. Besides encouraging students to have interest in the text, reader's theater performances can easily incorporate any subject matter, such as multiculturalism. Students learn about other people when reading and performing stories from their cultures.

Research Basis

Snow, C.E., Burns, M.S., & Griffin, P. (Eds.) (1998). ***Preventing reading difficulties in young children***. Washington, D.C.: National Academy Press.

Reading fluency is the ability to read text in a normal speaking voice with appropriate intonation and inflection. Fluency gradually improves with instruction, time, and practice. Oral reading practice is an opportunity for students to build reading fluency.

National Reading Panel. (2000). Fluency report. Retrieved 1/25/2006 from www.nationalreadingpanel.org.

Materials

- ❑ Craft sticks with each child's name

Fluency is the capability to read text out loud with satisfactory accuracy, speed, comprehension, and expression. Fluent readers read with expression and with minimal effort. Students become fluent, and therefore, better readers by reading and rereading passages orally.

Invitation to Learn

Ask students to close their eyes and imagine the house where they live. Tell them everyone's house is different. Ask students to think about colors, materials, shape, size, and location. Ask students to think about a word to describe their houses. Give examples as necessary. Then ask students to open their eyes. Pull name sticks and allow each student to give a one-word answer (e.g., brick, stairs, apartment, windows, brown, wood).

Instructional Procedures

Materials

- ❑ *Houses*
- ❑ *Houses* Reader's Theater script (one highlighted copy per student)

1. Show the book *Houses* to students. Ask them to look at the front cover. Ask students to think about the illustration and make predictions about the story.
2. Read the text of the story. Define words as necessary. Allow time for correction and clarification of predictions.
3. Revisit each page. Discuss the countries named and allow students to comment on the similarities and differences between the houses. Encourage students to share connections about the different countries mentioned. Ask students if they know why houses look different depending on where they are located.
4. Explain to students that they are going to perform the book *Houses* as a reader's theater. Pass out a highlighted copy of the *Houses* Reader's Theater script to each student. Discuss what a script is.
5. Give students time to look at their script and silently read what they can.
6. Ask children if they know why the script is highlighted. Explain the concept of parts.
7. Model an oral reading of the script. Have students follow along. Use another teacher or a proficient reader, if possible. Or physically move back and forth to mimic the different readers.
8. Read in a regular, even tone so students may easily follow along.

9. Read the script again. Demonstrate a non-example by holding the script in front of your face so your voice does not project. Read in a monotone voice with no movement. Ask students how they felt about the performance.
10. Use their suggestions to reread the script. Use voice, tone, volume, expression, and body movements. Ask students how they felt about this performance.
11. Have students practice reading their scripts individually, with partners, and in small groups.
12. When students have had sufficient time to practice their parts (this may take more than one day), teach the concept of alternating parts during the performance. Some students may not be able to add expression at this time.
13. Allow students time to practice their entire performance, emphasizing voice level, stress, intonation, pitch, and movement. Perform the reader's theater!

Assessment Suggestions

- Listen to individual children read their part of the script. Offer help and feedback.
- Take a reading record to track growth in fluency. Reading records could be done before, during, and after students have practiced/performed the script.
- Have students complete a K-W-L on the content of the reader's theater.
- Have students illustrate the story in their journals.
- Teach students how to give an oral retelling of the story. Then ask them to use their journals for a written retelling.

Curriculum Extensions/Adaptations/ Integration

- Assign heterogeneous groups to certain parts in order for stronger readers to lead and model.
- Preview the script with ESL or beginning readers.
- Research topics represented in the text.
- Create art related to the text.

Materials

- ❑ *The One and Only Special Me*
- ❑ *The One and Only Special Me* Reader's Theater script (one highlighted copy per student)

- Modify the reading groups. Make the groups smaller or bigger depending on the number of students in your classroom. Instead of alternating two readers, alternate three or four.
- Perform the reader's theater as individual readers rather than groups.
- Teach students how to adapt a book themselves into a reader's theater.

Family Connections

- Some families or family members may have lived in the countries or types of houses shown in *Houses*. Invite them to present to the class.
- Have students take their scripts home and perform for their families. Maybe their family members could read the different parts.
- Invite families to school to watch the reader's theater performance.

Additional Resources

Books

Australia: A Cultural Resource Guide, by Nancy Klepper; ISBN 1-55863-152-6

Houses, by Marcia Fries; ISBN1-57471-140-7

I Dreamed I Was a Koala, by Debra A. Johnson; ISBN 1-56239-300-6

The One and Only Special Me, by Rozanne Lanczak William; ISBN 1-57471-142-3

Web sites

http://www.aaronshep.com

http://www.nifl.gov/partnershipforreading/publications/reading_first1fluency.html

http://www.readerstheatre.ecsd.net/collection/html

Houses
Reader's Theater


Reader 1: Big houses, little houses,


Reader 2: Houses up on stilts.


Reader 1: Look how all the houses


Reader 2: In the world are built.


Reader 1: Houses made of thatch,


Reader 2: Houses made of brick.


Reader 1: Houses made of adobe


Reader 2: With walls that are thick.


Reader 1: Wood houses, tent houses,


Reader 2: Bamboo houses, too.


Reader 1: Which kind of house


Reader 2: Is just right for you?

Kangaroo Reader's Theater

Reader 1: Old hoppity-loppity kangaroo

Reader 2: Can jump much faster than all of you.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: Her tail is bent like a kitchen chair

Reader 2: So she can sit down to comb her hairs.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: He has a pouch where her joey grows

Reader 2: She carries the baby wherever she goes.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: And when she jumps, she uses her tail,

Reader 2: So she can jump farther and almost sail.

Reader 3: Hoppity-loppity, jump, one-two.

The One and Only Special Me Reader's Theater


Reader 1: Forever and ever, I will always be.


Reader 2: The one and only special me.


Reader 1: I have my own body.


Reader 2: I have my own face.


Reader 1: I have a special hiding place.


Reader 2: I have my own smile.


Reader 1: I have my own name.


Reader 2: I have a special favorite game.


Reader 1: I have my own book.


Reader 2: I have my own tree.


Reader 1: I have a special family!


All: Forever and ever, I will always be, The one and only special me!

Math III-2; II-2a

Activities

Spatial Relationships

Puzzled?

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

Objective 2:
Describe simple spatial relationships

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.

Content Connections:
Math III Obj. 1: Identify four basic shapes. Math V: Displaying data

Math Standard III

Objective 2

Connections

Background Information

It's important for the children to understand what the positional words mean. Review the words: left, right, top, bottom, middle, between, before, after, above, below, corner. Put these on a word wall and have the students act them out if necessary. Also, review the words for the four shapes and attributes: triangle, circle, square, rectangle, large, small, red, yellow, blue. Make sure you know the difference between on top of and above before you start the game.

During the puzzle activity, it is important for the teacher to know the solution to each puzzle, so that he/she can use the positional words to help students.

This is a good activity for the first of the school year.

Research Basis

Burger, W.F., Shaughnessy, J.M. (1986). Characterizing the van hiele levels of development in geometry. *Journal for research in mathematics education*, Volume 17 (Issue 1), Page 31-48.

Pierre van Heile states that sometimes students fail to reach the descriptive level of geometry in part because they are not offered geometric problems in their early years.

Swindal, Donna Norton. (2000). Learning geometry and a new language. *Teaching children mathematics,* Volume 7 (Issue 4), Pages 246-250.

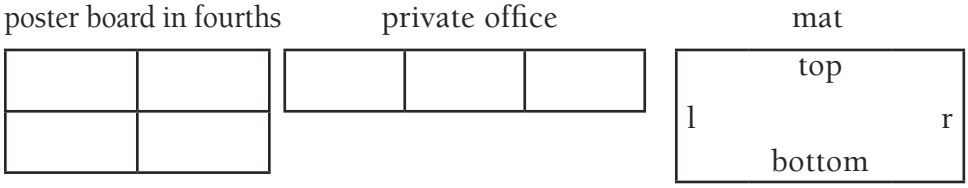
This article states that students need time and opportunity to develop spatial sense and investigate shapes in a setting that encourages inquiry and immerses students in the experience, language, and conceptual understanding of geometry.

Materials

- ❑ *Attribute shapes*
- ❑ Work mat
- ❑ Private office
- ❑ Magnetic attribute shapes (for demo)
- ❑ Poster board and magnets (for demo)
- ❑ *Word Wall Words*

Invitation to Learn

"Everyone stand up, please. Put your *right* hand on your *left* shoulder. Put your *left* hand on your *right* shoulder. Put your *right* hand in the *middle* of your stomach. Put your *left* hand high *above* your head. Put your *right* pointer finger *between* your eyes. Put your *left* thumb *on top of* your nose. Put your *right* hand *on the bottom* of your shirt." Show the math word wall with positional words. The teacher and a student will model a game on the board called *The Communication Game*. The teacher will be the communicator and a student will be the builder, (who can't talk). As the communicator places a magnetic shape on the magnetic mat he/she needs to describe the shape and the position that the shape is placed on the mat. The builder then places that same shape on his/her mat. A poster board is folded between the communicator and builder, so that neither one can see each other's mats. Play continues until each mat has eight pieces on it. They step back to compare and see if the shapes have been placed in a similar fashion. Then they clear the mats and trade roles. The students would then get to play the game with 24 cutout shapes (triangle, square, circle, rectangle) in three colors (red, yellow, blue) and two sizes (large, small). Walk around and discuss why a shape may have been misplaced on the builder's mat. (Each person has a poster board private office, taped in three sections.)



Materials

- ❑ Six piece puzzle sets
- ❑ Markers
- ❑ *The Little Engine That Could*

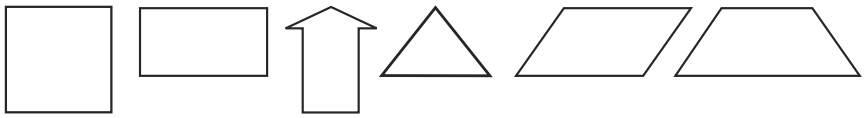
Six Piece Puzzles

1. Read *The Little Engine That Could* to the class. Discuss how the Little Blue Engine did something challenging, but he didn't give up. "We are going to do some challenging puzzles, but everyone will be successful. Be positive with yourself and say, I think I can, instead of, it's too hard."
2. Show the six large base shapes: triangle, square, rectangle, arrow, parallelogram, and trapezoid. Each one can be made using the same six puzzle pieces. Students need to fit the puzzle pieces into the large base shapes with no gaps or pieces that poke out of the edge. When a puzzle is solved, students can raise their hand and the teacher will come and check it. Then the student may put the puzzle pieces and base shape into its bag and put it in the tote tray labeled with the base shape.

The student then writes his/her name on the board under the base shape to create a graph. The student then gets to choose another puzzle to solve.

3. The teacher will walk around and monitor the students as they solve puzzles. The teacher can check off the puzzle on a class list to see who has been successful and who has not solved a puzzle. After 10 or 15 minutes, the teacher can give hints to some students, who have not yet solved a puzzle. The hints should include positional words. (e.g. "Slide that triangle to the left bottom corner. Leave that square right in the middle. Try again with the other pieces.")
4. Usually in 45 minutes, everyone in the class has been able to solve three to six puzzles. After they carefully put the puzzles away, we look at the graph on the board. "The puzzle with the fewest names under it is probably the hardest. Which is the easiest? How many more solved the square than the triangle?"

Graph-*6 piecePuzzle Pros*



Sam Alan	Jane Rick	Alan Tanner Brooke	Sam	Annie	Jacque

Assessment Suggestions

- Pre-assess the students' knowledge of the words on The Word Wall by having them act the words out. They can stand *between* two others. Hold up your *left* hand *above* your head. They can also check to see if all of their shapes are in a set by holding up the large yellow circle and then the small yellow circle, etc.
- The teacher can watch and listen to the students do the *Communication Game* and ask specific questions about misplaced shapes to see if they understand the positional words.
- The teacher can keep track of each puzzle solved, by using a class list on a clipboard as the students raise their hands to signal a solved puzzle.

Curriculum Extensions/Adaptations/ Integration

- Brainstorm about why we need to learn about puzzles and spatial relationships. What are some everyday activities in which we use our spatial sense?
- Use the same attribute shapes for the Communication Game, but use the other side of the mat that is labeled with the compass directions-N, E, S, W, so that the students can practice using the directional words to play the game.
- Use two identical sets of three-dimensional objects for the Communication Game: blocks, lids, etc.
- Pair up students with communication disorders with those students who are patient and who express themselves well.

Family Connections

- Send home two sets of paper attribute shapes to play the Communication Game at home.
- Send home a cardstock blackline of the square with the six puzzle pieces to cut out. Ask the students to show their parents how to solve some of the puzzles for homework.
- Send home a seven-piece tangram puzzle to compare and contrast the six-piece puzzle.

Additional Resources

Books

The little engine that could, retold by Watty Piper; ISBN 0-7607-0374-4

Shapes, shapes, shapes, by Tana Hoban, ISBN 0-688-14740-2

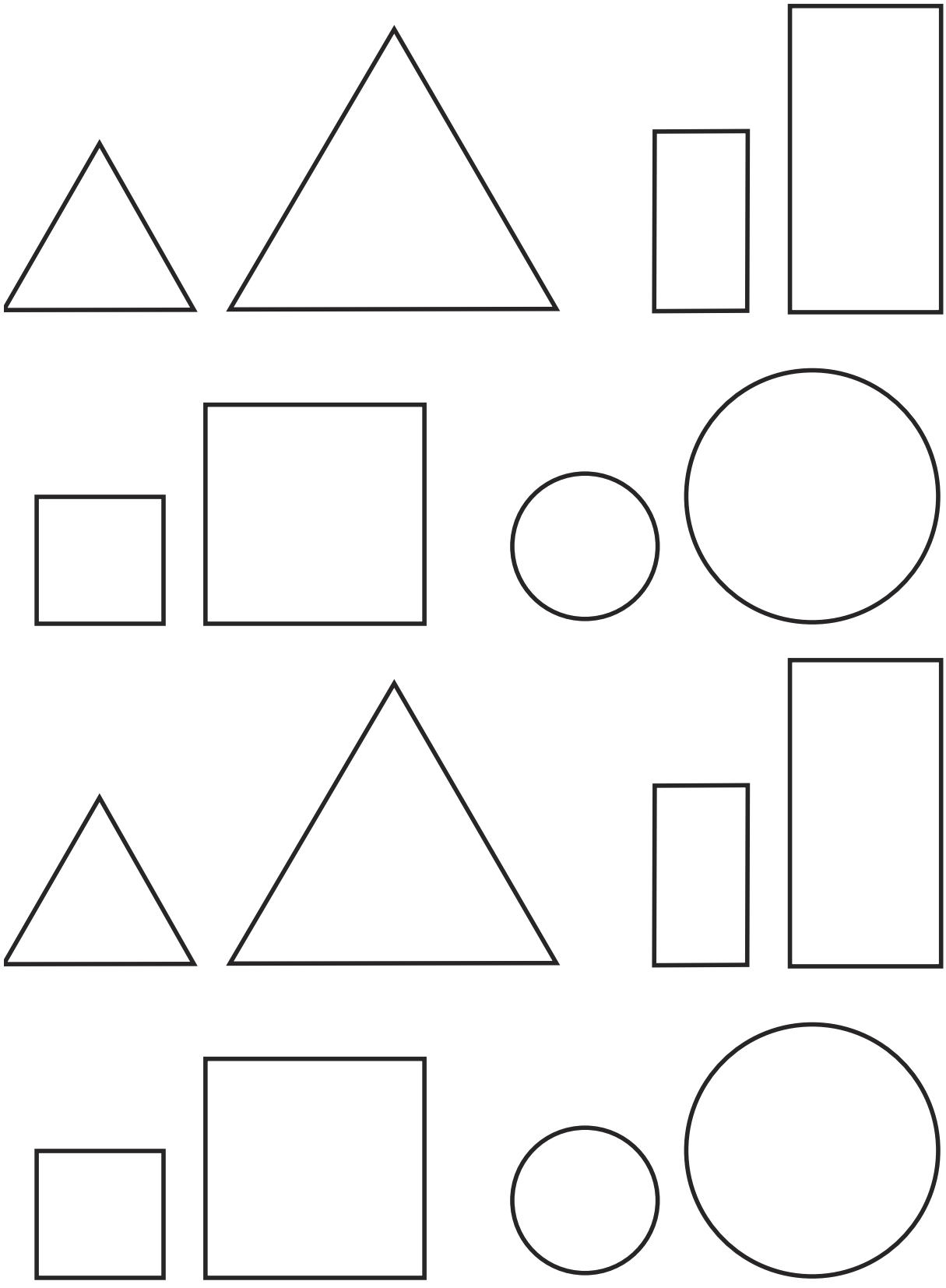
Circus shapes, by Stuart Murphy, ISBN 0-06-446713-9

The greedy triangle, by Marilyn Burns, ISBN 0-590-48992-5

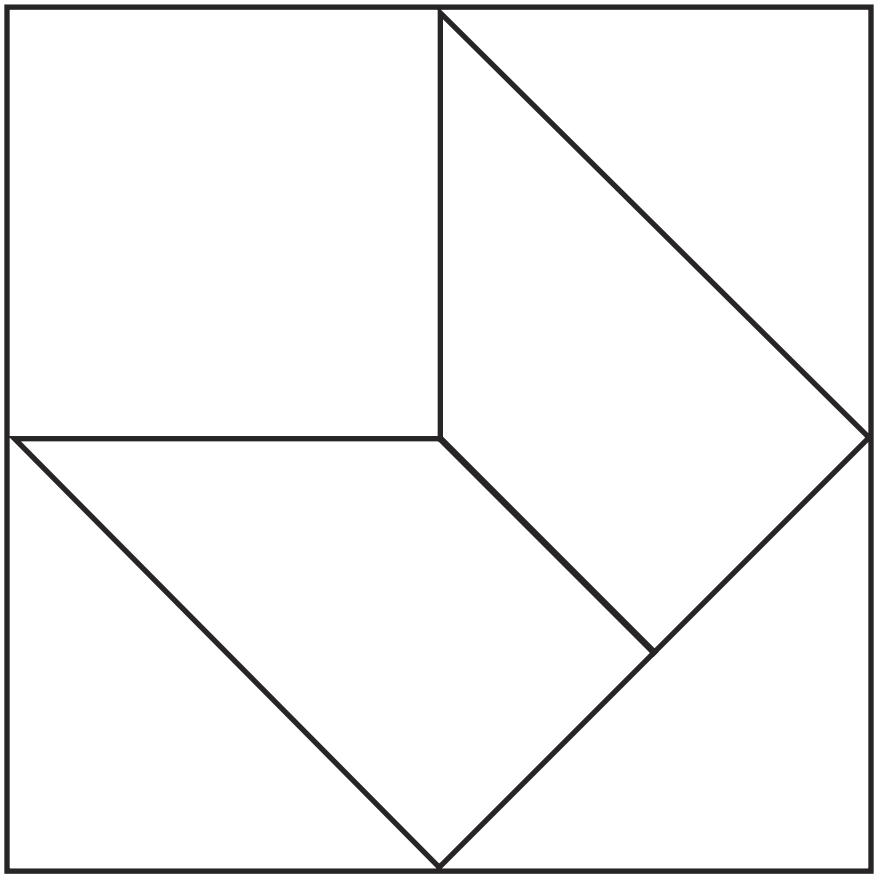
Word Wall Words

corner	top	above
before	between	after
closer	middle	below
left	bottom	right
		farther

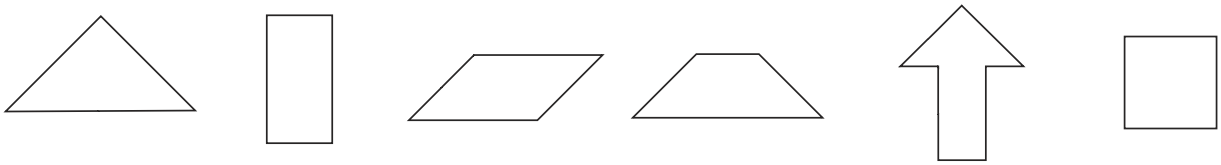
Attribute Shapes



Square Base Shape

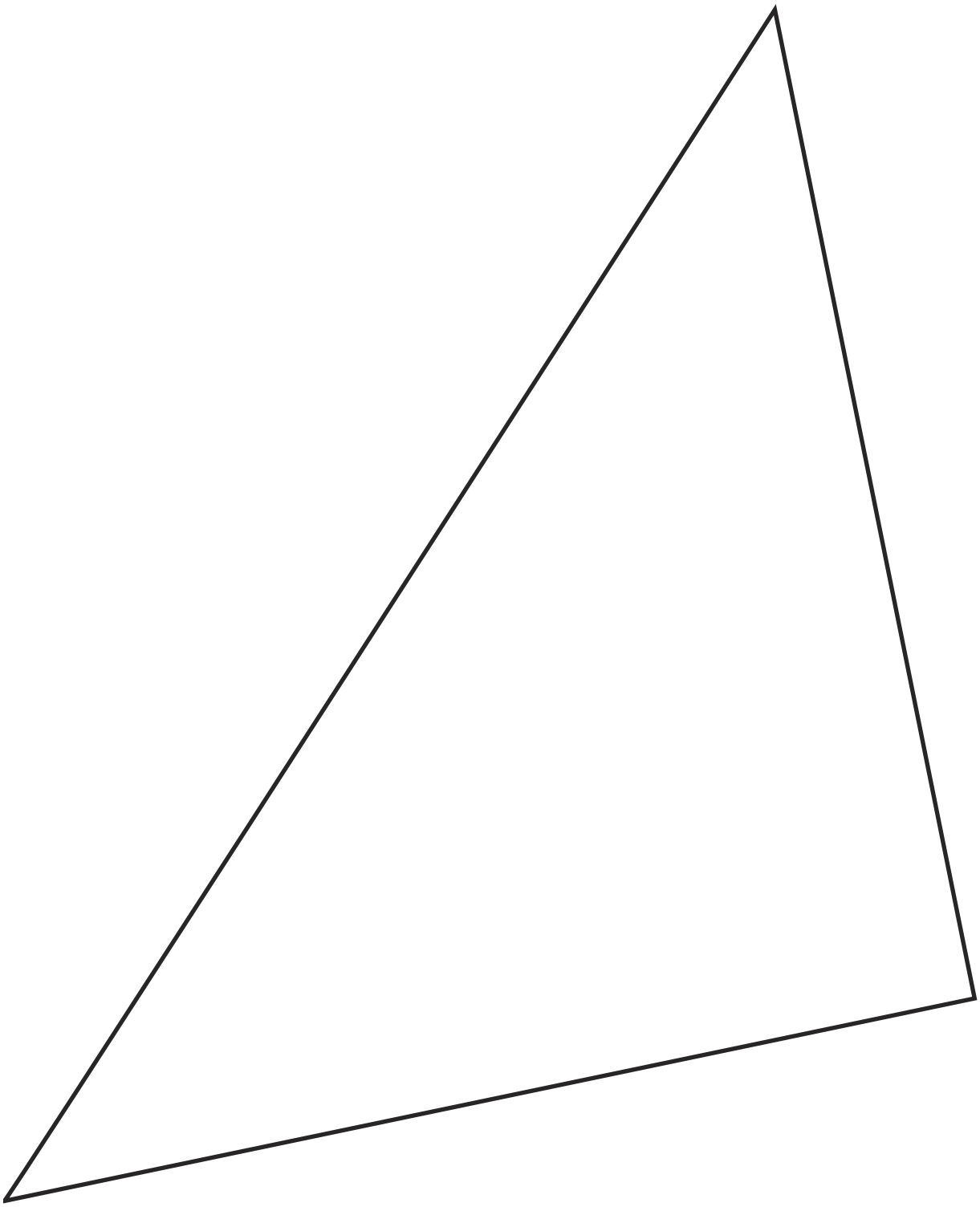


Cut out these 6 pieces carefully. Arrange them to make these 6 shapes:

