ELEMENTARY
CORE Academy

UTAH STATE OFFICE OF EDUCATION & UTAH STATE UNIVERSITY

2008 Participant Handbook

UTAH STATE OFFICE OF EDUCATION

UtahState UNIVERSITY

ELEMENTARY CORE ACADEMY

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Utah State Office of Education (USOE)
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UTAH STATE OFFICE OF EDUCATION

Leadership…Service…Accountability

Patti Harrington, Ed.D. State Superintendent of Public Instruction
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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 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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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. students understand and use the concept of ones and tens in the base-ten number system. Students understand the meaning of addition and subtraction and add and subtract small numbers with ease. They measure with simple units and extend their understanding of geometric figures in their environment. They represent, describe, and interpret data and analyze and solve simple problems.

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.**

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

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.**

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).

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

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.**

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.

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

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

By the end of grade one, students understand and use the concept of ones and tens in the base-ten number system. Students understand the meaning of addition and subtraction and add and subtract small numbers with ease. They measure with simple units and extend their understanding of geometric figures in their environment. They represent, describe, and interpret data and analyze and solve simple problems.

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 and use whole numbers up to 100.

a. Count, read, and write whole numbers.

b. Represent whole numbers using the number line, models, and number sentences.

c. Represent whole numbers greater than 10 in groups of tens and ones using objects, pictures, and expanded notation.

Objective 2: Identify simple relationships among whole numbers up to 100.

a. Compare and order sets of objects and numbers using the terms greater than, less than, and equal to when describing the comparisons.

b. Make reasonable estimates of the quantitative difference between two sets of objects.

c. Identify one more, one less, 10 more, and 10 less than a given number.

d. Identify numbers missing from a counting sequence.

e. Represent part-whole relationships using the number line.

Objective 3: Model, describe, and illustrate the meanings of addition and subtraction and use these operations to solve problems.

a. Use a variety of models, including objects, length-based models, the number line and the ten frame to describe problem types (i.e., part-whole, combine, separate, compare).

b. Use the properties of addition (i.e., commutativity, associativity, identity element) and the mathematical relationship between addition and subtraction to solve problems.

c. Compute basic addition facts (up to 10 + 10) and the related subtraction facts using strategies (e.g., 6 + 7 = (6 + 4) + 3 = 10 + 3 = 13).

d. Find the sum of three one-digit numbers.

Mathematical language and symbols students should use:
add, sum, subtract, difference, greater than, less than, equal to

Exploratory Concepts and Skills

- Use concrete materials to investigate situations that lead to multiplication and division.
- Develop and use strategies for addition and subtraction of multi-digit whole numbers.
- Investigate the meaning of fraction concepts.
- Understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally.

Standard II: Students will identify and use number patterns and properties to describe and represent mathematical relationships.

Objective 1: Recognize, describe, and represent patterns with more than one attribute.

a. Sort and classify objects using more than one attribute.

b. Identify, create, and label repeating patterns using objects, pictures, and symbolic notation.

c. Identify, create, and label growing patterns using objects, pictures, and symbolic notation.

d. Use patterns to establish skip counting by twos, fives, and tens.

Objective 2: Recognize and represent mathematical relationships using symbols and use number sentences with operational symbols to solve problems.

a. Recognize that "=" indicates that the two sides of an equation are expressions of the same number.

b. Recognize that "+" indicates the joining of sets and that "-" indicates the separation of sets.

c. Write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value (e.g., ☐ + 4 = 7).

d. Create problem situations from given number sentences involving addition and subtraction.

Standard II:
Students will identify and use number patterns and properties to describe and represent mathematical relationships.

Mathematical language and symbols students should use:
sort, attribute, repeating patterns, growing patterns, skip count, number sentence, symbol, +, -, =

Exploratory Concepts and Skills
- Investigate situations with variables as unknowns and as quantities that vary.

Standard III: Students will understand simple geometry and measurement concepts as well as collect, represent, and draw conclusions from data.

Objective 1: Identify, describe, and create simple geometric figures.

a. Name, create, and sort geometric plane figures (i.e., circle, triangle, rectangle, square, trapezoid, rhombus, parallelogram, hexagon).

b. Identify geometric plane and solid figures (i.e., circle, triangle, rectangle, square, trapezoid, hexagon, rhombus, parallelogram, cube, sphere, cone) in the students' environment.

c. Compose and decompose plane and solid figures (e.g., make two triangles from a square) and describe the part-whole relationships, the attributes of the figures, and how they are different and similar.