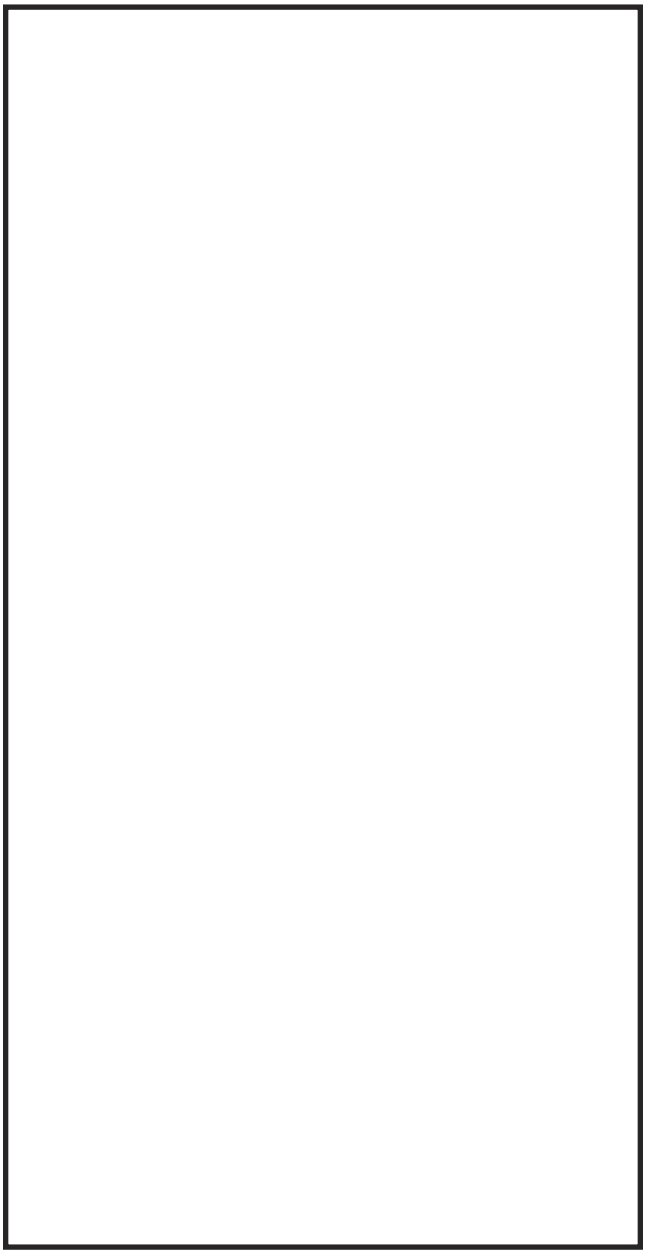


Teacher Directions:
Copy about 6 each of each of the 6 base shapes onto cardstock. (Trace the square for its base shape.) Yellow for one base shape, pink for another, etc. Copy the square solution page with many different colors of cardstock, except the colors that you used for the base shapes. Put each puzzle and its six pieces into a bag. When you pass them out, try to have a variety of base shapes on each table.

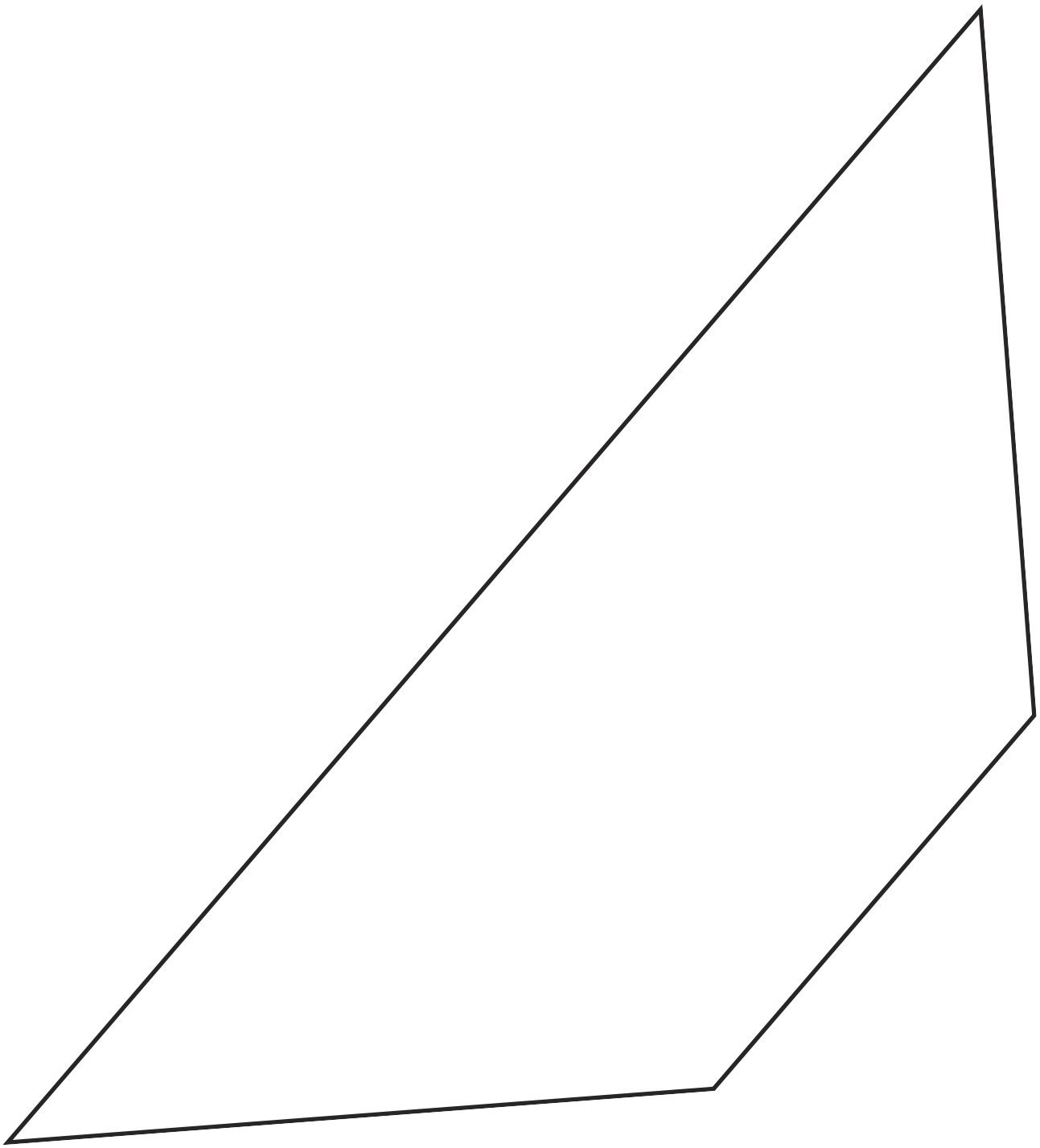
Triangle Base Shape



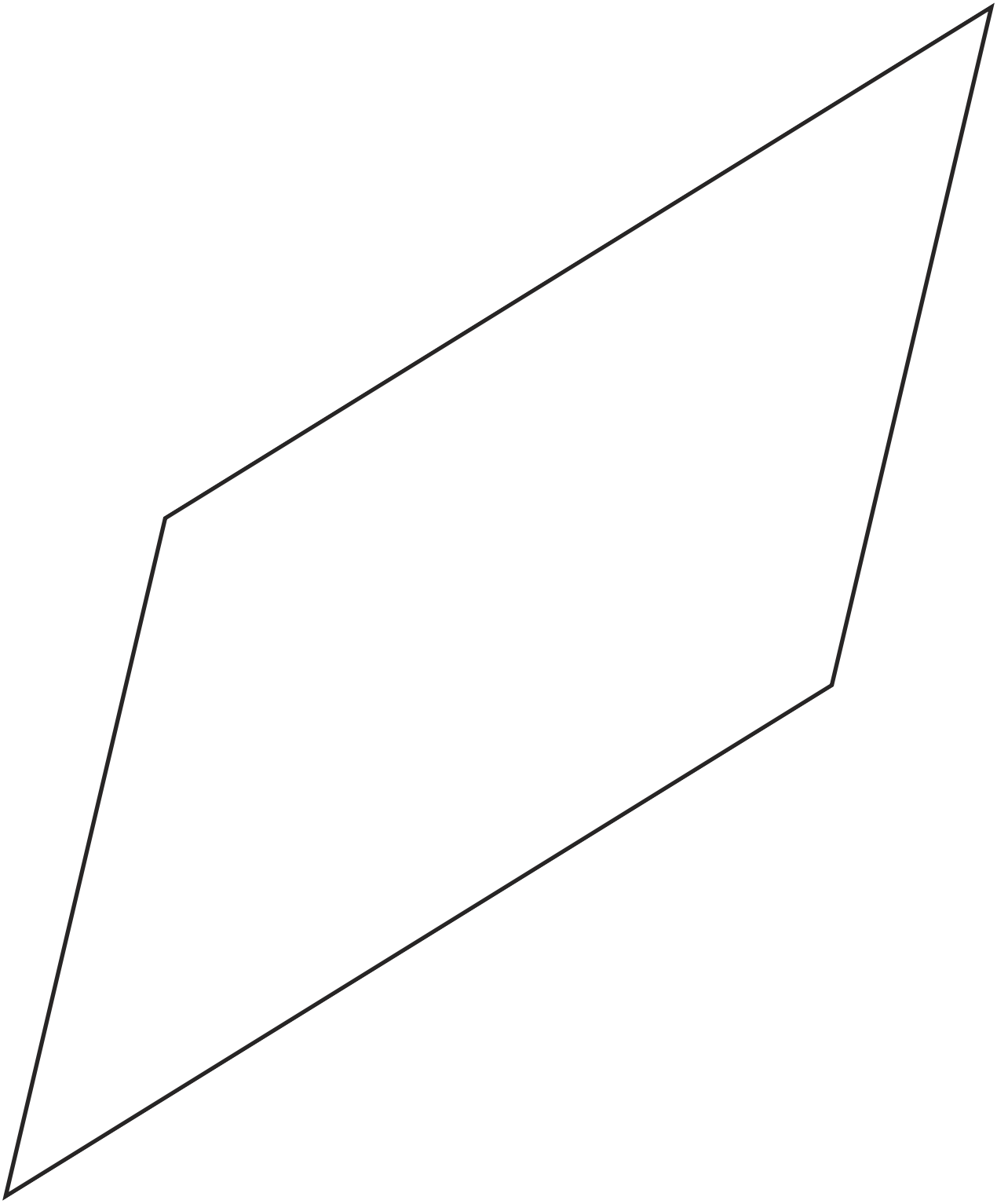
Rectangle Base Shape



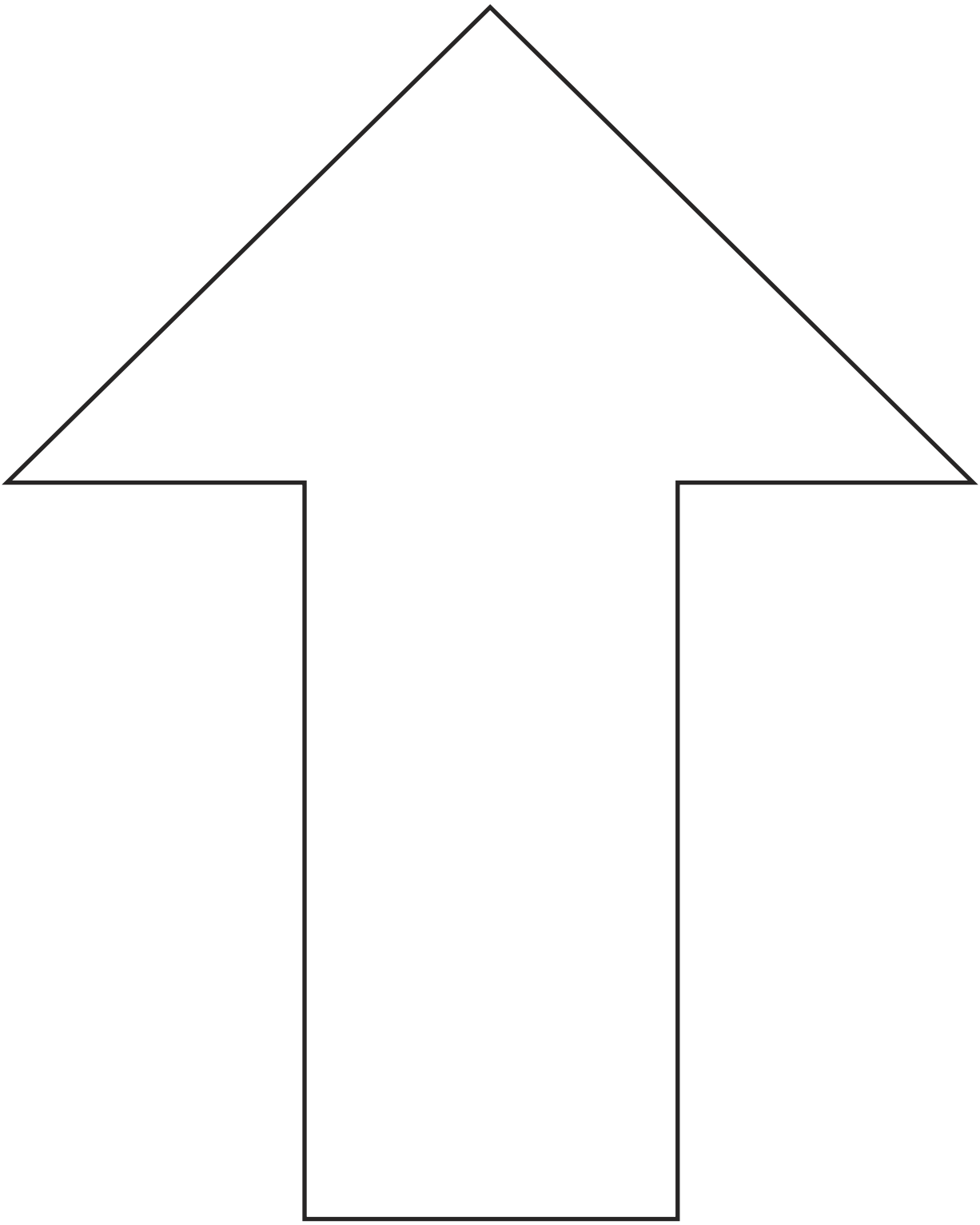
Trapezoid Base Shape



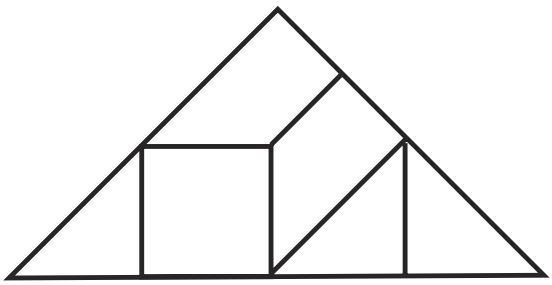
Parallelogram Base Shape

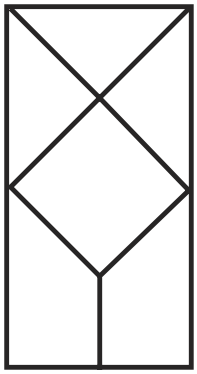


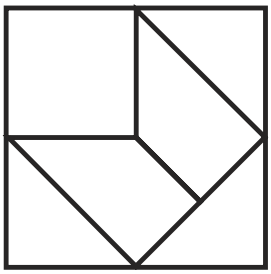
Arrow Base Shape

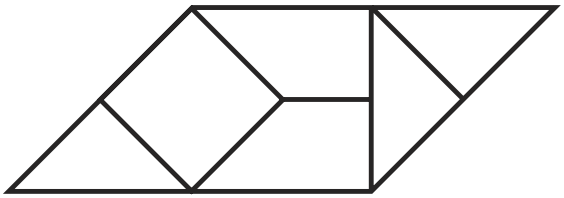


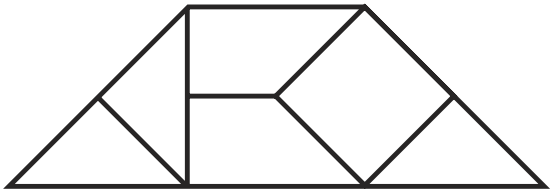
Shape Answer Keys

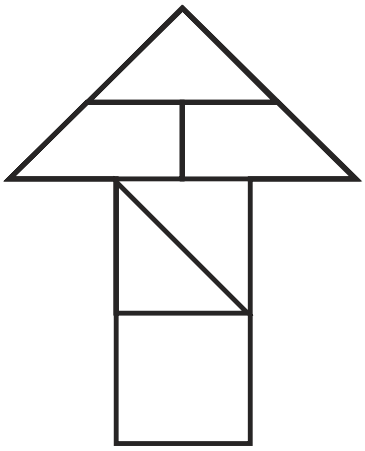












Pent-up Pentominoes

Math Standard III

Objective 1

Standard III:

Students will describe, identify, and create simple geometric shapes and describe spatial relationships.

Objective 1:

Describe, identify, and create simple geometric shapes.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

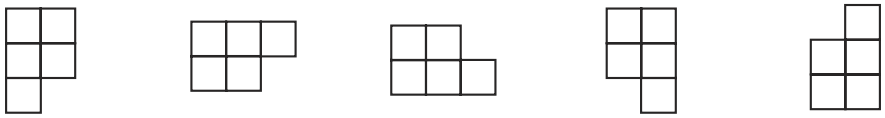
Content Connections:

Math Standard I, Obj. 2: Relationships of whole numbers

Connections

Background Information

A pentomino is an arrangement of five congruent squares placed edge-to-edge. Some pentomino shapes look different when turned or flipped. When a student discovers the P shape, it is good to stop and discuss the eight different ways to look at that piece. Point out that we consider all versions of the P shape, to be the same. That is, if the P shape is turned or flipped to make it appear different it is still called the P shape.



This activity is appropriate to do in late fall or winter.

Research Basis

Studies show that explicitly engaging students in the creation of nonlinguistic representations stimulates and increases activity in the brain.

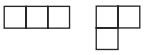
Gerlic, I., Jausovec, N.. (1994). Multimedia: differences in cognitive processes observed with EEG. *Educational technology research and development,* Volume 47 (Issue 3), Pages 5-14.

Geometry games give practice with properties that children have learned so far and strengthen children's use of descriptive language as a tool for reasoning about shapes and their properties. They also give teachers a window to children's developing levels of thinking.

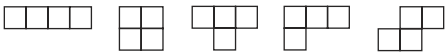
van Hiele, Pierre M., (1999). Developing geometric thinking through activities that begin with play. *Teaching children mathematics*, Feb. 1999, Pages 310-316.

Invitation to Learn

Who can tell me what this is? (Hold up a domino.) Domino is a familiar word. Write it on the board. The definition of a domino is two squares that share one whole side. Write omino above the word domino. It only has one square. Write triomino below domino. It has three squares that share complete sides. Discuss other words that have the tri- prefix. On an overhead grid, place one inch overhead-color tiles to show two ways to represent triominoes:



Then talk about tetrominoes the same way:



Discuss non-examples or shapes that are flipped:

How many squares would we have in a pentomino? Write the word under tetrominoes.

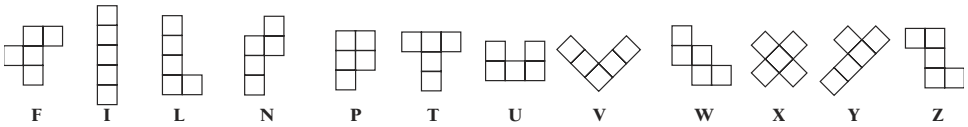
Instructional Procedures:

1. Our lesson is about pentominoes. Pentomino pieces are made up of five squares that share at least one full side. The students are to place five one inch color tiles on the Pentominoes grid sheet to make a pentomino shape. (They need two sheets.)
2. The teacher will walk around and choose a student to come to the overhead and build the shape that they made at their desk. Everyone will stop and get a red crayon and record the shape from the overhead onto the top left corner of their sheet. Tell the class the letter name for that piece. Put that pentomino shape on a chart labeled with its letter name. Add others to complete the chart as your students discover the other pentomino shapes. The teacher will then watch for another student to complete a different pentomino, and invite him/her to come to the overhead to show the whole class. This time, everyone needs to use a different colored crayon to record the pentomino in the bottom left corner. Try it first with the tiles to see if the piece will fit before it's colored.
3. Continue this process until six pieces have been recorded on one sheet with six different colors. Then use the second sheet for recording the other six pieces. Tell the students the letter

Materials

- ❑ One inch tiles
- ❑ Pentomino sets
- ❑ *Pentominoes* grid sheets
- ❑ *Pentominoes* grid
- ❑ Various sized grid cards
- ❑ Crayons
- ❑ Overhead *Pentominoes* grid
- ❑ Overhead Pentominoes
- ❑ Blank chart for pentomino shapes
- ❑ A set of paper pentomino shapes
- ❑ Overhead color tiles
- ❑ Overhead markers
- ❑ One domino

name of each piece as it is discovered. Don't tell the students that there are 12 different pentomino shapes. Let them discover that fact on their own.



Assessment Suggestions

- When all twelve shapes are recorded, pass out the sets of pentominoes. Ask each student to hold up the W piece. Then find where it is recorded on one of their sheets and place it on top of the shape that they have colored. Do a few more pieces as a whole class, and then let them continue to place their pieces on top of their colored shapes, until all of them are covered. Leave them there until you come around to check their papers. Make a mistake on the overhead (like coloring six squares instead of five). Model how to fix it by crossing out a mistake with a black X.
- Ask the students to hold up the correct shape when you call out its letter name.
- Put the pentomino puzzles in a center for independent work. Check their progress.

Curriculum Extensions/Adaptations/ Integration

- For another day's lesson, pass out the Pentominoes grid cards with a 6"x10" rectangle. Ask the students to follow your directions to make a rectangle with the pieces that you hold up. (Refer to the solution on the next page.) They hold up the pieces, too. Use positional words as you describe where the pieces go. Then mess it up and do the rectangle a different way. Pass out different sized rectangle grids: 3"x 5", 5"x 5", 5"x 7", 5"x 12", 4"x 15". Let them know that you don't always need to use all of the 12 pieces in the smaller rectangles. Allow the students to explore how to make rectangles of different sizes. If a student would like to share her solution, he/she may come to the overhead to describe how to build it, using positional words.
- Play a pentomino game called Last Piece with a partner on the 6"x10" *Pentominoes* grid card. Each player takes a turn placing

a pentomino shape on the grid from her own set. There may be squares that are trapped or not covered. The person to put the last piece on the card is the winner. Pair students of equal problem solving ability if possible.

- Make a 1-100 chart puzzle. Start cutting a cardstock 1-100 chart, using five squares (or a pentomino shape) for each puzzle piece. As you near the last sections predict how you can still cut those pieces into pentomino shapes. Put the puzzle together by looking at patterns of tens and ones.
- Allow accelerated students to make their own puzzle cards with a pentomino picture on one side of the card and the solution glued to the back of the card. These could be used for center activities.
- Using the pentomino letter names, see how many words you can make. (Two-letter words: it, if, in. Three letter words: lit, pit, put, etc.)

Family Connections

- Send home a Pentominoes grid paper and a set of paper pentominoes with each student for homework. Also send a small version of a 12 piece rectangle for the 6" x 10" grid. Tell the students to show their parents how to build that rectangle. Then explore other rectangles. There are thousands of solutions!
- Send home the web site for a fun pentomino game: http://www.scholastic.com/chasingvermeer
- Play the pentomino game, Last Piece with your family.
- Using the paper pentomino shapes with their letter names, make as many words as you can.

Additional Resources

Books

Chasing Vermeer, by Blue Balliett; ISBN 0-439-79927-9

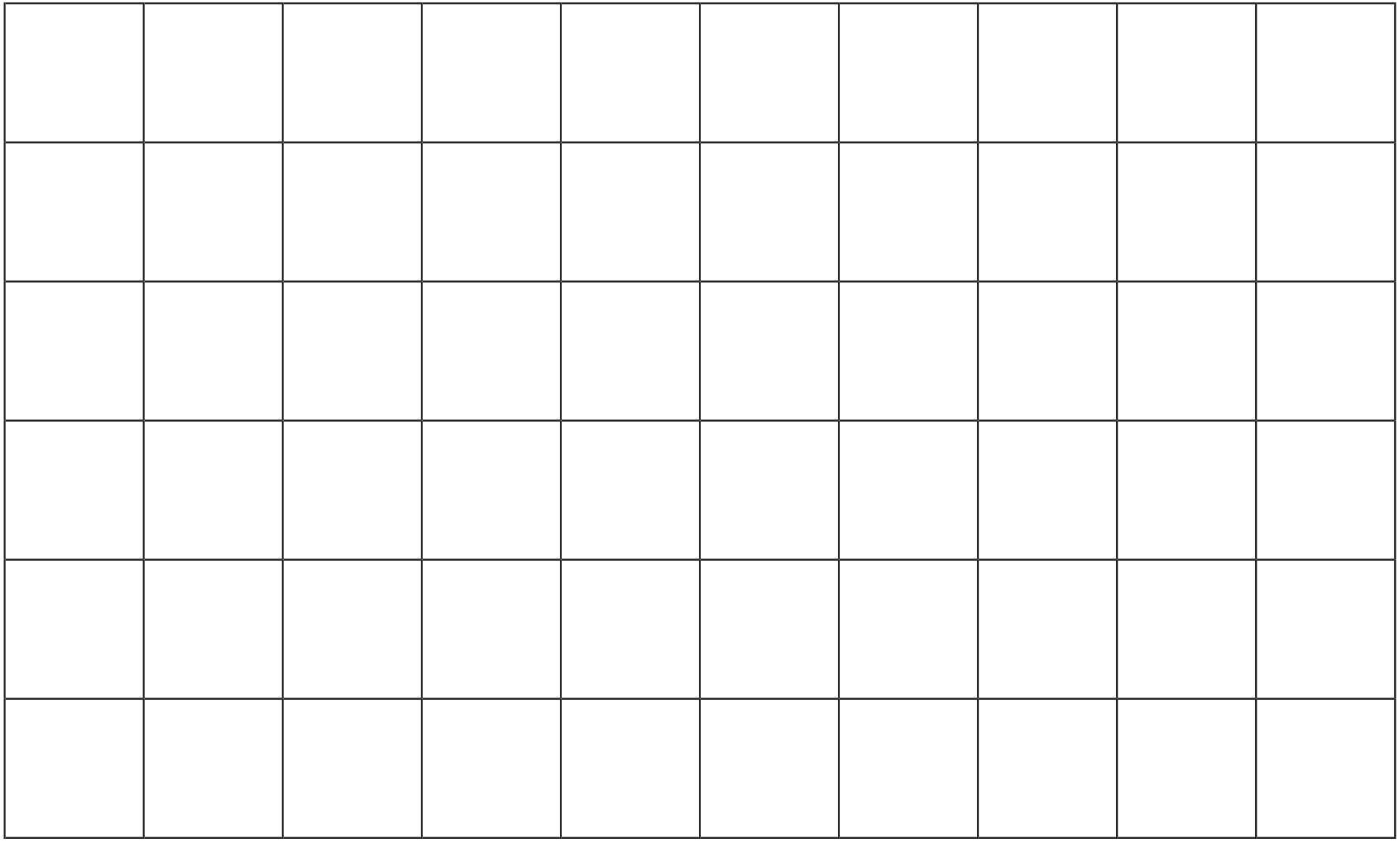
Problem Solving with Pentominoes, ISBN 1-569-11999-6

Web sites

http://www.scholastic.com/chasingvermeer

Pentominoes

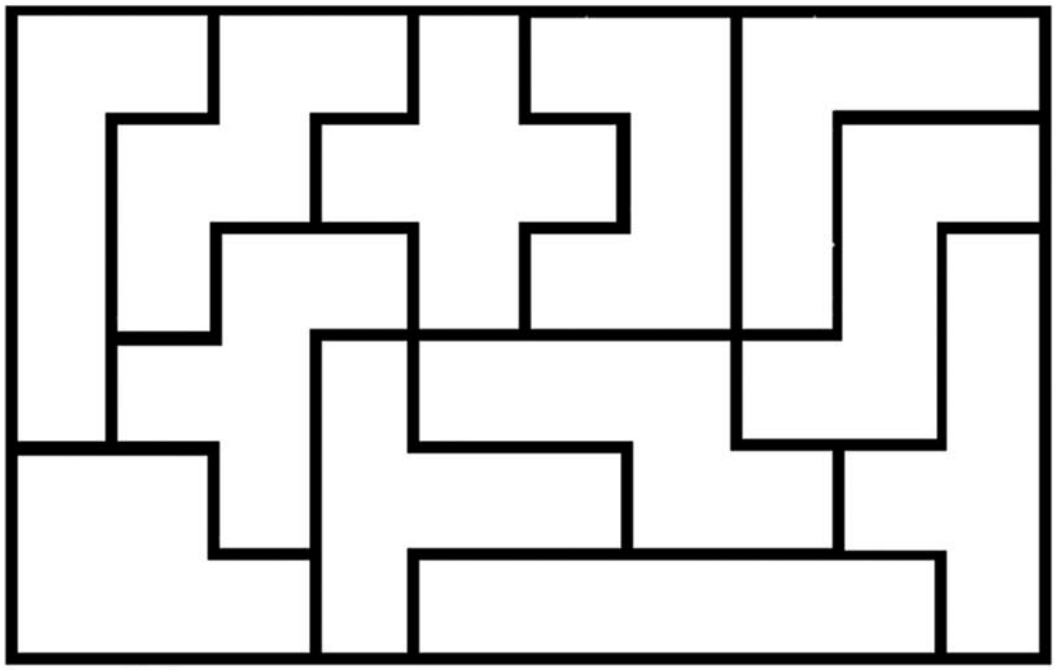
Five squares that share at least one side



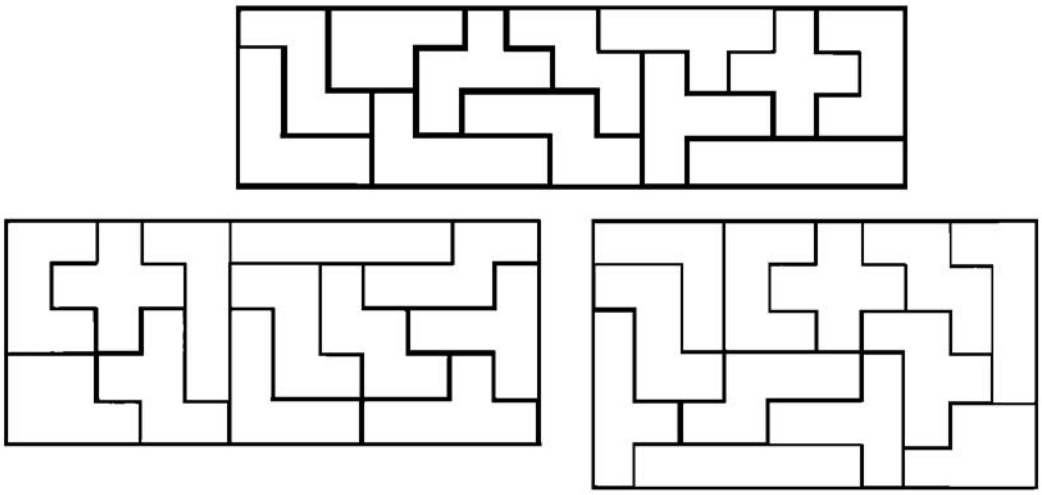
Pentimino Rectangles

There are thousands of solutions!

one 6x10 grid solution:



Many solutions are possible using 3 or more pieces. One rectangle, 3x5, can be made using pieces P, L, and V. C,X, P, F, & L make a 5x5 rectangle. I, S, T, V, Z, W, & R make a 5x7 rectangle. Here are some other solutions:



Geometry Center Games

Math Standard II

Objective 1

Standard III:

Students will describe, identify, and create simple geometric shapes and describe spatial relationships.

Objective 1:

Describe, identify, and create simple geometric shapes.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

Math V: Probability; Math I, Obj. 2: Relationships of whole numbers

Connections

Background Information

After the students have experienced several class activities that introduce them to spatial relationships, it is good to let them have some independent study (e.g. rotating games or menus in tote trays). Explain all eight activities in a demonstration circle at the rug or on the overhead. Some games have already been played as a whole group, so those games are easy to review. Model each game and show how to record it. Students need to get checked by the teacher before moving to another game. It is okay to let the students free roam, because they get finished at different times. Some games may be on the floor, and other games could be set up on tables or students' desks. In each tote tray, have an example of the page in a sheet protector, so it can be found in the packet easily. Taking pictures of students (from previous years) playing the game may help students visualize the activity when they are working on their own.

These eight activities could be used at any time during the year. The spring is a good time to review shapes and positional words. Also, it would be good to have finished tangrams and pentominoes before doing these activities. They can all be used as a whole group activity or center activities.

Research Basis

Fennell, R. (1990). Implementing the standards. *Arithmetic Teacher*, p. 18-22.

Francis Fennell emphasizes that classroom activities should involve physical material and provide opportunities for questioning, problem solving, and discussion.

Newton, D.P. (1995). Pictorial support for discourse comprehension. *British journal of educational psychology,* 64(2), p. 221-229.

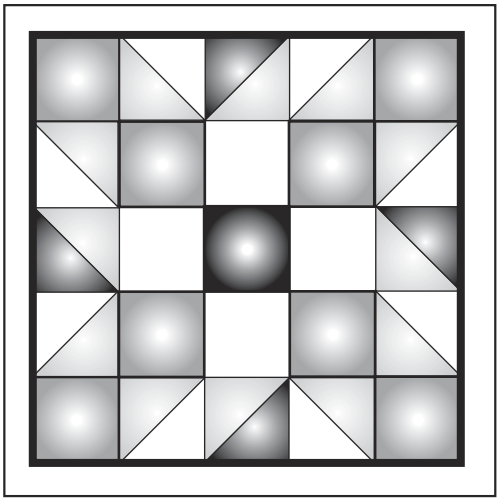
Drawing pictures and pictographs enhances the students' understanding of that content.

Invitation to Learn

Explain the Geometry Menu. How many of you do literacy centers? How many of you regularly do math centers or science centers? A Math Menu is another name for a Math Center. The packet has eight games in it. Each game needs to be explained to the class. It may take about 30 minutes, but then it is ready to go for several sessions. Some of the games have been played as a class activity, so those games just need a quick review. They could be explained in a demonstration circle at the rug or on the overhead projector. When the games have been modeled and explained, the students may go to their places to start playing the games. The teacher monitors the class and listens (or asks) for students to use the positional words to explain where to put the pieces. The teacher checks off the games with an OK (on the front page) when the student raises a hand to signal a finished game. Then the student goes to another game that has an empty seat (free roaming). These games may take three or four days to complete with 20-30 minutes sessions. The teacher decides how long and when to do the Geometry Menu.

Instructional Procedures

My Quilt



Using three colors of one inch squares (or squares cut in half like rectangles or triangles), design a quilt with a symmetrical pattern on the 5"x5" grid. Glue the papers onto the grid.

Geoshapes

Stretch three geobands onto a geoboard to make a square, rectangle, and triangle. None of the shapes can overlap each other. Record on the Geoshapes sheet by drawing those shapes in the same positions. Under the geoboard, write three sentences explaining where the shapes are on the geoboard. Use the words from the wordbank.

Materials

- ❑ *Geometry Menu* packet
- ❑ *My Quilt*
- ❑ Glue
- ❑ Scissors
- ❑ 1" paper squares

Materials

- ❑ *Geoshapes*
- ❑ Geoboards
- ❑ Geobands

Materials

- ❑ *Tangram Magic*
- ❑ *Tangram Magician*
- ❑ Paper tangram sets
- ❑ Glue sticks

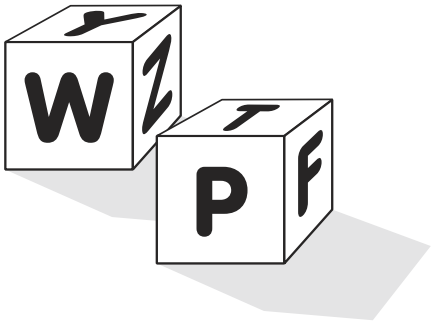
Tangram Magic

Look through the *Tangram Magician* book and choose a picture to make on the page in your packet. Place all seven pieces on the blank page before you glue it.

Materials

- ❑ *Pentomino Partners*
- ❑ Pentomino sets (6)
- ❑ 3 sets of letter dice (FLIPNT) (UVWXYZ)

Pentomino Partners



Each person needs to use their own pentomino set for their game board. The first person rolls the two dice (F, L, I, P, N, T) & (U, V, W, X, Y, Z) then places those two pentomino pieces on the game board. The next person would roll the dice and do the same on his/her game board. As the partners take turns, they might roll a letter that they have already used. They don't roll again. They just miss that turn. The person that fills up their game board with all twelve pentomino pieces first is the winner.

Materials

- ❑ Last Piece
- ❑ Pentomino sets (6)

Last Piece

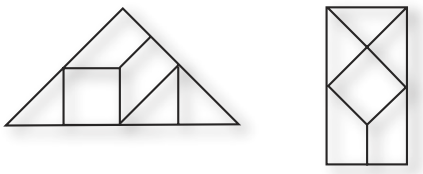
This is a partner game with two different colored pentomino sets, but just one game board (6" x 10" grid). Take turns putting a pentomino piece of your choice onto the game board. All spaces don't have to be filled in. Some squares might be "trapped". Don't overlap any pieces, or let them go outside of the grid. You are the winner, if you put the last complete pentomino piece in the grid. Play it two times.

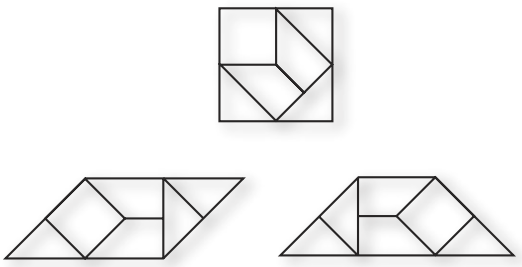
Materials

- ❑ *Six Piece Puzzle*
- ❑ Six piece puzzle sets (6)

6 Piece Puzzle

Solve two or more of the six puzzles. Draw lines to show the solutions to the puzzles on the appropriate base shapes.





1 to 100 Puzzle

On the *1 to 100-chart*, place the puzzle pieces with numbers on top of the same numbers on the chart. All the puzzle pieces are cut into pentomino shapes from an identical *1 to 100 chart*.

Materials

- ❑ *1 to 100 Puzzle*
- ❑ *1 to 100 puzzles* (6)

Communication Game

Partners will each work on their page that is labeled: left, right, top, bottom. Partners will also get a bag of attribute shapes and a private office. The Communicator will describe the shape and where to put it on the page. The Builder cannot talk. After both partners have eight shapes on their page, they look at each other's shapes to see if they were built the same. Draw and color the shapes that you built. (Refer back to Puzzled? lesson.)

Materials

- ❑ *Communication Game*
- ❑ Private offices (6)
- ❑ Six bags of Attribute shapes
- ❑ Red, yellow, & blue crayons

Assessment Suggestions

- The teacher will walk around and ask questions to see if the students understand the positional words and shapes.
- When a child is finished, he/she raises a hand to signal to the teacher to come and check his/her work. The teacher checks it off on the front-page retrieval.
- If a student finishes all of the games and others are not finished, he/she can be a partner for someone who needs one. They could also do a favorite game again.

Curriculum Extensions/Adaptations/ Integration

- These independent games offer a good opportunity to partner with various students. The teacher can suggest that a particular student help another student who may not understand the concept yet. Peer tutors often can explain in a way that another young friend can comprehend.
- ESL and special-needs students benefit from these hands-on games. They can watch others and learn. Many games are high interest because of the element of chance.
- The *1 to 100* board game can be used to play the following: Take a bingo chip and put it on 45. Your partner puts a different colored chip on 55. Spin a spinner labeled: Left, Right, Top, Bottom. Also roll a number (1,1,2,2,3,3) die to see which direction to go. When you land on a number, tell your partner how many tens and how many ones. The first one to reach a

border wins! The 1 to 100 game could also use a spinner with North, South, East, and West.

Family Connections

- Since the directions are on all of the sheets in the Geometry Menu packet, they could be played at home with each student's family.
- Get feedback on which game was their favorite and make a graph to send to school.