Objective 2: Identify measurable attributes of objects and units of measurement, and use appropriate techniques and tools to determine measurements.

a. Identify the appropriate tools for measuring length, weight, capacity, temperature, and time.

b. Measure the length of an object using nonstandard units and count the units using groups of tens and ones.

c. Identify the value of a penny, nickel, dime, quarter, and dollar, and determine the value of a set of the same coins that total 25¢ or less (e.g., a set of 5 nickels equals 25¢).

d. Tell time to the hour and half-hour.

e. Name the months of the year and seasons in order, and use a calendar to determine the day of the week and date.

Objective 3: Collect, organize, and represent simple data.

a. Collect and represent data using tables, tally marks, pictographs, and bar graphs.

b. Describe and interpret data.

Mathematical language and symbols students should use:
circle, triangle, rectangle, square, trapezoid, hexagon, rhombus, parallelogram, cube, sphere, cone, penny, nickel, dime, quarter, dollar, January, February, March, April, May , June, July, August, September, October, November, December, winter, spring, summer, fall, data, value, graph, tally mark

Exploratory Concepts and Skills
- Compare objects using non-standard units.
- Interpret data from charts and graphs.

Standard III:
Students will understand simple geometry and measurement concepts as well as collect, represent, and draw conclusions from data.

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

Standard I:
Students will develop a sense of self.

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.

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

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.

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

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.

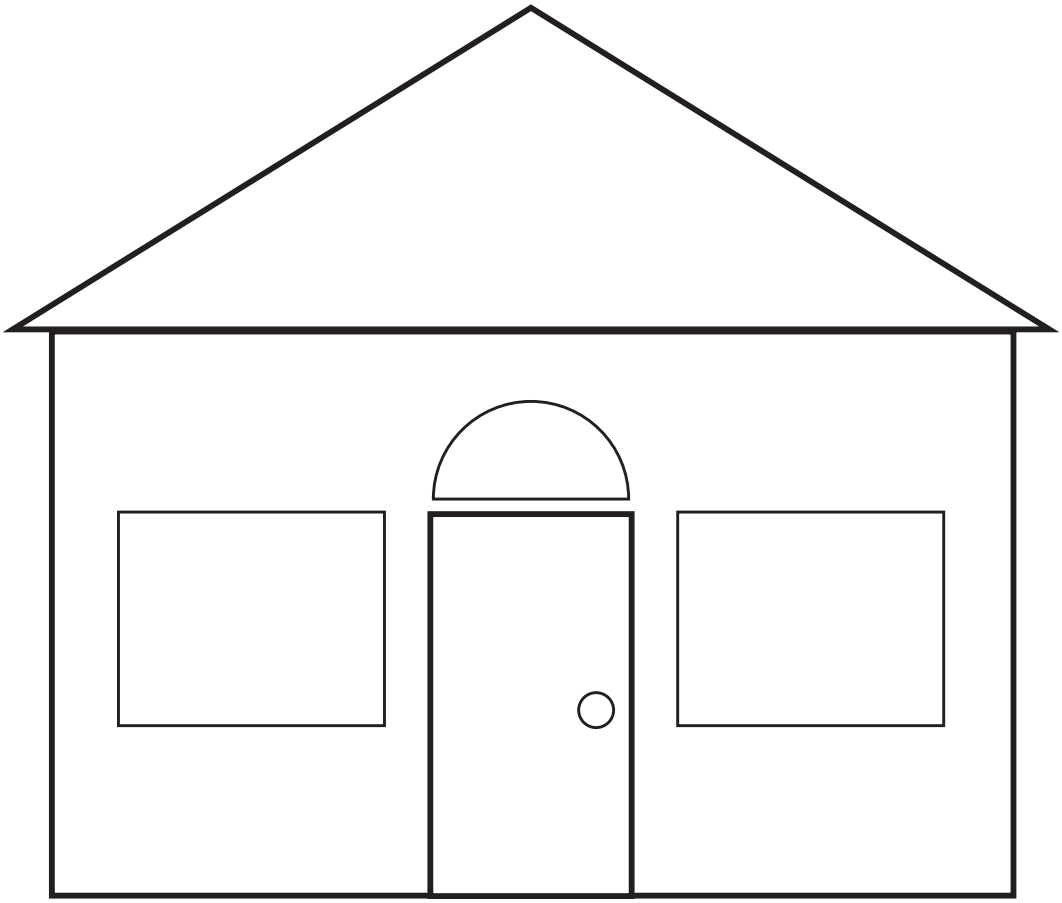
c. Identify map and globe symbols (e.g., cardinal directions, compass rose, mountains, rivers, lakes).