Additional Resources

Books

Math By All Means--geometry Grades 1-2, by Chris Confer; ISBN 0-941355-08-X

Tangram Magician, by Lisa Campbell Ernst and Lee Ernst; ISBN 0-8109-3851-0

Grandfather Tang's Story, by Ann Tompert; ISBN 0-517-88558-1

The Quilt Maker's Gift, by Jeff Brumbeau and Gail de Marcken; ISBN 0-439-30910-7

The Quilt Maker's Journey, by Jeff Brumbeau and Gail de Marcken; ISBN 0-439-51219-0

Name _____

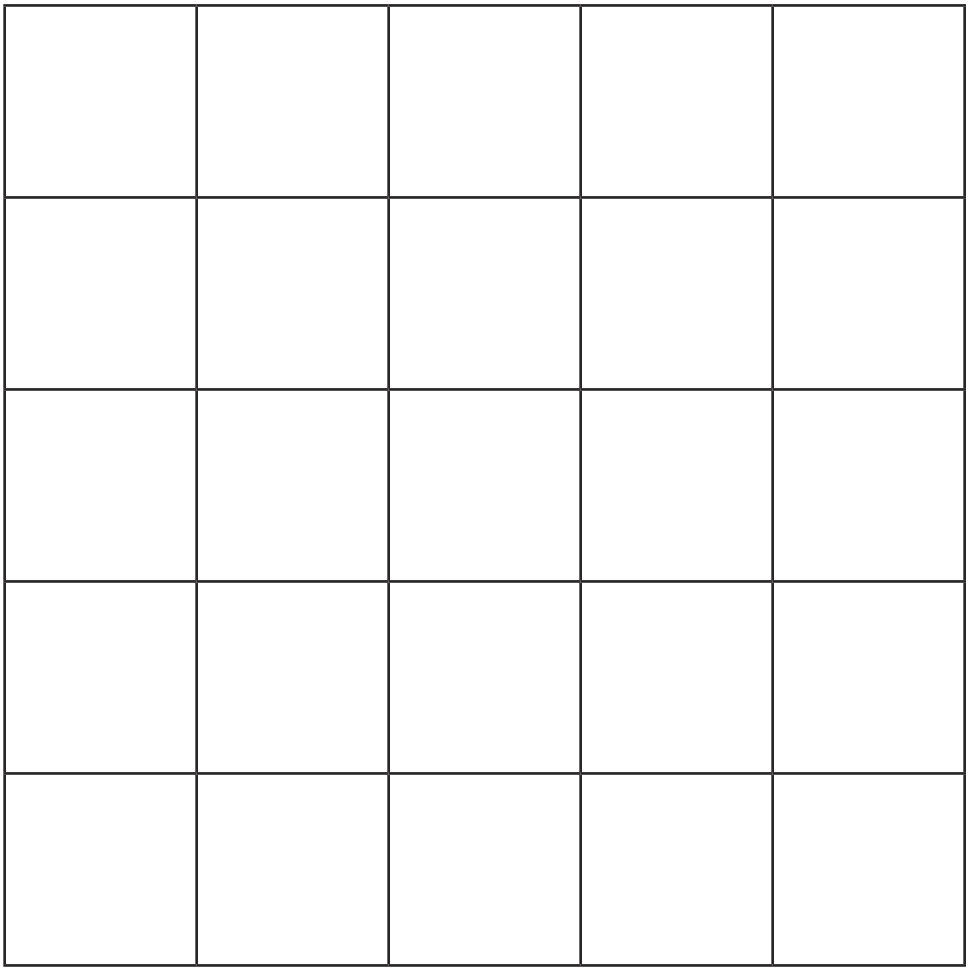
Geometry Menu

- ☐ My Quilt
- ☐ Pentomino Partners
- ☐ Last Piece
- ☐ Tangram Magic
- ☐ Geoshapes
- ☐ Communication Game
- ☐ 1 to 100 Puzzle
- ☐ 6-Piece Puzzle

Name _____

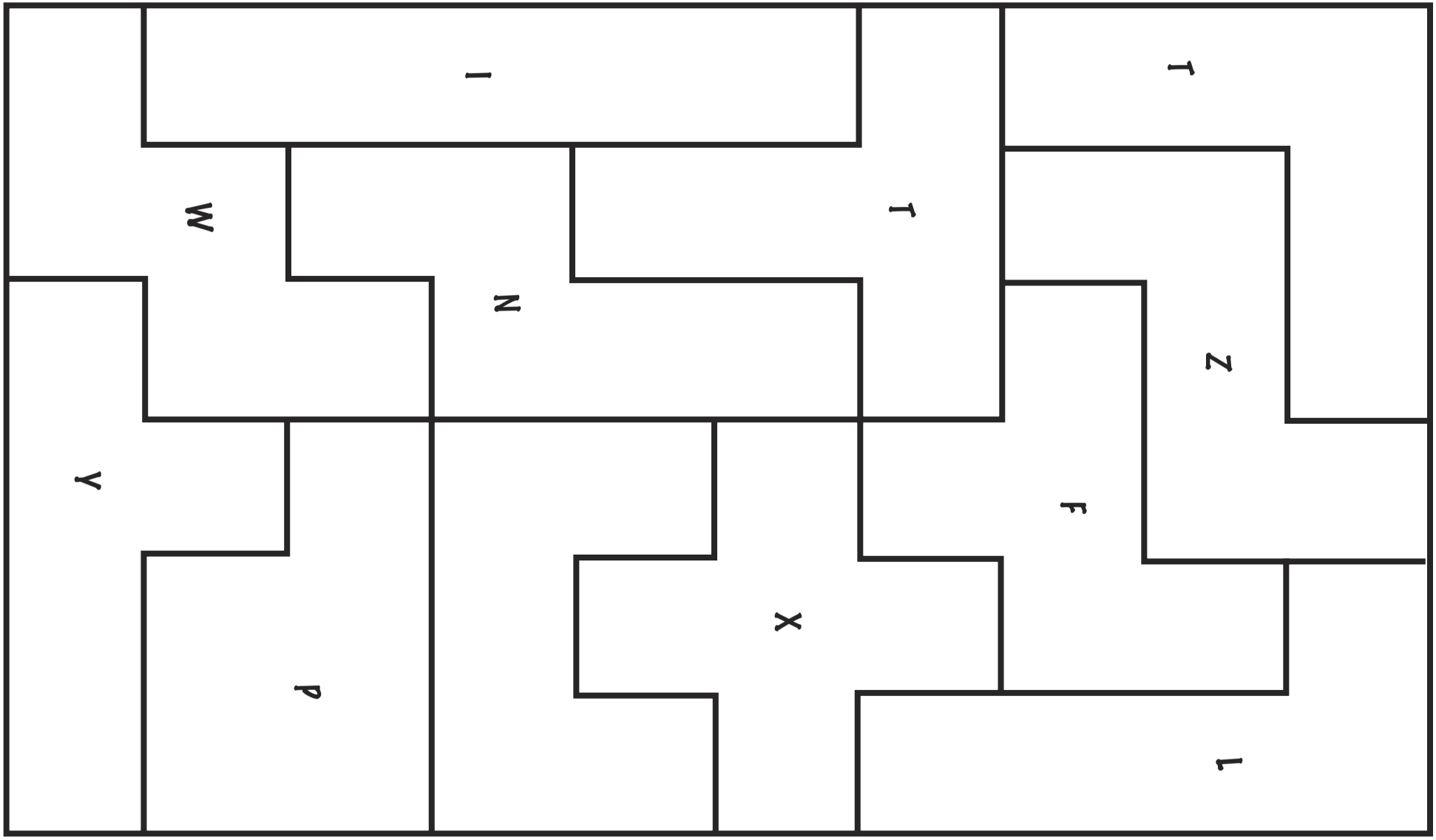
My Quilt

Using three colors of one inch squares (or squares cut in half like rectangles or triangles), design a quilt with a symmetrical pattern on the grid below. Glue papers on the grid.



Pentomino Partners

Partners need a pentomino set for their gameboard. Take turns rolling the dice (F, L, I, P, N, T) & U, V, W, X, Y, Z). You may put those two pentomino pieces on your gameboard. You might roll the letter of a piece that you have already used, so you would miss that turn. The first one to fill in all of the pieces is the winner.



Last Piece

This is a partner game with two different colored pentomino sets, but just one game board. Take turns putting a pentomino piece of your choice on the gameboard. All spaces don't have to be filled in. Some squares might be "trapped". You are the winner, if you put the last complete pentomino piece in the grid. Play it two times.

Name _____

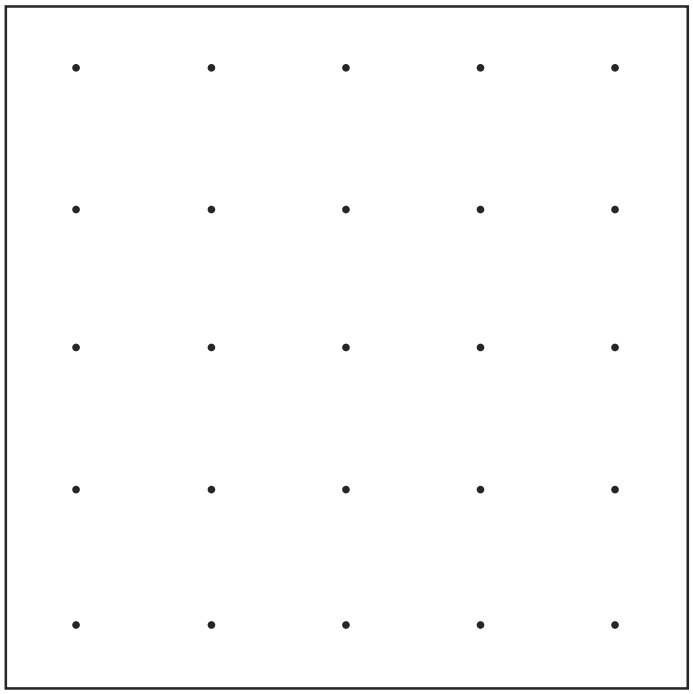
Tangram Magic

Look through the *Tangram Magician* book and choose a picture to make on the page in your packet. Place all seven paper pieces on this page before you glue it. Write its name on the bottom line.

This is a _____

Geoshapes

Stretch three geobands onto a geoboard to make a square, rectangle, and triangle. None of the shapes can overlap each other. Record below by drawing those shapes in the same positions. Under the geoboard, write three sentences explaining where the shapes are on the geoboard. Use the words from the wordbank.



Left
right
top
bottom
middle
between
above
below
before
after
triangle
square
rectangle
circle
large
small
corner

Communication Game

Use two sets of attribute shapes. The communicator will describe a shape and a position on the mat to a partner who can't see the mat. Use a private office or book to block the view. The communicator places 8 shapes on the mat as the builder listens and builds on his/her mat. Remove the private office to compare mats. See how similar the two pictures are. Draw and color you picture. Reverse roles. The communicator will draw on his/her own page.

top

left

right

bottom

1 to 100 Puzzle

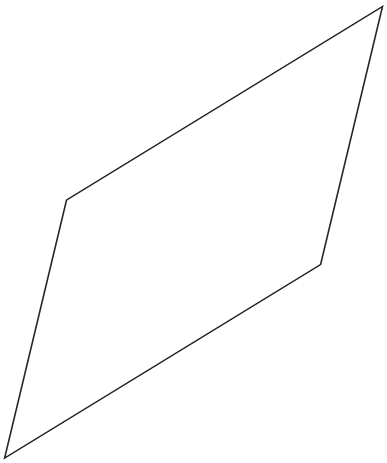
On the 1 to 100, place the pentomino puzzle pieces with numbers on top of the same numbers on the chart.

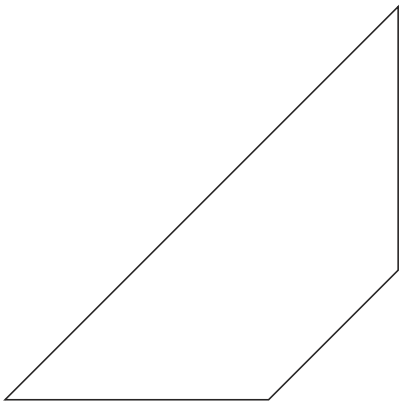
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

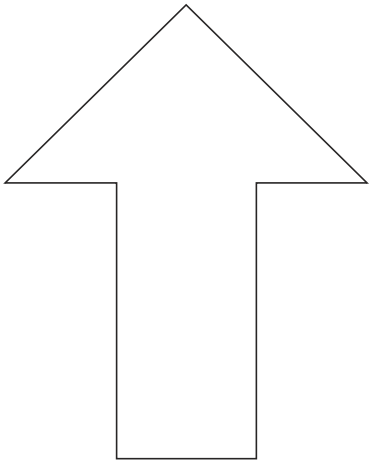
6 Piece Puzzle

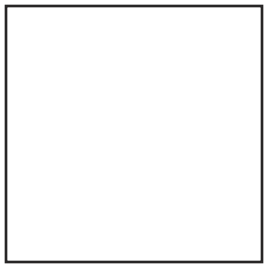
Solve two or more of the six puzzles. Draw lines to show the solutions to the puzzles on the appropriate base shapes.

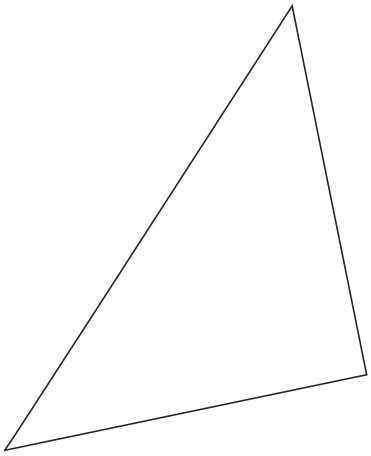
Hint: All of the puzzles except the arrow have these pieces together:

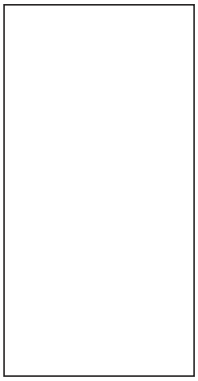












Content III-2

Activities

Water

The Wonderful World of Water

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

Objective 2:
Investigate water and interactions with water.

Intended Learning Outcomes:
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Standard III

Objective 2

Connections

Background Information

Students will need to understand the unique properties of water as illustrated in the The Comprehensive Water Education Book. First grade students need a basic understanding of the three states of water. Water as a gas will be covered only briefly. Students will need exposure to and experience with all forms of water.

The Water Cycle is not included in the first grade Core Curriculum. Teaching briefly about the water cycle is necessary for students to understand how water is received. Water is all around us and is almost always in motion. The provided activities will engage students' learning about water. Students will be involved in measuring, predicting, comparing, observing, and describing throughout the series of lessons.

Teachers should be familiar with the unique properties of water, the three states of water, examples of water in each state, and the water cycle prior to teaching these activities.

Research Basis

Colburn, A. (2004). Inquiring scientists want to know. ***Educational leadership***, September 2004, Page 63-66.

Learning to think independently and scientifically is a worthy instructional goal. Learning to think independently means that students must actually think independently. Critical thinking is a complex skill that requires instruction, practice, and feedback. Thinking is not a context-free activity. To gain a deep understanding of scientific concepts, learners must actively grapple with the content. Teachers must choose activities that match students' background knowledge and reasoning skills.

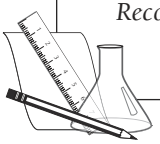
Gabbert, B., Johnson, D.w., Johnson, R.T. (2001). Cooperative learning, group-to-individual transfer, process gain, and the acquisition of cognitive reasoning strategies. ***The journal of psychology***, Volume 120 (Issue 3), Page 265-278.

This article states that students in a cooperative learning situation tend to use higher level reasoning strategies than students completing the same task individually. Results also indicated that group-to-individual transfer did take place within cooperative learning groups and that process gain tended to occur.

Invitation to Learn

Materials

- ❑ Our Day Chart
- ❑ *Our Day*
- ❑ *Water Story Page*
- ❑ Puddle Shaped Chart
- ❑ Chart Markers
- ❑ 3-prong folder (1 each)
- ❑ *Teacher's Way/My Way Recording Forms*



1. Work through the chart as a whole class while individual students complete their personal Our Day sheets.
2. Water is the word of the day.
3. Talk with the students about the Water Story Page, and have students complete it.
4. As students share from their water pages, write their responses on the puddle shaped chart. This chart will serve as a pre-assessment.
5. Have students decorate a folder containing one Teacher's Way/ My Way Recording Sheet for each activity.

Instructional Procedures

Let's Learn About Water

Materials

- ❑ *I Am Water*
- ❑ Water as a Liquid Chart (Water Glass)
- ❑ Water as a Solid Chart (Snowman)
- ❑ Water as a Solid Chart (Cloud)
- ❑ Chart Markers
- ❑ *I Am Water* word strips
- ❑ *Teacher's Way/My Way Recording Form*

1. Before reading the story, introduce students to the phrases water as a liquid (water that is coming out of the faucet or drinking fountain, when it rains, running in a river, etc.), water as a solid (ice, snow, frost, ice cubes, icicles, and ice on a skating rink), and water as a gas (water that has changed into steam). Water as a gas is difficult to understand. Ask the students to hold a hand in front of their mouth and breathe slowly into the palm. The students will be able to feel wetness on their palm. We breathe out water as a gas. Animals breathe out water as a gas. Hand out word strips with examples of each water state. Allow discussion between students to find the correct state of water. Students will attach the word strip to the appropriate chart.
2. Read *I Am Water*. Check to see that each word strip was placed appropriately and discuss the differences in the three states of water. Play Be a Water Molecule. Students that are ice will be grouped closely together. Students that are water will have small amounts of room between them. Students that are water vapor will be able to freely move about.
3. Have students open to the first *Teacher's Way/My Way Recording Form*. On the Teacher's Way portion of the worksheet, the

students will write, "Water can be liquid that we drink, solid that is like snow, and vapor that we breathe out." On the My Way portion, students will draw pictures to help them remember the things that they learned.

Assessment Suggestions

- Pre-assess the students' knowledge of the states of water by having them place the word strips on the appropriate water form.
- Assess student understanding after reading the book by allowing students to move any word strips placed incorrectly.

Water Is Popular

1. Review the charts with the students. Have the students help fill in the choices on the School Interview Graph Worksheet. Divide students into groups to conduct interviews throughout the school. Each group will interview 12 people.
2. When the groups return to class, compare the graphs or build a large class graph. Ask graphing questions such as, "which way is water used the most?" "Which way is water used the least?" "Are any of the uses equal to each other?"
4. Have students turn to the next *Teacher's Way/My Way Recording Form*. On the Teacher's Way side, students copy, "We use water for many different things. At our school, the most popular way to use water is _____." On the My Way side, students will use illustrations to make a connection to what was learned.
3. Give students time to decorate the front of their *Favorite Water Activities Homework Booklet*. Students will have one week in which their families will help them complete the book. Returned books will be shared and compared.

Materials

- ❑ Charts from the previous day
- ❑ *Favorite Water Activities Homework Sheets*
- ❑ *School Interview Graph*
- ❑ *Teacher's Way/My Way Recording Forms*

The Great Meltdown - Investigating Water as a Solid

1. Review the types of water as a solid from the Snowman Chart. Ask if there are any other types the students would like to add.
2. Read the Snow book.
3. Give each student an ice cube. Ask for describing words, how does the ice cube feel, what shape is it, anything else that you notice? Do you notice that the ice cube is melting? What causes ice to melt? How could we stop the ice from melting?

Materials

- ❑ Snow
- ❑ 5 ice cubes per group
- ❑ Extra ice cubes (one each)
- ❑ The Great Meltdown
- ❑ Sand (one TBSP per group)
- ❑ Salt (one TBSP per group)
- ❑ Snowman Chart
- ❑ Teacher's Way/My Way Recording Forms

4. Divide the students into groups. Give each group *The Great Meltdown Worksheet,* five ice cubes in a cup, one TBSP of sand labeled as sand, and one TBSP of salt labeled as salt. Groups will need to brainstorm thee additional ways to melt the ice cube. Groups should list their ideas in each of the 3 blank spaces. Each group member will have one ice cube to melt using one of the methods listed on the worksheet.
5. "Ready, Set, Go!" As each ice cube melts completely into water, the student yells out, "MELTDOWN!" The group will record on the worksheet which ice cube melted first, second, third, fourth, and fifth.
6. Which method is the most effective for melting ice? Which method is the least effective?
7. Have students open to the next *Teacher's Way/My Way Worksheet.* On the teacher's side, students will copy, "There are many ways to make water as a solid melt into water." On the my side, students will draw a picture to illustrate what happened during *The Great Meltdown.*

Constant Motion

Materials

- ❑ Snowman and Water Glass charts
- ❑ *Rainbow in a Jar*
- ❑ Clear quart size jar
- ❑ Hot water
- ❑ Red, yellow, and blue liquid food coloring
- ❑ Red, yellow and blue crayon for each student
- ❑ *Teacher's Way/My Way Recording Forms*

1. Show the students the jar of water. Ask, "Is the water moving?"
2. Talk about how you could tell if the water was moving. What are some examples of moving water? How does water get from one place to another? Is all water movement noticeable? Does man create some water movement? Stress to the students that most water we receive and use is because man has engineered a way for gravity to move water to desirable locations. Drinking fountains, bathtubs, and sinks all of these allow us to receive water.
3. Hand out the *Rainbow in a Jar* worksheet. Instruct students to take out red, yellow, and blue crayons. Students will color their worksheet to match what is happening in the jar.
4. Prepare for the demonstration by using hot water to improve the liguid movement. Place a few drops of red food coloring into the jar. As you wait, ask students to predict what will happen. The teacher may need to lead the prediction by asking the following questions: will the food coloring stay in one place? Will the food coloring drop straight down to the bottom? Will the food coloring swirl throughout the jar? Once the red food coloring begins to swirl throughout the water, instruct the students to color their worksheet.

5. Add a few drops of blue food coloring next to but not directly on the red food coloring. Ask students to predict what will happen. Use the questioning techniques if necessary. When the blue starts to swirl in, instruct the students to color their worksheet.
6. Add a few drops of yellow food coloring in a different spot in the jar. Go through the process of predicting, observing, and recording. Talk to the students about water movement. The teacher will be able to complete a quick informal assessment of student understanding by listening to responses as the yellow food coloring is added to the jar.
7. Have students open to the next T*eacher's Way/My Way Recording Form*. On the Teacher's Way portion, students will copy, "Water is almost always moving." On the My Way portion, students will draw a representation of the *Rainbow in a Jar* activity.

Hey, It's The Water Cycle!

1. Introduce the Water Cycle representation. Hand out all word strips *except* evaporation, condensation, and precipitation. Have the students attach the word strips to the representation. Allow for group discussion as necessary for correct placement of word strips.
2. Teach the Water Cycle Song with actions.

Water Cycle Song

(to the tune of She'll be Coming 'Round the Mountain)

Water travels in a cycle, yes it does.
Water travels in a cycle, yes it does. (Hands go around in a circle).
It goes up as evaporation (Hands go straight up),
Forms clouds of condensation (Clap hands together),
Falls down as precipitation (Bring hands down wiggling fingers imitating a rainstorm), yes it does!