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

Facilitated

Activities

Getting to Know You Glyph



Blink

My teacher showed us this BLINK card

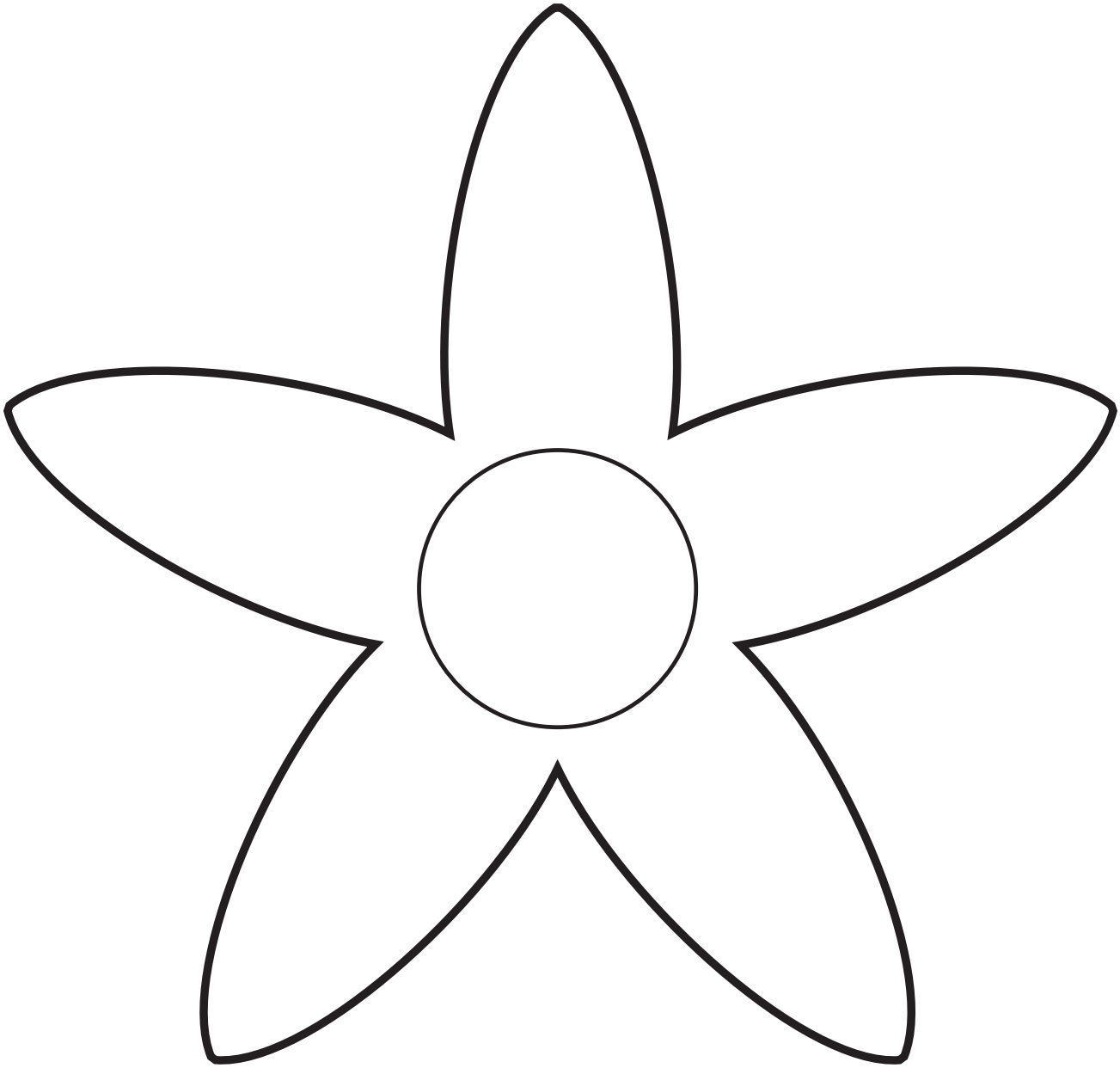
I could play this card on top of my teacher's card because...