Emphasize the words evaporation, condensation, and precipitation. Sing the song with the students. Ask if anyone knows, based on the actions of the song where the evaporation word card should be placed on the Water Cycle. Repeat the song with actions as needed. Repeat the questioning for placement of the condensation and precipitation cards. When all of the cards are in place, have the students point out the words as they sing.

Materials

- ❏ Large representation of the Water Cycle
- ❏ Word strips (evaporation, condensation, precipitation, rain, snow, clouds, river, lake, and any others that match the representation you are using)
- ❏ The "Water Cycle Song" on chart paper
- ❏ Sponge and water
- ❏ Chalkboard
- ❏ Paper and pencil
- ❏ Clear plastic cups
- ❏ Hot water
- ❏ *Rain or The Magic School Bus Wet All Over: A Book About the Water Cycle*
- ❏ *Teacher's Way/My Way Recording Forms*

3. What are the natural ways that we receive water? Review the representation as necessary for students to answer, "Rain, snow, sleet, hail, run-off from the mountains, rivers, lakes, oceans, etc."
4. What is evaporation? Play "Evaporation." Each student will need a paper and a pencil. Write a spelling word or number on the chalkboard with the wet sponge. Have the students observe the water "disappearing" into the air. Explain that the water hasn't disappeared, it has evaporated into the air. Write another spelling word or number on the chalkboard. Have the students write that word or number as many times as they can until it has evaporated off the chalkboard. When complete evaporation has occured, yell out, "Evaporation!" Repeat with a new word or number.
5. Divide students into groups. Give each group two cups - test the cups prior to this activity to make sure they won't melt. Tell the students that they are going to create their own Water Cycle. You will pour hot water into one of the cups. The other cup will be placed upside down on top of that cup. Remind the students to be very careful with the hot water. You may need an adult helper for each group. The students will be able to observe the steam from the hot water condense onto the bottom of the other cup. Then, as the water condenses, it will drip down like a rainstorm. Following this activity, allow time for questions and discussion.
6. Read the *Rain* book or *The Magic School Bus Wet All Over* book
7. Have students open to the next *Teacher's Way/My Way Recording Form*. On the Teacher's Way side, students will copy, "The Water Cycle is one way we receive water. Evaporation is when the water goes into the air. Condensation is when the water sticks together like in a cloud. Precipitation is when the water falls back to the earth like rain or snow." On the My Way side, student's should draw their own representation of the Water Cycle.

Materials

- ❑ Water
- ❑ Sink or Float Kit (1 per group) (1 peanut in a shell, 1 paperclip, 1 rock, 1 marble, 1 plastic boat, 1 small wood block, 1 sponge, 1 chunk of clay, and 1 seashell in a plastic shoebox with a lid)
- ❑ *Sink/Float Recording Sheet*
- ❑ *Who Sank the Boat*
- ❑ *Teacher's Way/My Way Recording Forms*
- ❑ Sink/Float Take Home Pack

Sink or Float?

1. Divide students into groups. Hand out a *Sink or Float Recording Sheet* to each group. If necessary, discuss basic rules with the class - taking turns, waiting politely, talking things out, making a best guess, etc.
2. Show the students each of the objects from the kit. Tell them that within their group they need to predict (make a best guess) if each object will sink or float when placed in water. Each group needs a Recorder to record the predictions, a Materials Manager

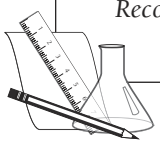
to remove the objects from the box, a Tester to put the objects into the water, a Removal Specialist to take the objects out of the water, and a Professor to record the actual results of the test. Depending on the group of students, it may be beneficial to create job tags for the students to wear during this activity.

3. Hand out the Sink or Float Kits - one to each group. Instruct the Materials Manager to remove the objects one at a time, allowing each student in the group to hold the object and give input before the prediction is recorded by the Recorder. After a prediction is made, the item is set aside, and the Materials Manager removes the next object from the box.
4. After all predictions are made within the group, the Materials Manager will come to the teacher to request water. The teacher will check to see that predictions have been made, see that the recording sheet has been handed off to the Professor, and pour water into the box.
5. The Tester will *carefully* place an object in the water. Does the object sink or float? The Professor should record the actual finding on the *Sink or Float Recording Sheet*. The Removal Specialist *carefully* removes the object from the water and places it in the lid of the box. This process continues until all objects have been tested.
6. When all groups have completed the activity, discuss the class results. Were any of the group results different from another? Is there any way to alter the results?
7. Have the Materials Manager divide the clay into pieces - one piece for each student in the group. Allow the students time to shape the clay and find a shape that will float. Listen to the students talk through the process of shaping the clay.
8. Read *Who Sank the Boat*.
9. Have the Tester return the boat to the water. Allow groups to choose objects to put in the boat until the boat sinks. Give the students discussion time to compare results between groups.
10. After allowing time for exploration and discussion, the group will carefully bring the objects to a side table. The teacher or adult helper will gather the boxes of water. All objects should be dried completely before storage.
11. Have the students open to the next *Teacher's Way/My Way Recording Form.* On the Teacher's Way side, students copy, "Things that are heavier than water sink. Things that are lighter than water float." On the My Way side, students will draw a picture of the sink or float activity.

12. Students will have turns to explore the *Lakeshore Sink/Float* Take Home Pack in a center or individually as a homework activity or home connection.

Materials

- ❑ *The Most Important Thing Story pages*
- ❑ glass of water, snowman, cloud and puddle charts
- ❑ *I Am Water*
- ❑ Water Cycle representation
- ❑ "Water Cycle Song" on chart paper
- ❑ Smiley-face stickers (one each)
- ❑ *Teacher's Way/My Way Recording Forms*



The Most Important Thing

1. Read *I Am Water*. Review the forms of water charts. Add any new findings.
2. Sing the Water Cycle Song. Review evaporation, condensation, precipitation. How do we receive water? Do we always receive water from precipitation? What are some man-made ways that we receive water?
3. Ask students to review their *Teacher's Way/My Way Recording Forms*.
4. Give each student a *Most Important Thing Story Page* and a smiley face sticker. Instruct students to use the smiley face as their own face, drawing themselves enjoying water in the illustration spot on the story page.
5. As the students are drawing and coloring their illustrations, work with small groups to fill in the story page.
6. Allow all students to complete the activity and to share their story page.
7. Gather the pages to be bound into a class book.
8. Review the responses from the Puddle chart. What other ways do we use water? Record student responses. Use the additional responses as a final assessment.

Assessment Suggestions

- Record student water uses from *Water Story Page* on the puddle chart - use as a pre-assessment to determine the amount of time necessary to spend on each state of water.
- Revisit the puddle chart at the conclusion of the activities to add and correct water uses.

Curriculum Extensions/Adaptations/ Integration

- Advanced learners may enjoy playing "Evaporation" with number sentences.
- Special needs students may need to be paired with another student to complete the independent activities.

- ESL students may need additional time for exploration and learning of vocabulary.
- Students may enjoy creating a flip book titled "Water." The first flap will say "water as a liquid." The second flap will say "water as a solid." The last flap will say "water as a gas." On the pages the students will draw a picture to illustrate each form of water.
- Advanced learners or students with an interest in drama may enjoy participating in this readers' theater. http://www.enchantedlearning.com/rt/weather/watercycle.shtml

Family Connections

- *Favorite Water Activities Homework Sheets* stapled into booklets to be completed at home and shared at school.
- The *Sink/Float Take Home Pack* may be taken home by each student for the activities to be completed as a family.

Additional Resources

Books

I Am Water, by Jean Marzollo; ISBN 0590265873

Snow, by Marion Dane Bauer; ISBN 0689854374

Rain, by Marion Dane Bauer; ISBN 068954390

Who Sank the Boat, by Pamela Allen, ISBN 069811373X

The Magic School Bus Wet All Over: A Book About the Water Cycle, by Pat Relf, ISBN 0590508334

Web sites

http://ga.water.usgs.gov/edu

http://www.epa.gov/kids/water.htm

http://kidshealth.org/kid/stay_healthy/food/water.html

http://www.epa.gov/region07/kids/wtrcycle.htm

http://www.kidzone.ws/water/

Additional Media

Lakeshore Sink/Float Take Home Pack, (Lakeshore Learning Materials, http://www.lakeshorelearning.com); Item #RR805

Our Day

Today is _____, day _____

hundreds	tens	ones

Another way to write this number is

_____

The date is _____

The short date is _____

Our word of the day is

_____

Our lunch choices are

_____

or _____

something new we learned or

Something great that happened today

_____

Our Day

Today is _____, day _____

hundreds	tens	ones

Another way to write this number is

_____

The date is _____

The short date is _____

Our word of the day is

_____

Our lunch choices are

_____

or _____

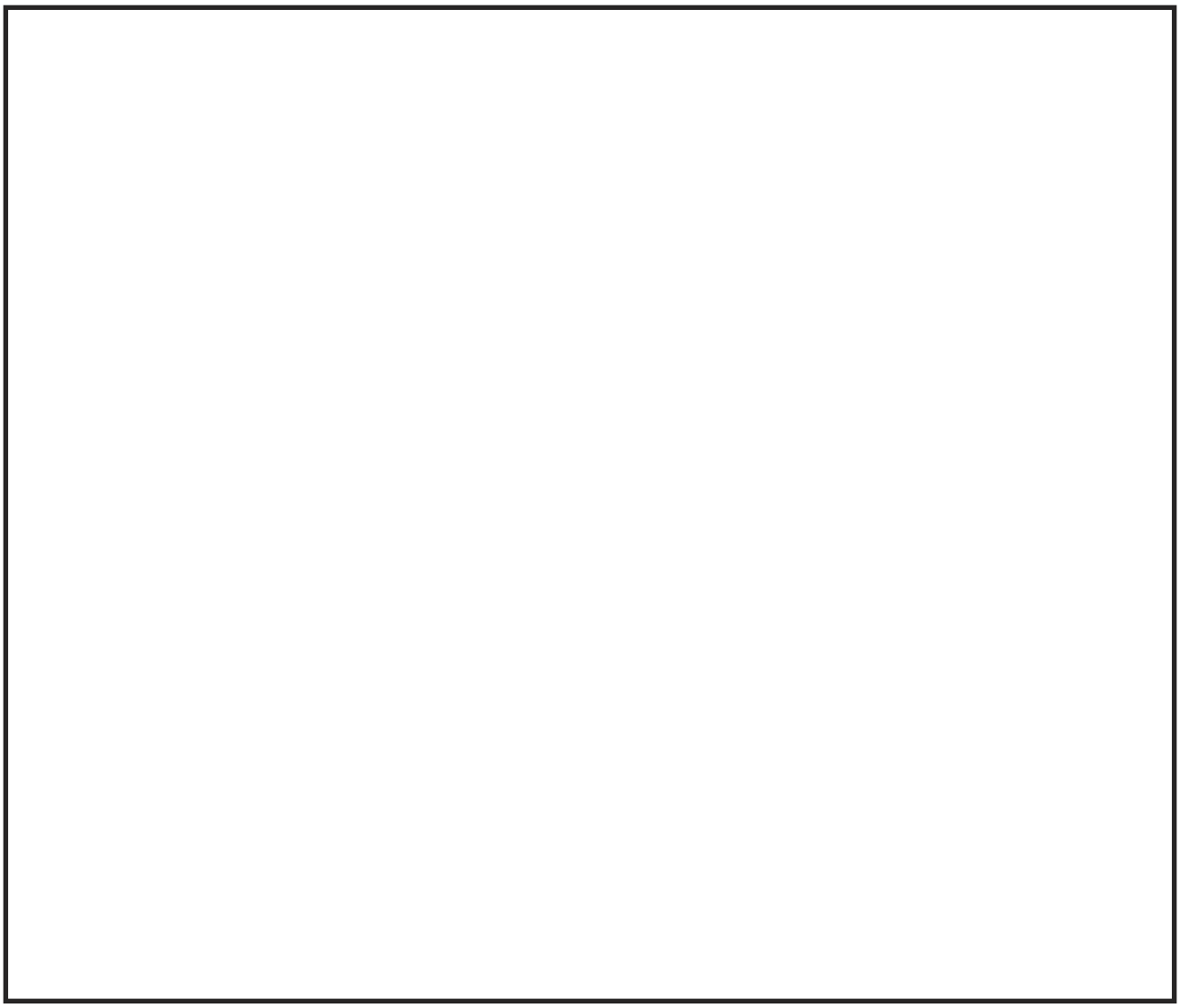
something new we learned or

Something great that happened today

_____

Water Story Page

Water can be used in many different ways.



I like to use water for

_____

By: _____

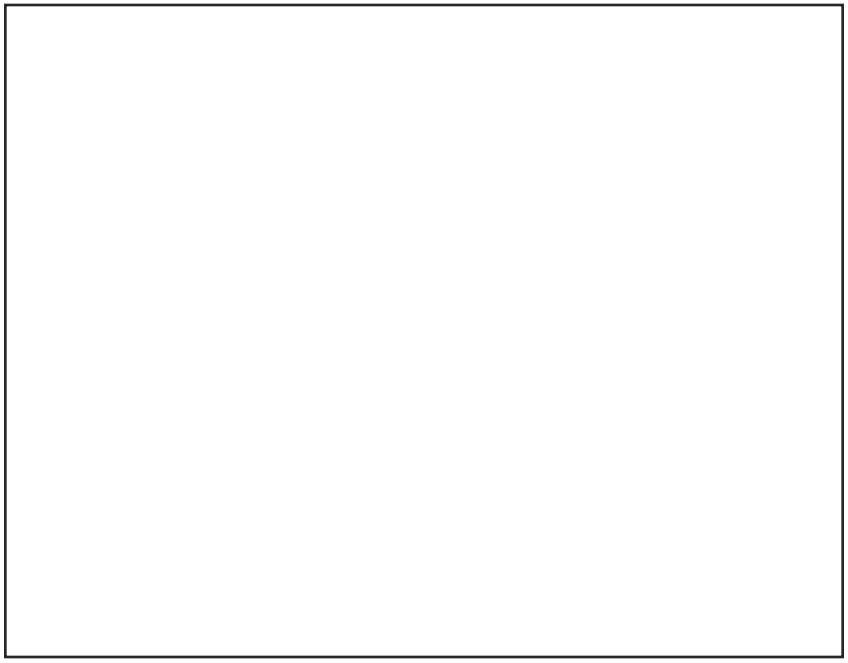
Teacher's Way/ My Way Recording Form

Teacher's Way	My Way

Favorite Water Activities Homework Booklet

This is my

_____



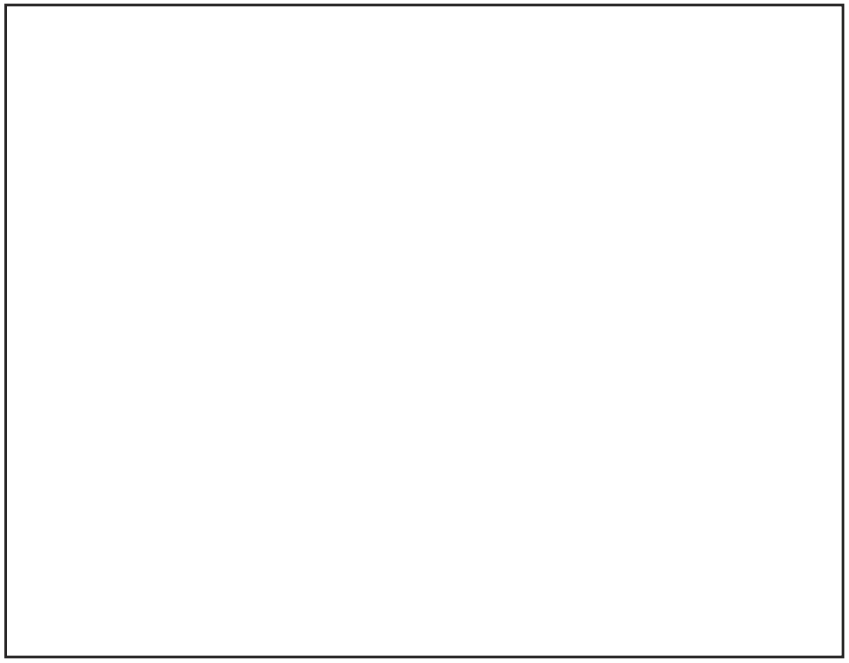
My _____ uses

water for _____.

Favorite Water Activities Homework Booklet

This is my

_____



My _____ uses

water for _____.

School Interview Graph Worksheet

	1	2	3	4	5	6	7	8	9	10

Which way is water used the most? _____

Which way is water used the least? _____

Class Results: Most popular use: _____

Least popular use: _____

The Great Meltdown

sand	
salt	

Which is the most effective way to melt ice? _____

_____

Which is the least effective way to melt ice? _____

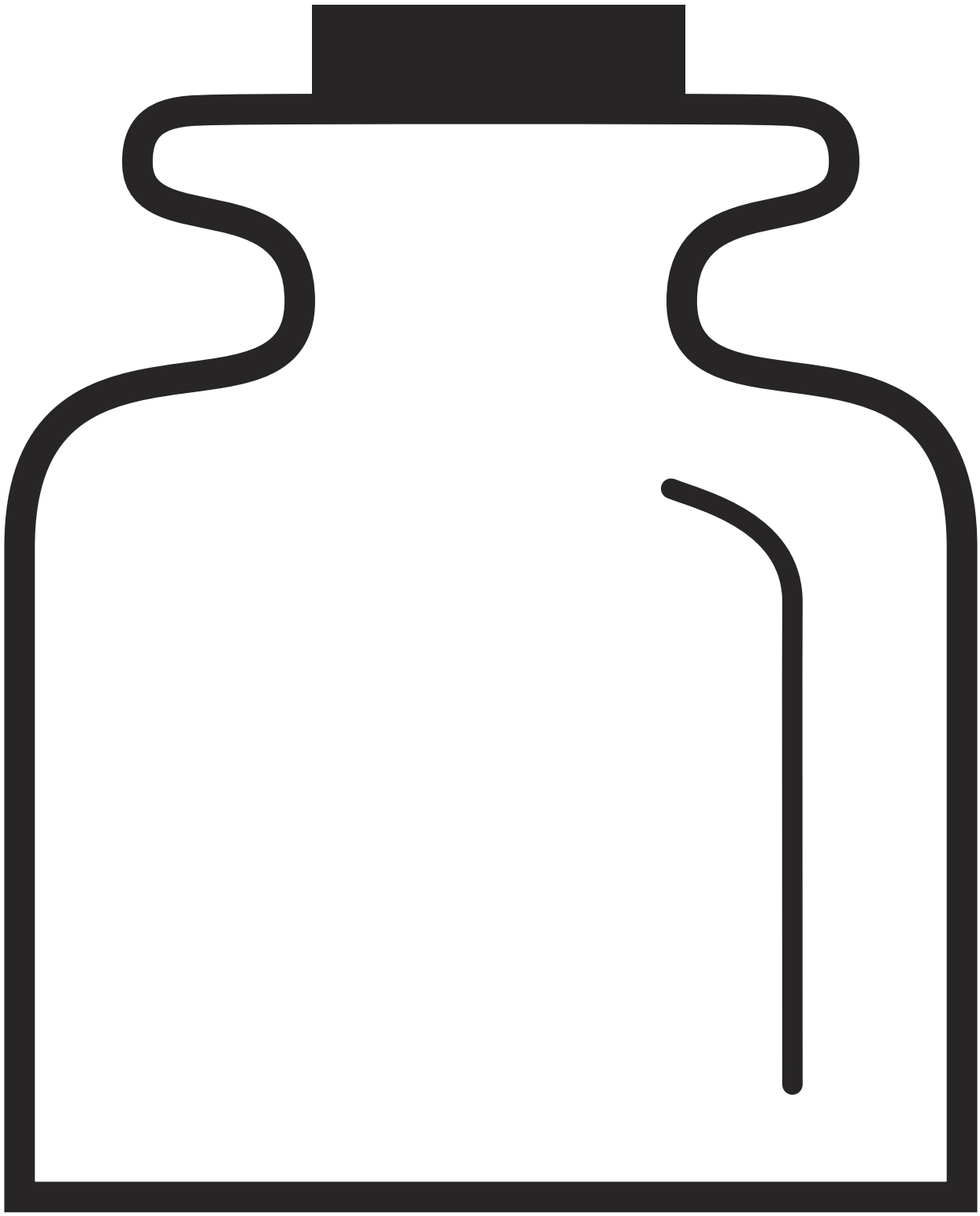
_____

Draw a picture of the ice cube that melted the fastest:

Write 3 describing words: Ice feels _____, _____

, and _____.

Rainbow in a Jar



Name _____

Sink or Float Recording Sheet

	Prediction			Actual Test	
	Sink	Float		Sink	Float
peanut					
paper clip					
rock					
marble					
boat					
block					
sponge					
clay					
seashell					

How can you change the results?

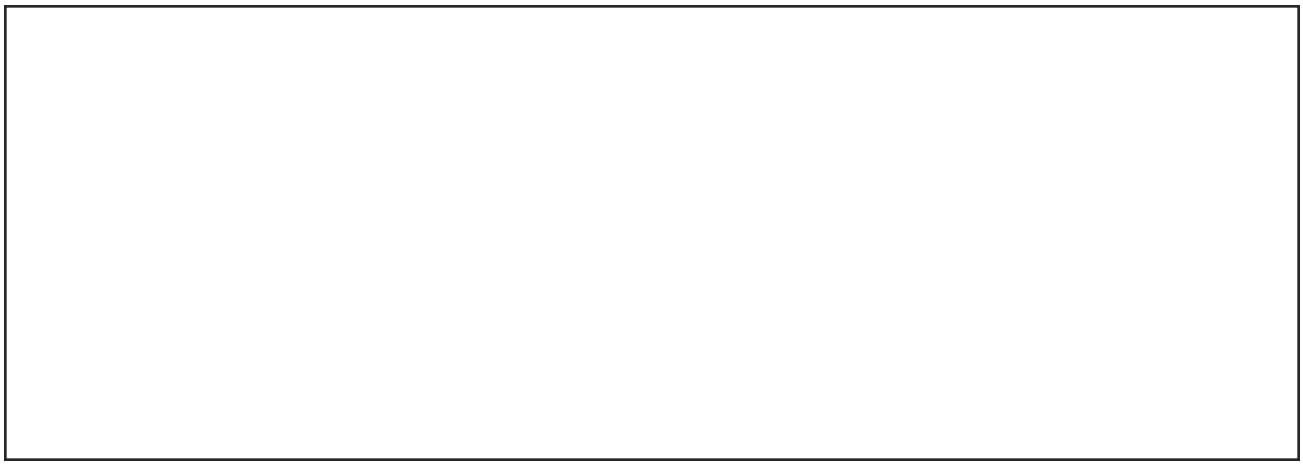
How can you sink the boat?