When I played BLINK I felt

When I played BLINK I felt

Jasmine Journaling

In the center of the flower write the name of the following types of journals: Individual, Dialogue, Learning, or Team. In each of the petals write how, or why you could use that type of journal in your classroom. Locate the graphic organizer in the room and write one of the things you wrote on the petals.



Multiple Intelligences/Learning Styles

Children think, learn and create in a myriad of different ways. Howard Gardner's model of multiple intelligences recognizes the broad range of talents and learning styles we find in our students. Within his model, Gardner identified and categorized eight different intelligences: verbal/linguistic, logical/mathematical, bodily/kinesthetic, intrapersonal, interpersonal, musical/rhythmic, visual/spatial, and naturalistic. According to Gardner, every child possesses each of these intelligences, but some are developed more than others, depending on the individual. Teachers can take these categories and differentiate curriculum through the preparation of activities that nurture these intelligences in students. Indeed, the development of each child's potential is directly influenced by how effectively teachers match what students learn with how they learn (their own particular intelligences).

It is recommended that teachers use the eight multiple intelligences as a springboard to create activities that challenge students to take control of their own learning. Making students aware of the different intelligences will help them identify how they learn best and also which methods challenge them. Teachers can target activities that lead students to enhance both their strengths and weaknesses.

Indeed, educators can think of multiple intelligences as a philosophy of how children learn. University of California—Riverside's Sue Teele describes the goal of Gardner's model in this way: "Multiple intelligences provide for different windows into the same room. We need to unleash the creative potential in all our schools in order to open as many windows as possible for every student in every classroom to succeed . . .the future mandates that we all move forward together in a way that builds on both our mutual strengths and respects our unique differences."

Teele's research suggests that certain intelligences are stronger in students, depending on their stages of development. Using a survey she developed, (the "*Teele Inventory for Multiple Intelligences"*), Sue studied the learning preferences of more than 6,000 students. Her findings revealed that the verbal/linguistic intelligence is strongest in students in kindergarten through third grade. First through fourth grade students show a definite preference for the logical/mathematical intelligence. The visual/spatial and bodily/kinesthetic intelligences are dominant throughout both elementary and middle school. Middle school students also show a preference for the musical/rhythmic and interpersonal intelligences. Based on Teele's findings, elementary school teachers would be well advised to plan lessons that incorporate the use of verbal/linguistic, logical/mathematical, visual/spatial and bodily/kinesthetic activities.

Here are a few considerations for educators, as they strive to create activities based on the different learning styles of their students:

- *Change it up.* Educators should choose activities that target varied intelligences. Since teachers tend to plan lessons and activities that fit their own learning preferences, it's important for them to self-assess and to be sure that all of the intelligences are being represented.

- *Be clear.* When differentiating the "product," teachers need to be sure that students have clear directions (task cards, or posted instructions). Also, routines/procedures should be established for students so they know how/where to find materials and who/when to ask for help.
- *Be realistic.* It's not necessary or appropriate for teachers to use all eight intelligences in every lesson. During the planning phase, the Core Curriculum and unique needs of the students should be considered to determine which two or three to incorporate.
- *Remember to reflect.* Best practice suggests that after trying something new, professionals take time to reflect, including notes of what to retain and what to refine.
- *All in good time.* It can be overwhelming for teachers to create activities that incorporate the multiple intelligences in every single lesson for every content area. Common sense suggests to start with "baby steps" and consult with colleagues for ideas throughout the process.
- *Communicate with parents.* Both students and their parents will appreciate the insights that come from recognizing and putting a name to their unique learning styles. In fact, teachers can invite parents to help students identify their preferences by sending home a *Learning Preferences Survey* to be completed by students and parents together (each horizontal row represents a learning style/intelligence).

References

Tomlinson, C.A. (1999). ***The Differentiated Classroom***. (p. 83). Alexandria, VA: ASCD.

Conklin, W. (2007). ***Applying Differentiation Strategies***. (pp. 149-202). Huntington Beach, CA: Shell Education.

Teele, S. (1994). Redesigning the educational system to enable all students to succeed. Doctoral dissertation, University of California—Riverside.

Resources

http://www.thomasarmstrong.com/multiple_intelligences.htm

http://en.wikipedia.org/wiki/Multiple_Intelligences

Gardner's Eight Multiple Intelligences

Intelligence	Student Likes	Student Needs
Verbal/Linguistic "word smart" The student thinks in words.	Words: writing, reading, playing word games, telling interesting stories	journals, books, writing materials
Logical/Mathematical "number/reasoning smart" The student thinks by reasoning.	Numbers or logic: figuring out problems, puzzles, experimenting, calculating	Science supplies, trips to museums, math manipulatives
Visual/Spatial "picture smart" The student thinks in pictures.	Pictures: draw, design, doodle	art supplies, building materials, video equipment, puzzles
Bodily/Kinesthetic "body smart" The student thinks by using his/her body.	A physical experience: dancing, moving, jumping, running, touching	movement, sports, theater, physical games, hands-on activities
Rhythmic/Musical "music smart" The student thinks in melodies and rhythms.	Music: listening to music, making own music, tapping to the rhythm, singing	play musical instruments, see concerts, use a karaoke machine
Interpersonal "people smart" The student thinks by talking about his/her ideas to others.	A social experience: organizing events, being the leader, partying, mediating between friends	time with friends, group projects, social events
Intrapersonal "self-smart" The student keeps his/her thoughts to him/herself.	Self-reflection: setting goals, mediating, daydreaming, quiet places	time alone, individualized projects
Naturalist "nature smart" The student thinks by classifying.	An experience in the natural world: studying anything in nature including rocks, animals, plants, and the weather	time outside, nature hikes, telescopes, binoculars, notebooks for classification

Learning Preferences Survey

Dear Parents/Guardians,

It is an honor to be teaching your child, along with a whole class of unique and wonderful first-graders! Knowing my students' learning styles will help me plan and prepare learning experiences to enhance their natural talents/interests and to encourage the development of additional skills.

Please take a moment to complete this survey with your child. Thank you, for your time. It is a pleasure to work with you!

Sincerely,

Directions: Read each box. Highlight with a crayon/pen/marker to identify the ones your first-grader likes.

reading stories	writing stories	telling stories	spelling	doing word searches	word games
math problems	counting	playing checkers	measuring things	making graphs	science experiments
puzzles	drawing	painting	making sculptures	looking at maps	building blocks
playing sports	hiking	acting	moving around	dancing	running
playing instruments	humming tunes	writing songs	listening to music	singing	clapping rhythms
playing games with others	group work	being the leader	talking to people	talking on the phone	planning parties
keeping a journal	setting goals	quiet time for thinking	time alone	reading alone	daydreaming
animals	nature	learning about weather	watching animals	the outdoors	plants

Learning Style Sample Activity

A first grade teacher would like his class to practice using story form to explain addition. To help meet the different learning styles in his classroom, the teacher creates two different activities.

- **Students draw a picture representing an addition problem. At the bottom of the page, students write the corresponding story problem.**

  (Verbal/Linguistic, Logical/Mathematical, Visual/Spatial, Intrapersonal)

- **Partners use the box of classroom puppets, and act out addition problems. As they are acting out the situation, they use story form to explain the addition problem to their partner.**

  (Verbal/Linguistic, Logical/Mathematical, Bodily/Kinesthetic, Interpersonal)

Tiered Activities

Using tiered lessons is a way for teachers to ensure that all students, regardless of ability level or learning style, progress towards mastery of learning goals and objectives. Tiered assignments, also known as scaffolding, allow for differing levels of readiness and performance levels. The entire class works toward the same essential understanding (parallel tasks) but their paths to that goal depend upon their abilities and learning styles (varied levels of depth and varied degrees of support).