What did you learn?

The Most Important Story

The most important thing about water is that water is always moving.
Water can be solid like ice or liquid like we drink.
Water can be used in many ways.

I use water for



But most important thing about water is that water is always moving.
Water can be solid like ice or liquid like we drink.
Water can be used in many ways.

Appendix

Baggie Bonanza

We sorted _____.

We made _____ groups of tens.

We had _____ leftover.

We had _____ in all.

Now I will draw what our objects looked like with cubes.

Tens	Ones

Another group sorted _____.

They made _____ groups of ten.

They had _____ leftover.

They had _____ in all.

"Ones" Department Record Sheet

Total _____

Total _____

Total _____

Total _____

Total _____

"Tens" Department Record Sheet

Write ten in each box every time you fill a plastic bag with ten Tootsie Rolls.

Total _____

Total _____

Total _____

Total _____

Total _____

"Hundreds" Department Record Sheet

Inspectors need to count by tens to make sure there are 100 Tootsie Rolls in each paper sack.

Total _____

Total _____

Total _____

Total _____

Total _____

Roll to 100

How many rolls do you think it will take to get to 100?

Number of Rolls	How many cubes?

Big O

______ Tens ______ Ones ______ + ______ = ______	______ Tens ______ Ones ______ + ______ = ______
______ Tens ______ Ones ______ + ______ = ______	______ Tens ______ Ones ______ + ______ = ______
______ Tens ______ Ones ______ + ______ = ______	______ Tens ______ Ones ______ + ______ = ______
______ Tens ______ Ones ______ + ______ = ______	______ Tens ______ Ones ______ + ______ = ______

Bull's Eye

	Tens	Ones	Total
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Nice Dice

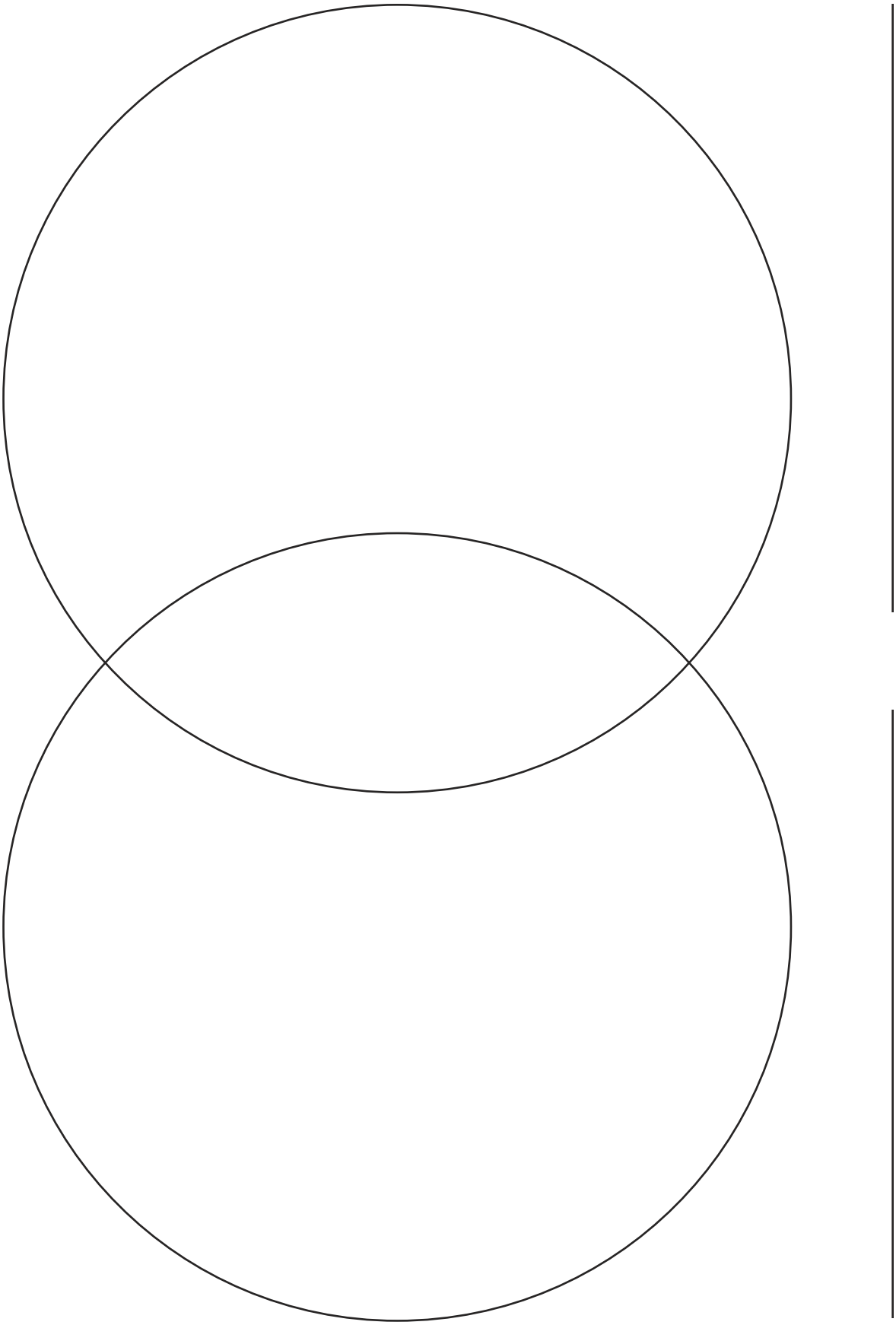
Tens Ones

Roll	Tens	Ones	Total
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Give Me A Dollar

Roll	Bank Total
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Venn Diagram



ABC Homework

Cut out the letters, sort them into two groups, and then glue them on the Venn Diagram.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

Alphabet Names

Next to each letter, write a name that starts with that letter.

A _____

B _____

C _____

D _____

E _____

F _____

G _____

H _____

I _____

J _____

K _____

L _____

M _____

N _____

O _____

P _____

Q _____

R _____

S _____

T _____

U _____

V _____

W _____

X _____

Y _____

Z _____

Word Maker

Pull out four consonants out of the consonant bag and one vowel from the vowel bag. See what words you can make!

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

Letters I drew: _____

Words I can make: _____

_____

My Very Best Handwriting

Write your name in your very best handwriting.

Write your name again in your best handwriting.

How did you do?

_____

I did better.

_____

I can do better next time.

Handwriting Alphabet Page

Trace each letter using your best handwriting.

Aa Bb Cc Dd

Ee Ff Gg Hh

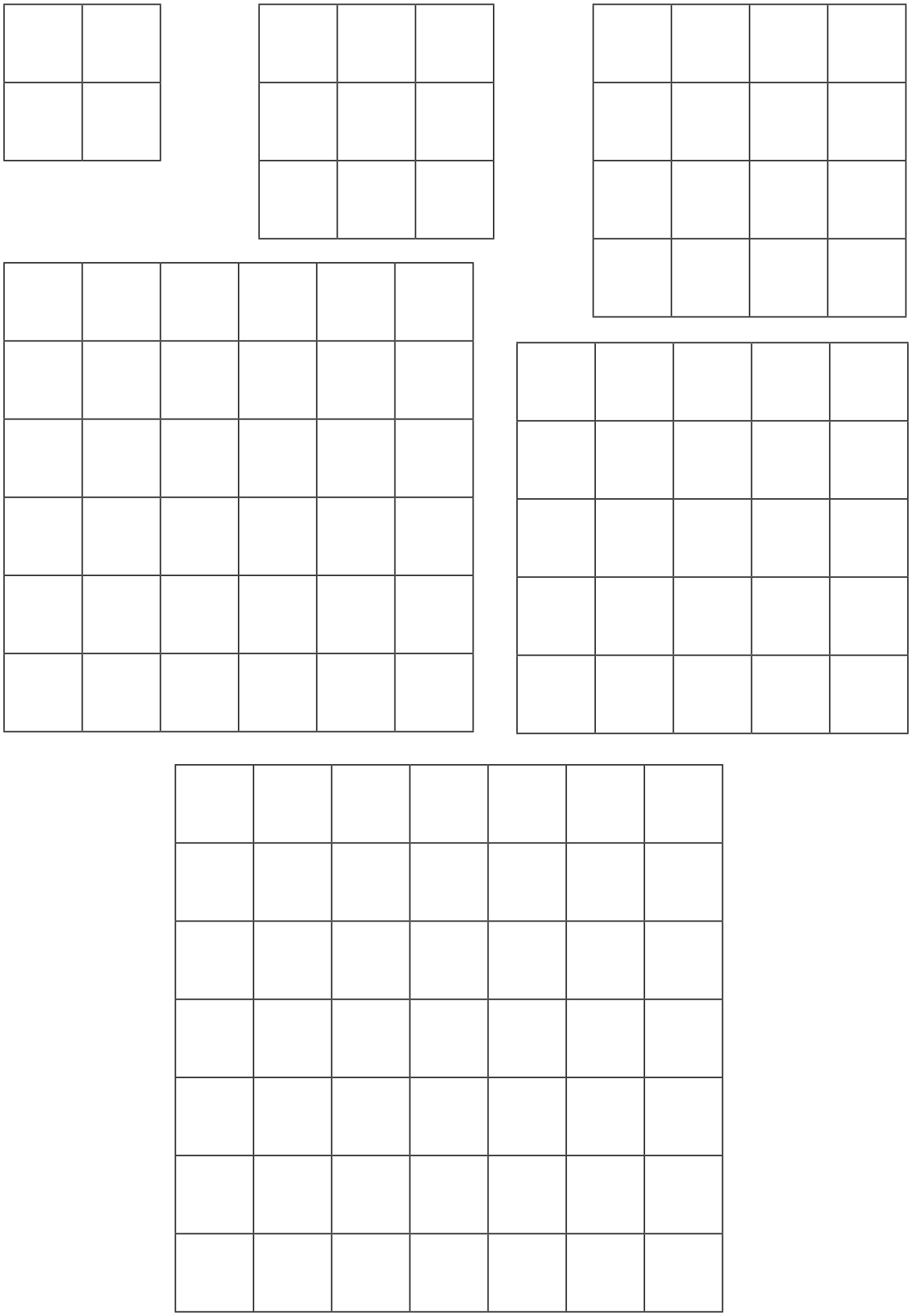
Ii Jj Kk Ll Mm

Nn Oo Pp Qq

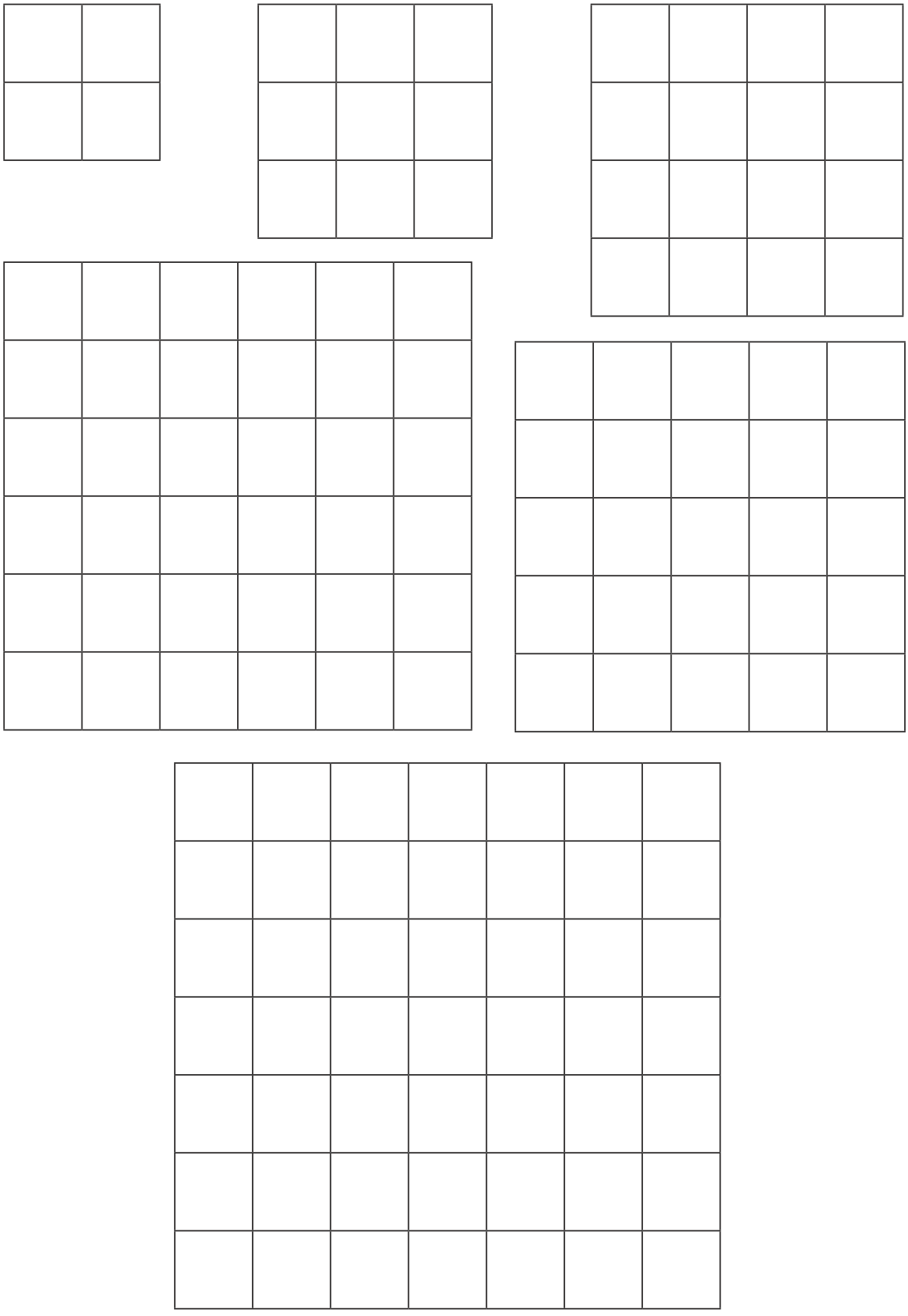
Rr Ss Tt Uu Vv

Ww Xx Yy Zz

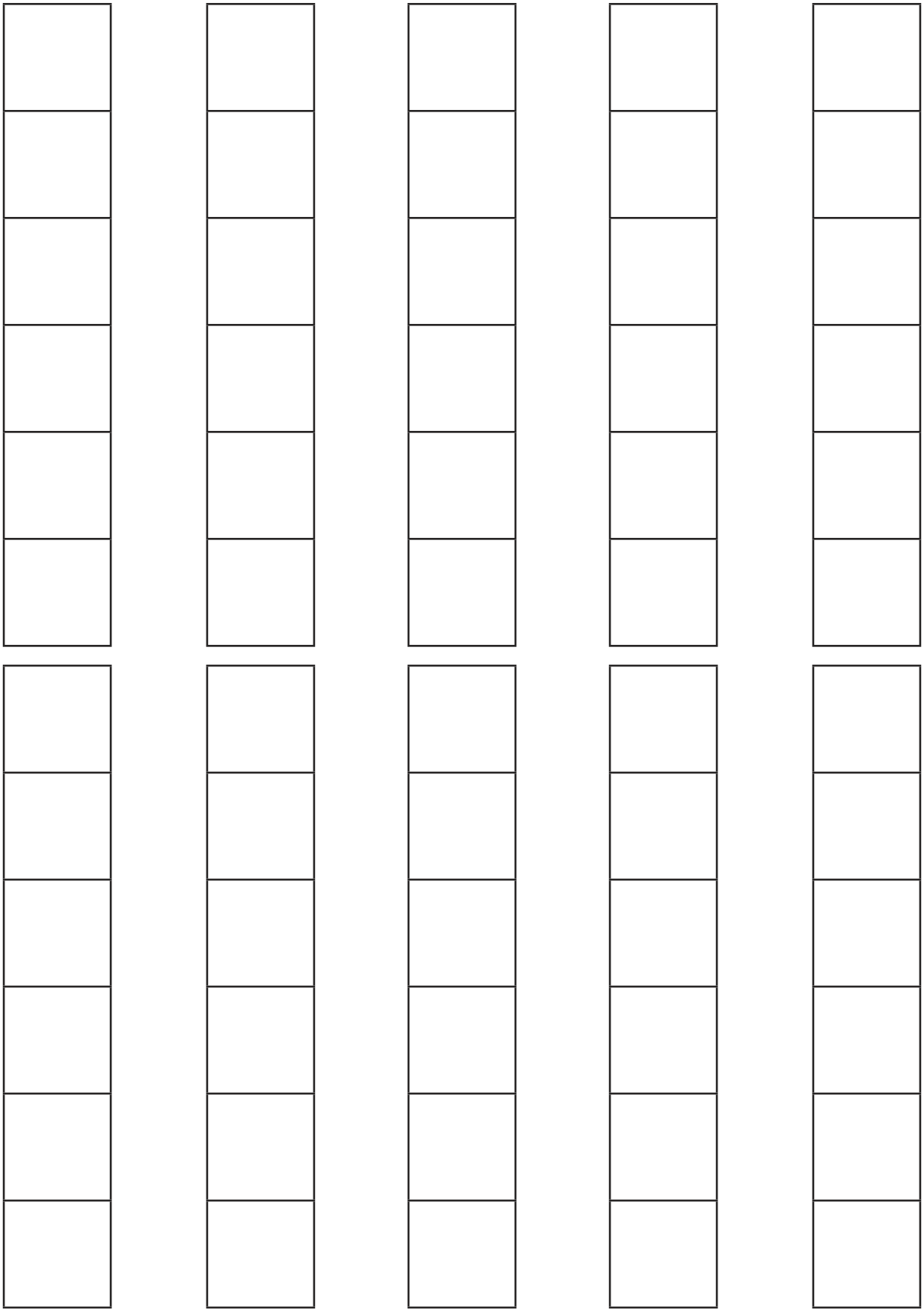
Numbered Squares



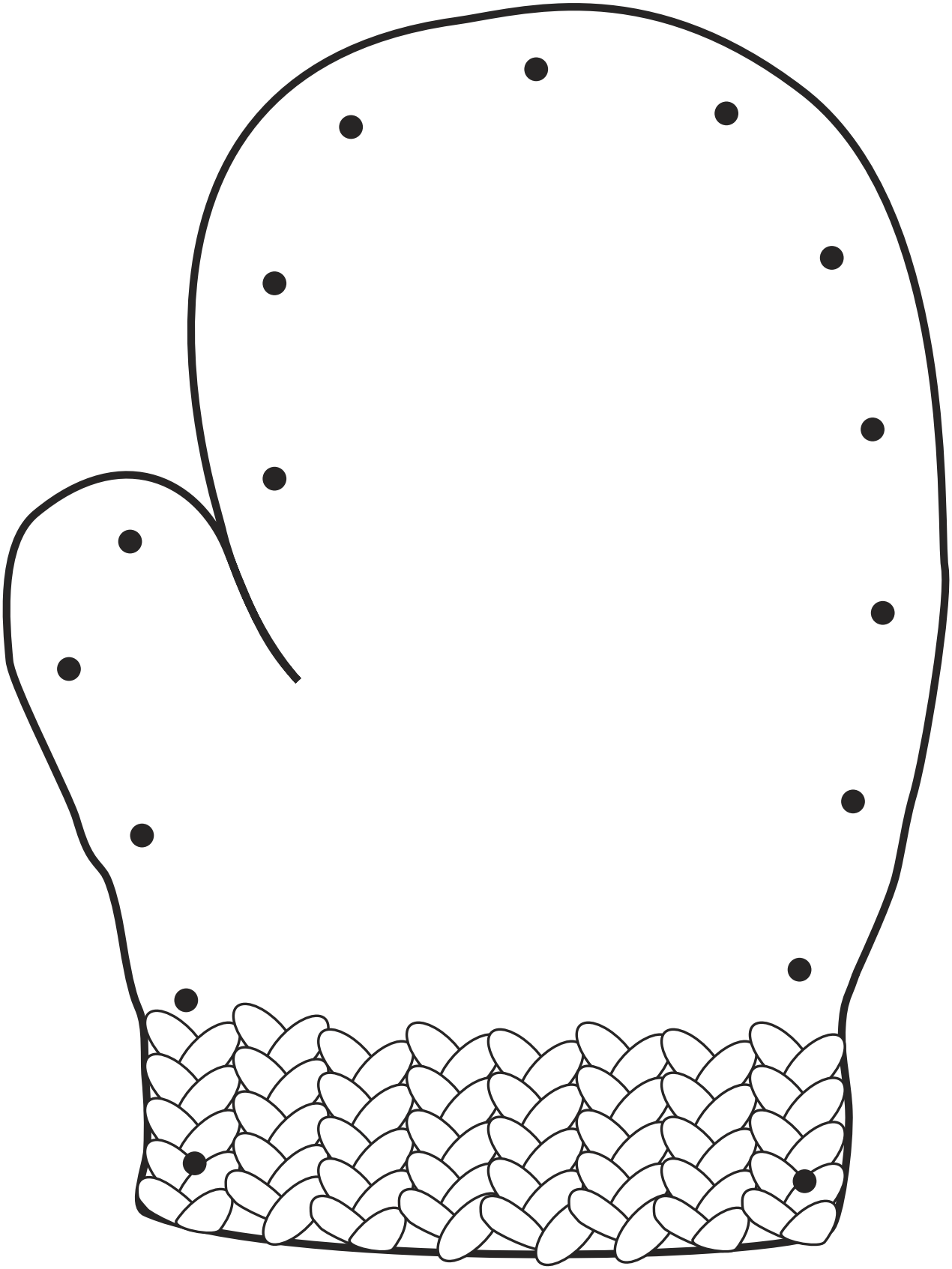
Numbered Squares



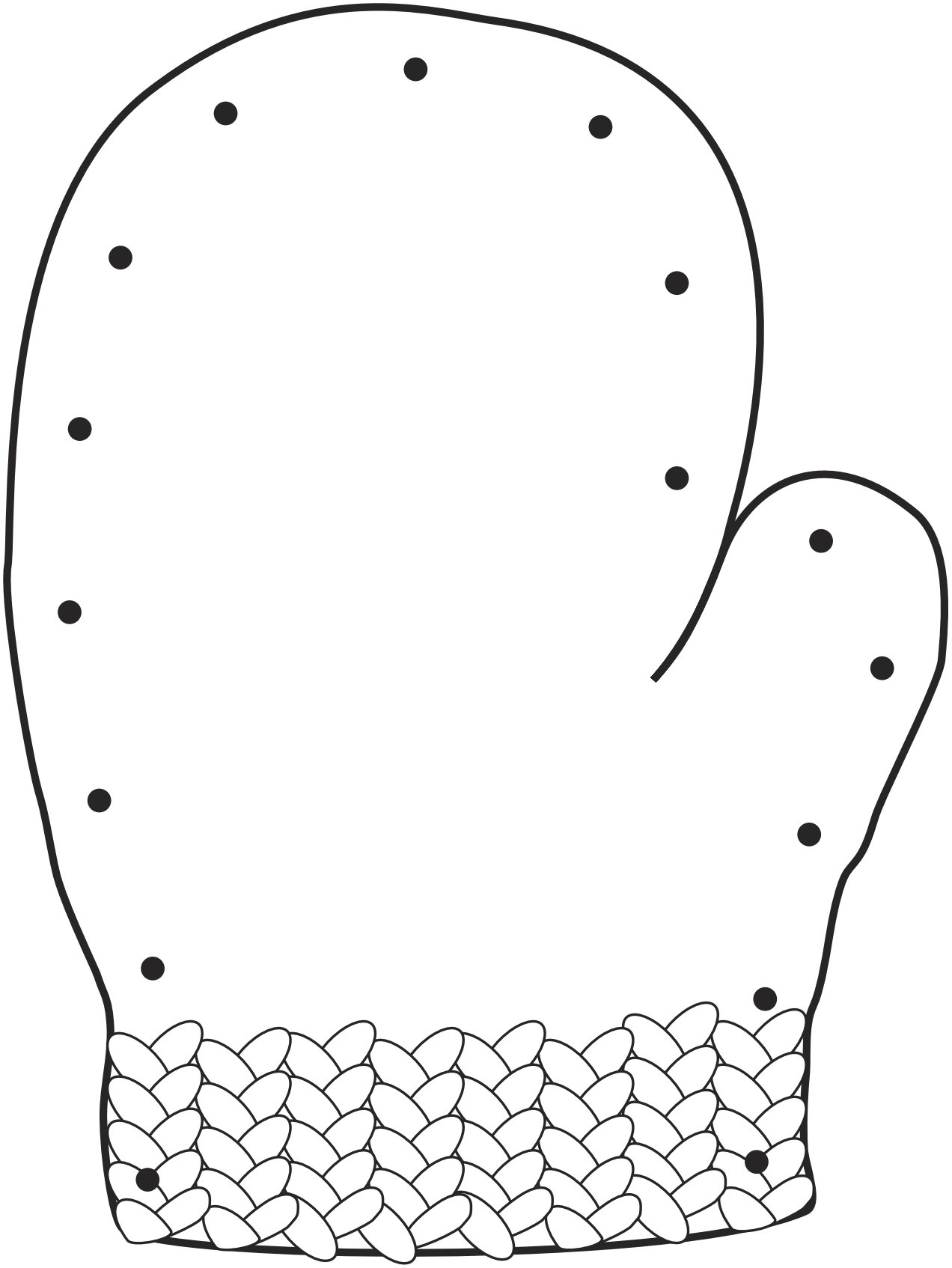
Unifix® Cube Six Count Mat



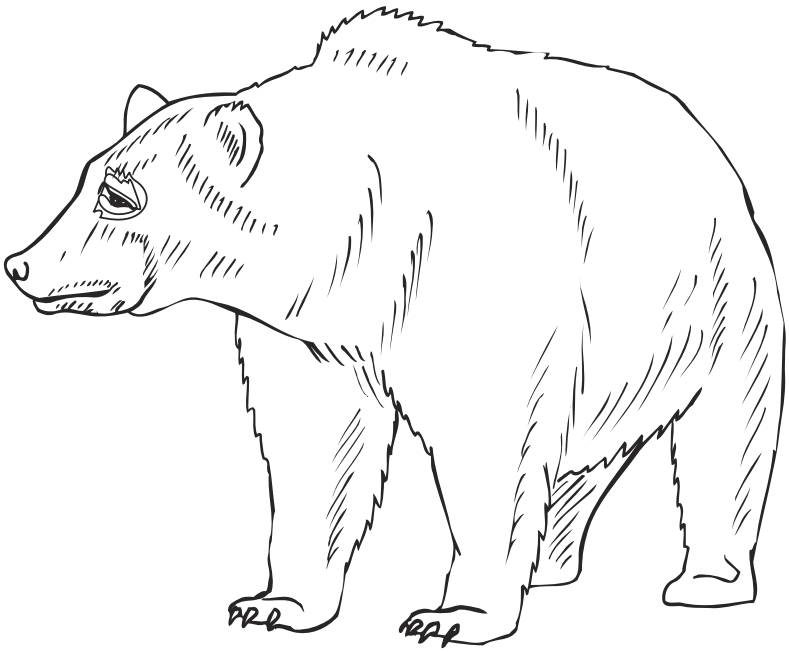
Right Mitten



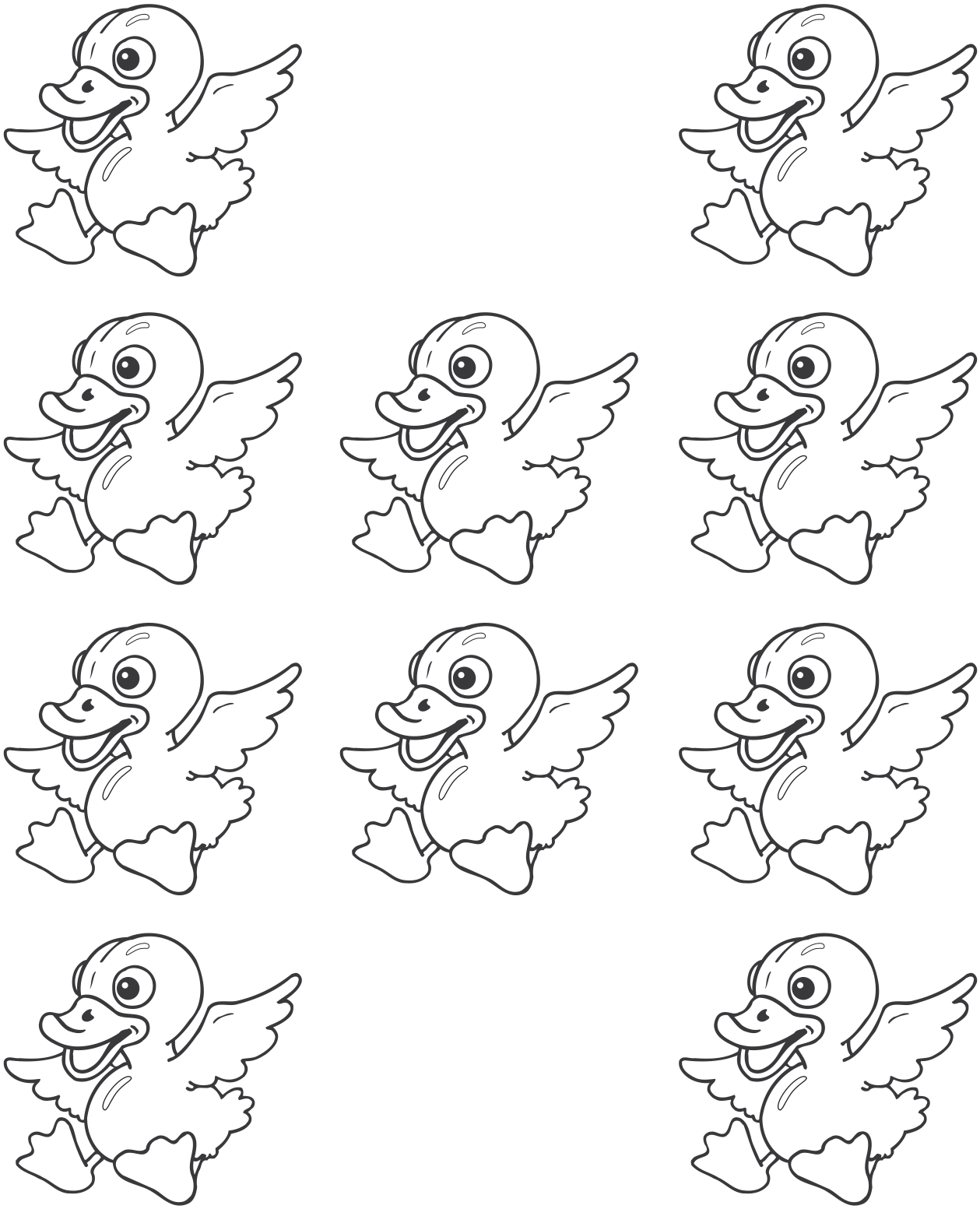
Left Mitten



Mitten Animals



Rubber Duck



Name _____

Folk Dance Rubric

My Answers (circle yes or no)

1.	I listened to the directions.	yes	no
2.	I did the steps in the right order.	yes	no
3.	I started and stopped when the music did.	yes	no
4.	I smiled at the audience.	yes	no
5.	I did my personal best.	yes	no

Teacher Answers

1.	Student listened to the directions.	yes	no
2.	Student did the steps in the right order.	yes	no
3.	Student started and stopped when the music did.	yes	no
4.	Student smiled at the audience.	yes	no
5.	Student did his personal best.	yes	no

Houses
Reader's Theater


Reader 1: Big houses, little houses,


Reader 2: Houses up on stilts.


Reader 1: Look how all the houses


Reader 2: In the world are built.


Reader 1: Houses made of thatch,


Reader 2: Houses made of brick.


Reader 1: Houses made of adobe


Reader 2: With walls that are thick.


Reader 1: Wood houses, tent houses,


Reader 2: Bamboo houses, too.


Reader 1: Which kind of house


Reader 2: Is just right for you?

Kangaroo Reader's Theater

Reader 1: Old hoppity-loppity kangaroo

Reader 2: Can jump much faster than all of you.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: Her tail is bent like a kitchen chair

Reader 2: So she can sit down to comb her hairs.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: He has a pouch where her joey grows

Reader 2: She carries the baby wherever she goes.

Reader 3: Hoppity-loppity, jump, one-two.

Reader 1: And when she jumps, she uses her tail,

Reader 2: So she can jump farther and almost sail.

Reader 3: Hoppity-loppity, jump, one-two.

The One and Only Special Me Reader's Theater


Reader 1: Forever and ever, I will always be.


Reader 2: The one and only special me.


Reader 1: I have my own body.


Reader 2: I have my own face.


Reader 1: I have a special hiding place.


Reader 2: I have my own smile.


Reader 1: I have my own name.


Reader 2: I have a special favorite game.


Reader 1: I have my own book.

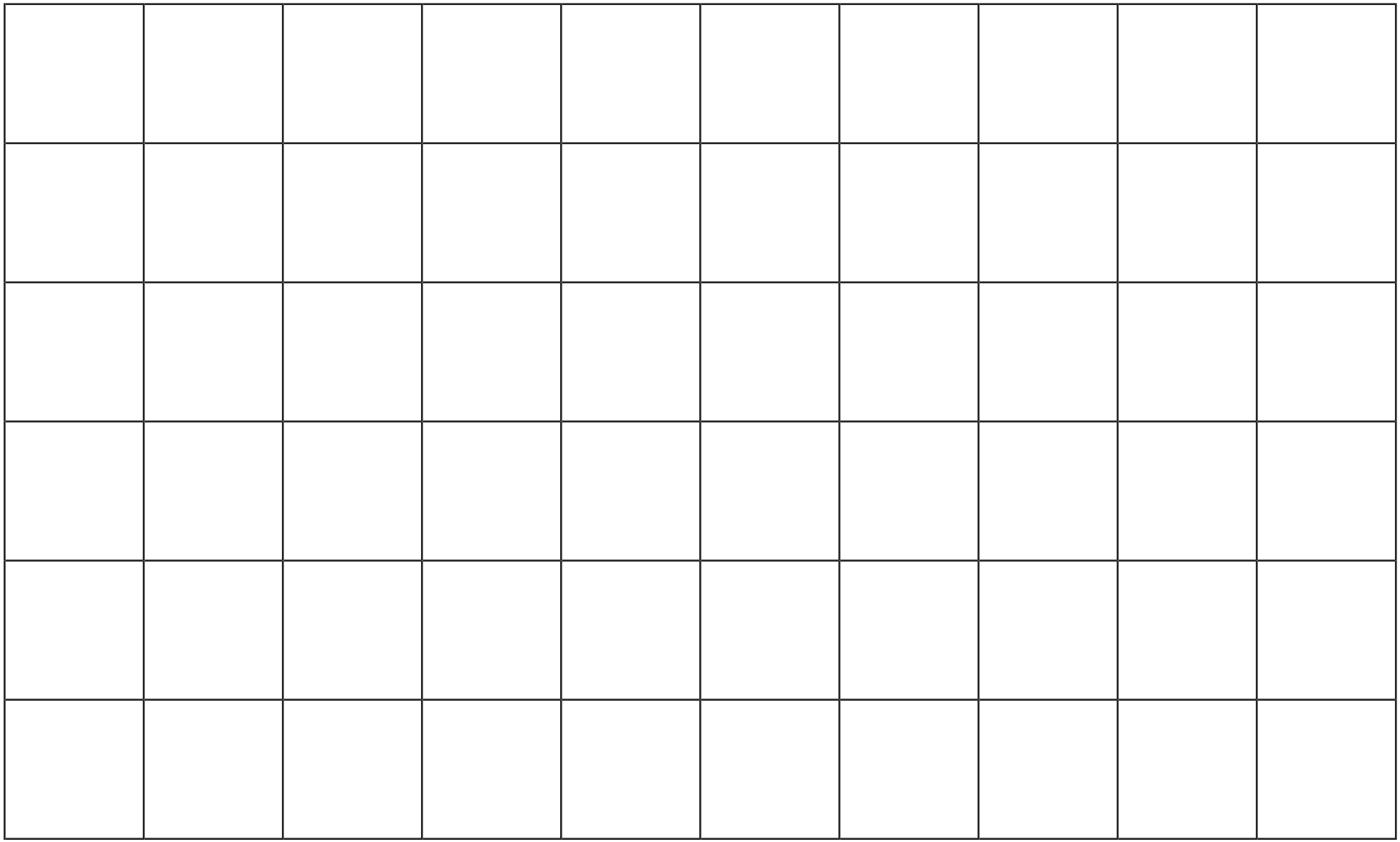

Reader 2: I have my own tree.


Reader 1: I have a special family!


All: Forever and ever, I will always be, The one and only special me!

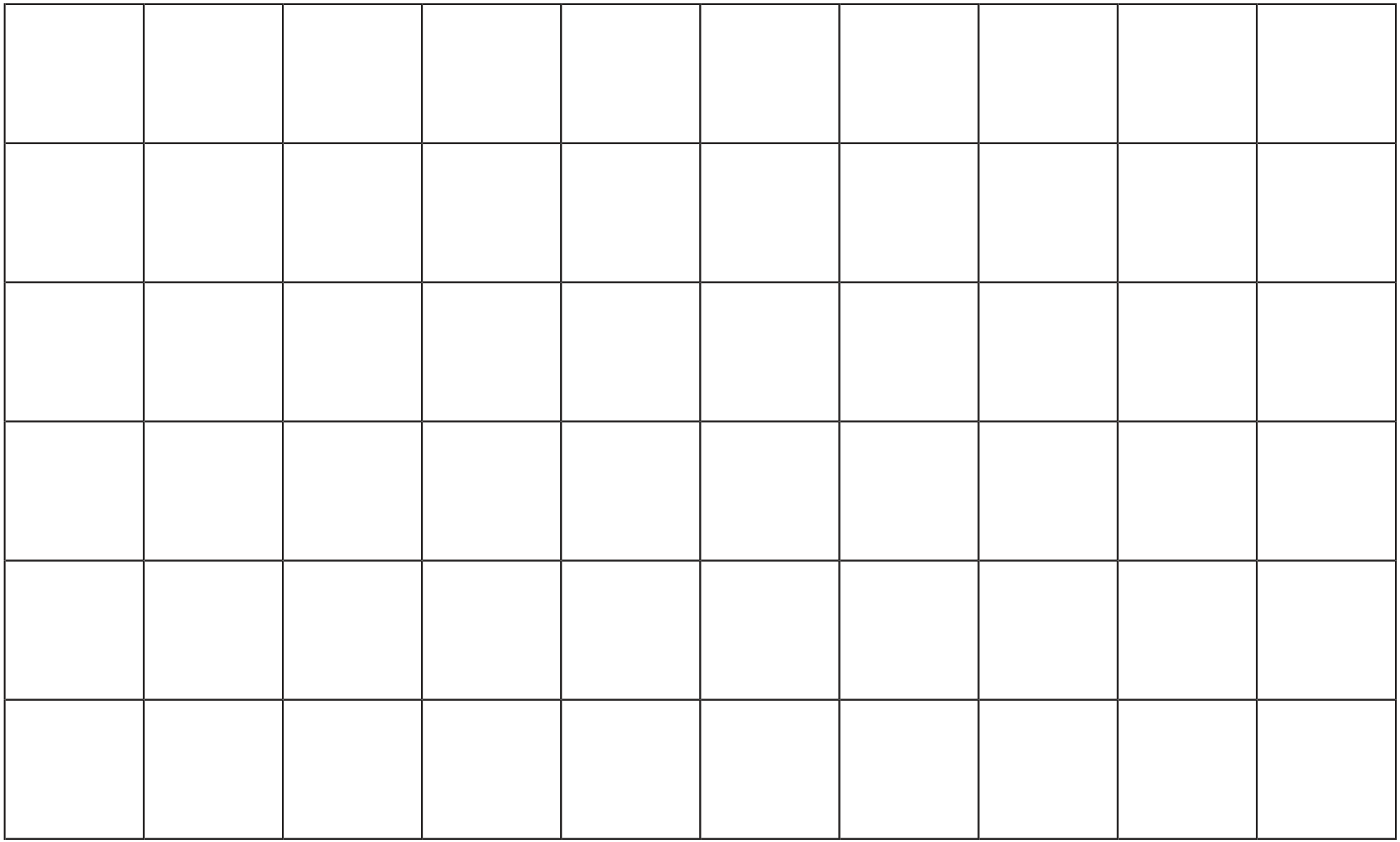
Pentominoes

Five squares that share at least one side



Pentominoes

Five squares that share at least one side



Name _____

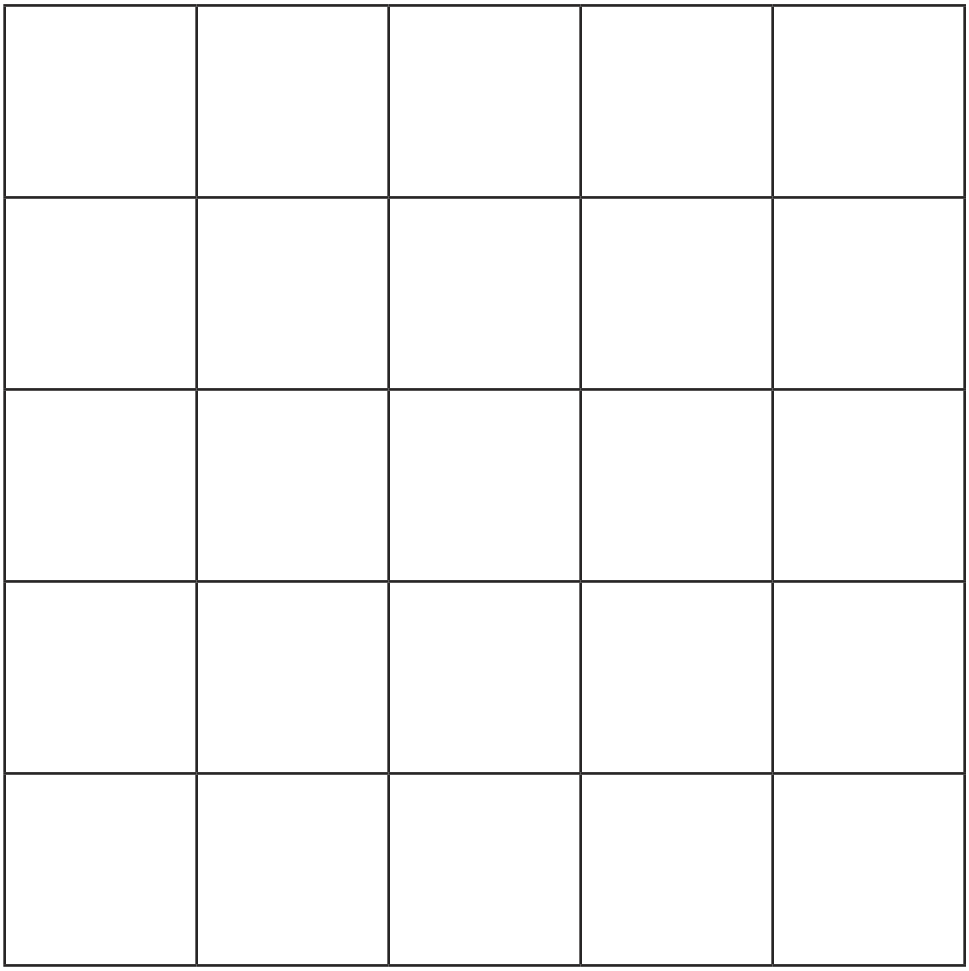
Geometry Menu

- ☐ My Quilt
- ☐ Pentomino Partners
- ☐ Last Piece
- ☐ Tangram Magic
- ☐ Geoshapes
- ☐ Communication Game
- ☐ 1 to 100 Puzzle
- ☐ 6-Piece Puzzle