The following are guidelines for planning tiered lessons/assessments. Teachers should:

1. Using the Core Curriculum, pick a concept or skill that needs to be learned (e.g. "What's the ultimate measurable objective?").
2. Think of an activity that matches the objective.
3. Use pre-assessment data to determine the individual needs of the students. Consider students performing above grade level, students below grade level, English Language Learners, and students with varying learning style preferences (multiple intelligences).
4. Take another look at the selected activity. Target its complexity to be appropriate for on-grade-level learners.
5. Modify the activity or assessment to meet the needs of the other learners in the class. Within one activity, there will be several tiers to meet the wide range of student needs.
6. Seek consultation from the specialists in the school, as well as fellow colleagues.
7. Teach the activity, including the various tiers.
8. Reflect and refine.

Remember, tiered lessons provide differentiation because of varied levels of complexity, not necessarily because of varied quantities of work. Here are a few considerations for educators, as they implement use of tiered activities to scaffold for student learning:

- Just because students are above grade level, that does not mean they should be given more work.
- Just because students are below grade level, that does not mean they should be given less work.
- All tiered activities should be interesting and appealing.
- All tasks should provide a challenge.

Tomlinson, C.A. (1999). *The Differentiated Classroom*. (p. 83). Alexandria, VA: ASCD.

Conklin, W. (2007). *Applying Differentiation Strategies*. (pp. 149-202). Huntington Beach, CA: Shell Education.

McCombs, B.L. (1995). Understanding the keys to motivation to learn. *Noteworthy Perspectives: What's Noteworthy on Learners, Learning, and Schooling.*

Tiered Sample Activity

A first grade teacher would like her students to practice alphabetizing. Because of the many different ability levels in the classroom the teacher creates three different leveled activities.

- **Approaching Mastery** (on grade level) – Using a set of word cards, (where all words begin with a different letter) students place the cards in alphabetical order on their desks. They then write the words in alphabetical order in their journal.
- **Beginners** (below grade level) – Using letter cards, students place the letters in the correct alphabetical order and then write the letters in their journal.
- **Advanced Mastery** (above grade level) – Using a set of word cards, (where all the words begin with the same letter) students place the cards in alphabetical order on their desks. They then write the words in alphabetical order in their journal.

Shape Up Center Time Instructions

Each center has two activities. Please choose <u>one</u> of the activities for each center to complete in your journal. Indicate which activity you completed by circling the corresponding shape.

Triangle Center ▲

"Today I Feel _____."

▲ Think of how you are feeling today. Choose the emotion that best describes your mood today and write a short poem in your journal describing your feeling. Title your poem, "Today I Feel _____."

OR

▲ Think of how you are feeling today. Choose the emotion that best describes your mood today and draw a picture of yourself in your journal depicting your emotion. Title your picture, "Today I Feel _____."

Circle Center ●

Writing Number Words

● Practice writing number words one through ten in the box of sand. Write each number word two times.

OR

● Using the letter tiles, build number words one through ten. After you build each word, write it in your journal.

Square Center ■

Dramatic Storytelling:
Cinderella Your Way

■ Create your own version of this classic tale. Change a character or add a new one. Give your story a new setting. Change what the main character leaves behind. Instead of a glass slipper, what will it be? Write your story in your journal.

OR

■ Create your own version of this classic tale. Change the name of a character. Give your story a new setting. Change what the main character leaves behind. Instead of a glass slipper, what will it be? Act out your story.

Star Center ★

Use Number Sentences to
Create a Story Problem

★ Choose a number sentence from the box or make your own with the number and symbol tiles. Draw a picture to tell a story that represents the number sentence. Write your story.

OR

★ Choose a number sentence from the box. Draw a picture to tell a story that represents the number sentence. Tell your story to a partner.

Content I-3

Activities

Communication

Marvelous Moods

Standard I:
Students will develop a sense of self.

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

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

Content Connections:
Lang. Arts VIII – 6; Produce personal writing
Lang. Arts VI – 1; Learn new words

Content Standard I

Objective 3

Connections

Background Information

Moods and feelings are an everyday part of a first grader's life. As they go through the day they need to know that it is okay to feel different feelings, but they need to know the appropriate way to react to them. Students also need to be exposed to a variety of ways to express and portray moods and feelings. Writing and drama are two excellent tools students can use to express their emotions.