Name _____

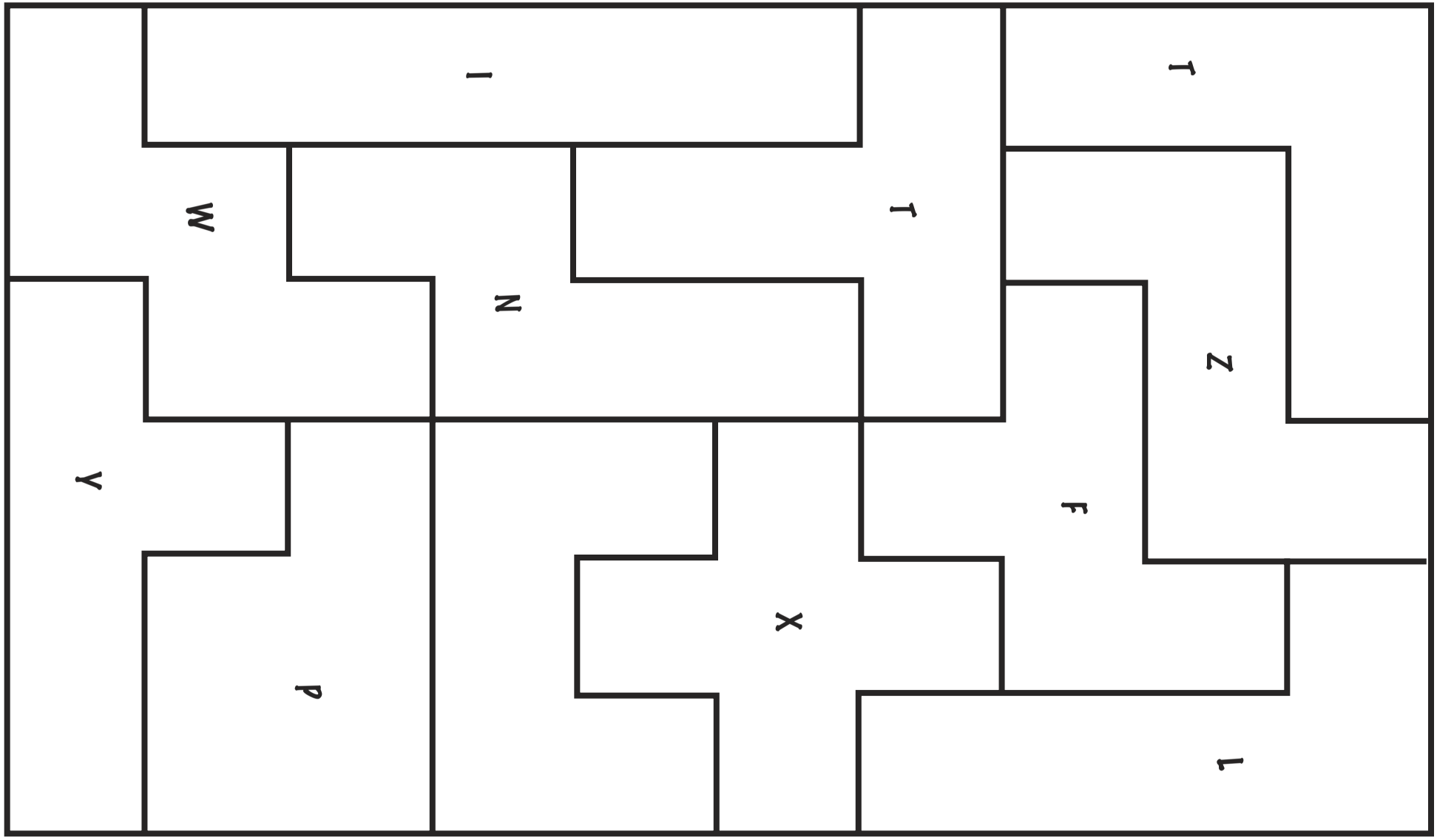
My Quilt

Using three colors of one inch squares (or squares cut in half like rectangles or triangles), design a quilt with a symmetrical pattern on the grid below. Glue papers on the grid.



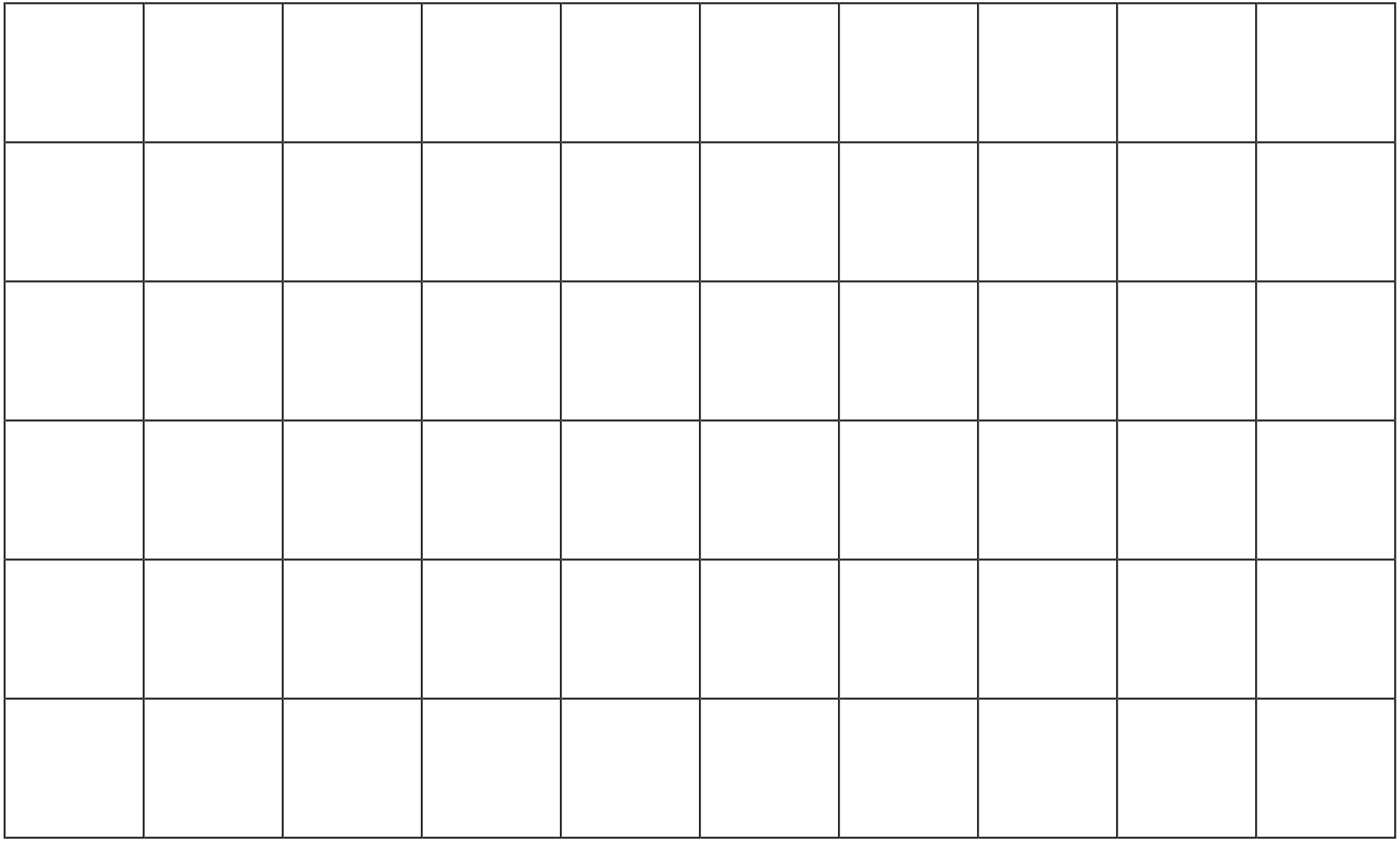
Pentomino Partners

Partners need a pentomino set for their gameboard. Take turns rolling the dice (F, L, I, P, N, T) & U, V, W, X, Y, Z). You may put those two pentomino pieces on your gameboard. You might roll the letter of a piece that you have already used, so you would miss that turn. The first one to fill in all of the pieces is the winner.



Last Piece

This is a partner game with two different colored pentomino sets, but just one game board. Take turns putting a pentomino piece of your choice on the gameboard. All spaces don't have to be filled in. Some squares might be "trapped". You are the winner, if you put the last complete pentomino piece in the grid. Play it two times.



Name _____

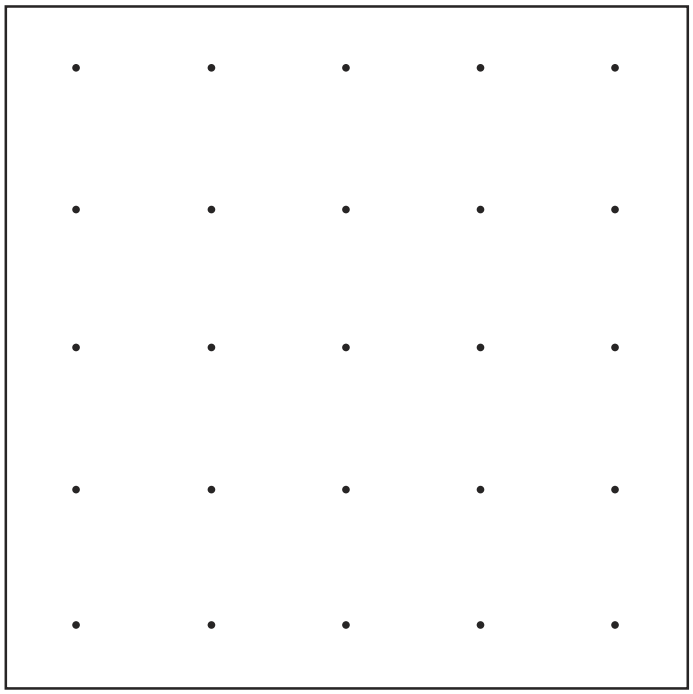
Tangram Magic

Look through the *Tangram Magician* book and choose a picture to make on the page in your packet. Place all seven paper pieces on this page before you glue it. Write its name on the bottom line.

This is a _____

Geoshapes

Stretch three geobands onto a geoboard to make a square, rectangle, and triangle. None of the shapes can overlap each other. Record below by drawing those shapes in the same positions. Under the geoboard, write three sentences explaining where the shapes are on the geoboard. Use the words from the wordbank.



Left
right
top
bottom
middle
between
above
below
before
after
triangle
square
rectangle
circle
large
small
corner

Communication Game

Use two sets of attribute shapes. The communicator will describe a shape and a position on the mat to a partner who can't see the mat. Use a private office or book to block the view. The communicator places 8 shapes on the mat as the builder listens and builds on his/her mat. Remove the private office to compare mats. See how similar the two pictures are. Draw and color you picture. Reverse roles. The communicator will draw on his/her own page.

top

left

right

bottom

1 to 100 Puzzle

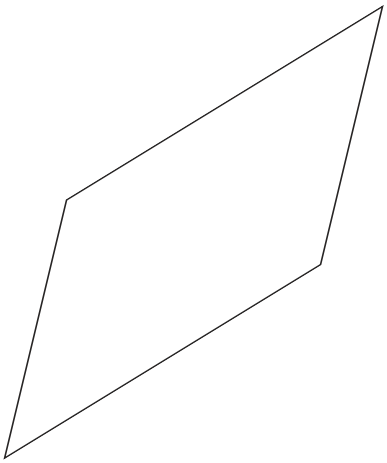
On the 1 to 100, place the pentomino puzzle pieces with numbers on top of the same numbers on the chart.

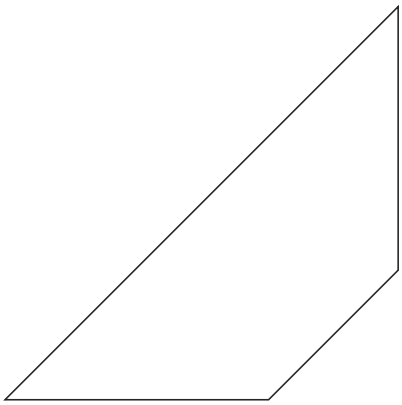
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

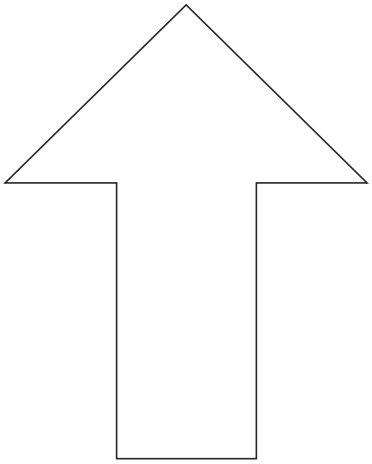
6 Piece Puzzle

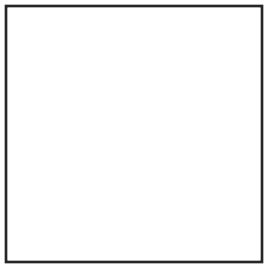
Solve two or more of the six puzzles. Draw lines to show the solutions to the puzzles on the appropriate base shapes.

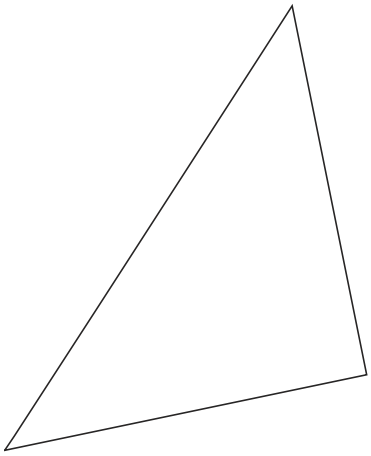
Hint: All of the puzzles except the arrow have these pieces together: 

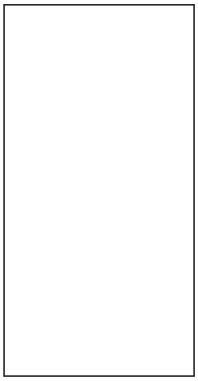












Our Day

Today is _____, day _____

hundreds	tens	ones

Another way to write this number is

_____

The date is _____

The short date is _____

Our word of the day is

_____

Our lunch choices are

_____

or _____

something new we learned or

Something great that happened today

_____

Our Day

Today is _____, day _____

hundreds	tens	ones

Another way to write this number is

_____

The date is _____

The short date is _____

Our word of the day is

_____

Our lunch choices are

_____

or _____

something new we learned or

Something great that happened today

_____

Water Story Page

Water can be used in many different ways.

I like to use water for

_____

By: _____

Teacher's Way/ My Way Recording Form

Teacher's Way	My Way

School Interview Graph Worksheet

	1	2	3	4	5	6	7	8	9	10

Which way is water used the most? _____

Which way is water used the least? _____

Class Results: Most popular use: _____

Least popular use: _____

The Great Meltdown

sand	
salt	

Which is the most effective way to melt ice? _____

_____

Which is the least effective way to melt ice? _____

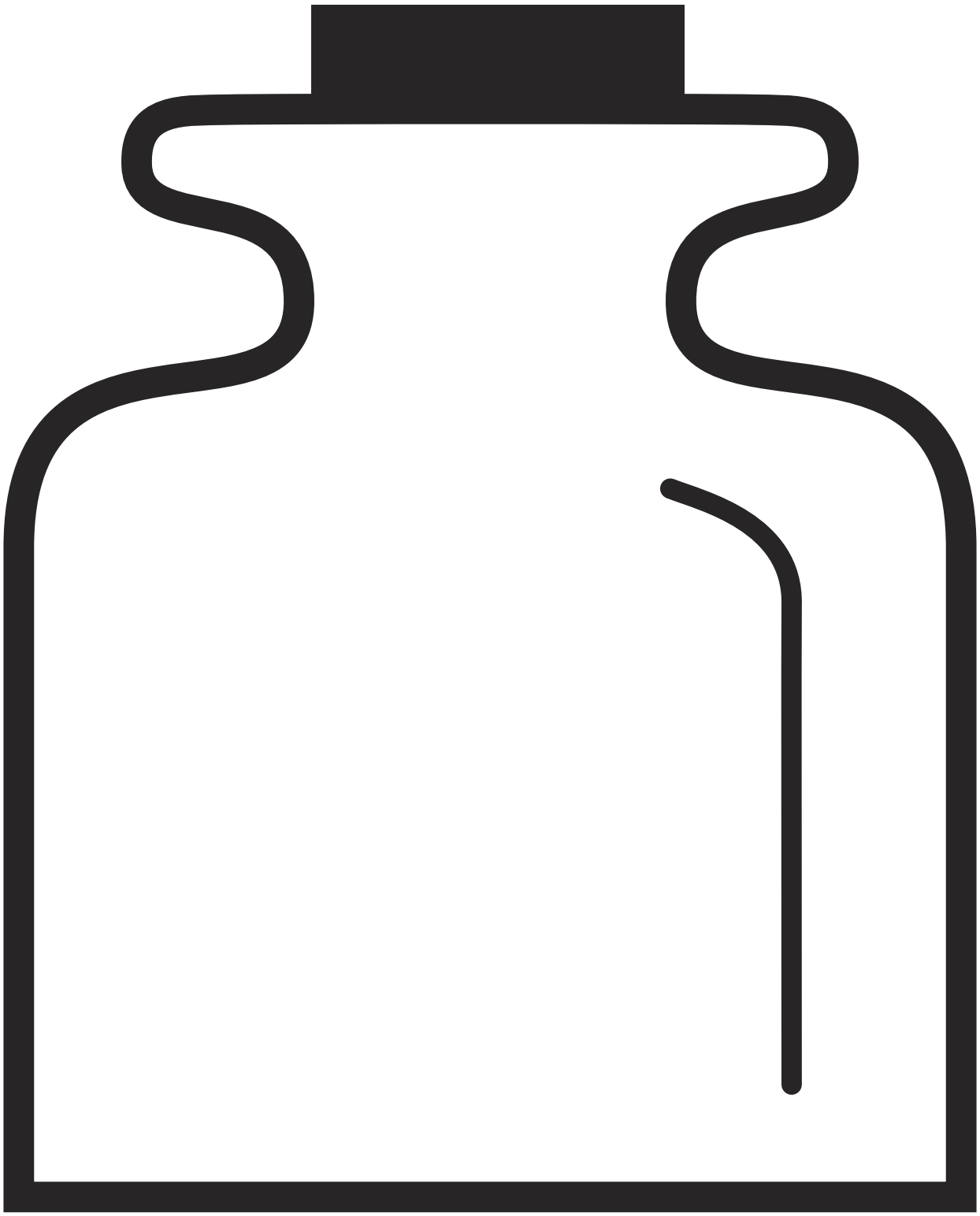
_____

Draw a picture of the ice cube that melted the fastest:

Write 3 describing words: Ice feels _____, _____

, and _____.

Rainbow in a Jar



Sink or Float Recording Sheet

	Prediction			Actual Test	
	Sink	Float		Sink	Float
peanut					
paper clip					
rock					
marble					
boat					
block					
sponge					
clay					
seashell					

How can you change the results?

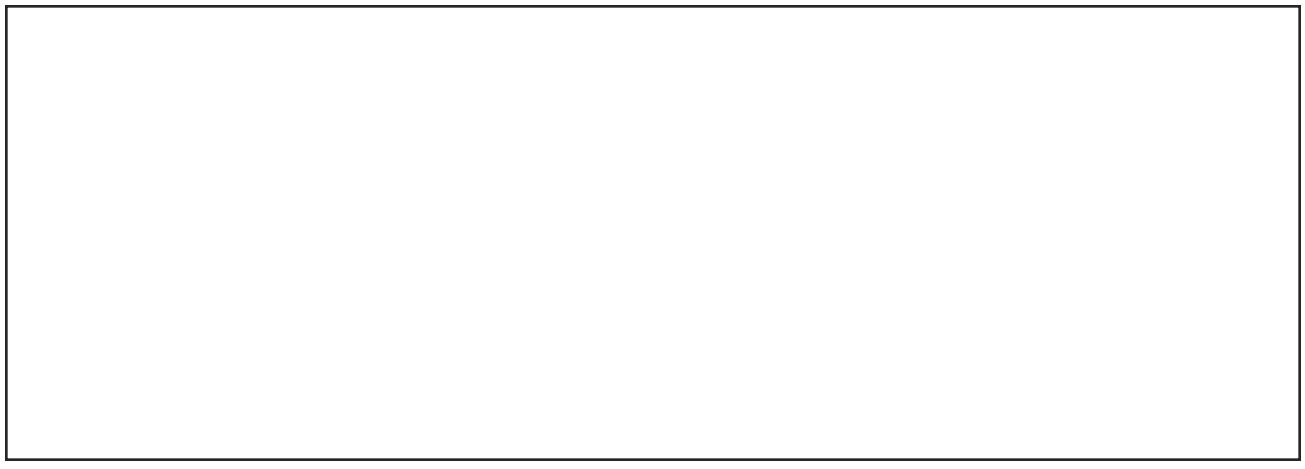
How can you sink the boat?

What did you learn?

The Most Important Story

The most important thing about water is that water is always moving.
Water can be solid like ice or liquid like we drink.
Water can be used in many ways.

I use water for



But most important thing about water is that water is always moving.
Water can be solid like ice or liquid like we drink.
Water can be used in many ways.