Research Basis

Villegas, A.M. & Lucas, T. (2007). The culturally responsive teacher. *Educational Leadership*. 64(6) 28-33.

In this article, the authors discuss that students come to classrooms with a variety of backgrounds and experiences. As teachers we need to be familiar with our students and know what they can bring to our class. We must take what knowledge they have, build upon it and connect it with what we are teaching.

Boyle, M. & Gillies, R.M. (2005). Teachers' scaffolding behaviours during cooperative learning. *Asia-Pacific Journal of Teacher Education*. 33(3) 243-259.

The authors of this article share with us the results of their study of conversation used in cooperative learning. They found that the way the teacher speaks to his/her class greatly affects the way students speak with one another in a cooperative learning setting. If teachers model the correct wording and questions to ask, students will pick up on it and use it with each other. By doing this, they ensure that students are getting the most out of their cooperative learning experiences.

Invitation to Learn

Read *The Way I Feel* by Janan Cain or *Today I Feel Silly* by Jamie Lee Curtis. As you read, discuss with your students the different moods in the book. Ask students to share examples of when they have felt that way, and how they reacted to that feeling.

Instructional Procedures

Materials

- ❑ *The Way I Feel*
- ❑ *Today I Feel Silly*
- ❑ *Mood Fonts*
- ❑ *Mood Face*
- ❑ Crayons
- ❑ Paper
- ❑ Vocabulary journal or notebook
- ❑ *Mood Swings*
- ❑ *Mood Bingo*
- ❑ Counters

1. After discussing the book, explain that your students will make a book similar to it. If you use *The Way I Feel* tell them they will make a book that has a different page for each feeling. If you are using, *Today I Feel Silly*, they will make different faces that show the different feelings.
2. For *The Way I Feel*, pick one feeling a day and discuss what would make a person feel that way. For example, if you pick "happy" have the students share what makes them happy. List student responses on the board together and then demonstrate a picture you would draw for it, such as a picture of you sitting in the sun, feeling happy. For each page, use the *Mood Fonts* worksheet. Each mood has been done in a font that looks similar to what a mood looks like (similar to the fonts in *The Way I Feel*). Discuss with your class what colors you would want to use on the page, to match the mood.
3. To make the *Today I Feel Silly* face, give students the *Mood Face* worksheet. Have them decorate and color it similar to what their face looks like for the emotion you picked. They will make a booklet of about 5-6 faces, one page for each feeling.
4. Using either the book or the mood face pages read different stories to the class and have them respond to it. For example, if the character in the book is feeling sad, stop and ask the student how they think the character is feeling and have them show the page they made with that feeling.

Assessment Suggestions

- Read a story and have students draw a picture of how the character felt at the end.
- Share with your class some different scenarios. Have them match the different scenarios with how they should react to them. For example, if the scenario is about a boy who accidentally drops his lunch, have students decide if he should yell and scream, sit there and pout, or calmly ask for some help.

Curriculum Extensions/Adaptations/ Integration

- Make a mood vocabulary journal. Have each mood written on a different page. Come up with other words that they could use in their writing for that mood. Encourage them to use it in their writing.
- Play mood charades. Pick a student and tell them an emotion to act out. As they do so, the students guess what mood it is. You can use the *Mood Swings* book to pick a mood.
- Using the *Mood Bingo* worksheet, play Bingo with your class. As you select a mood, have the students share with a neighbor a time they have felt that mood and if it's not a good mood, what they did to make them feel better.
- If a student is having bad behavior, have them pick the emotion they are feeling in the *Mood Swings* book. Then have them choose a mood out of the book that they would like to change their mood to. Discuss with them how they can change their mood.
- For students with special needs, you may need to limit the amount of writing, or have them dictate the writing to you or to a peer. In charades, students with special needs can have a buddy act it out for them if they are unable to do it on their own.
- Higher-level students can expand the length of writing.

Family Connections

- Send home *Mood Bingo* worksheet and have students play it with their family.
- Have students discuss with their family a time they were all really happy. Have them draw a picture of that time and share it with the class.

Additional Resources

Books

The Way I Feel, by Janan Cain; ISBN 1884734715

Today I Feel Silly and Other Moods That Make My Day, by Jamie Lee Curtis; ISBN 0060245603

Mood Fonts

HAPPY

Sad

Bored

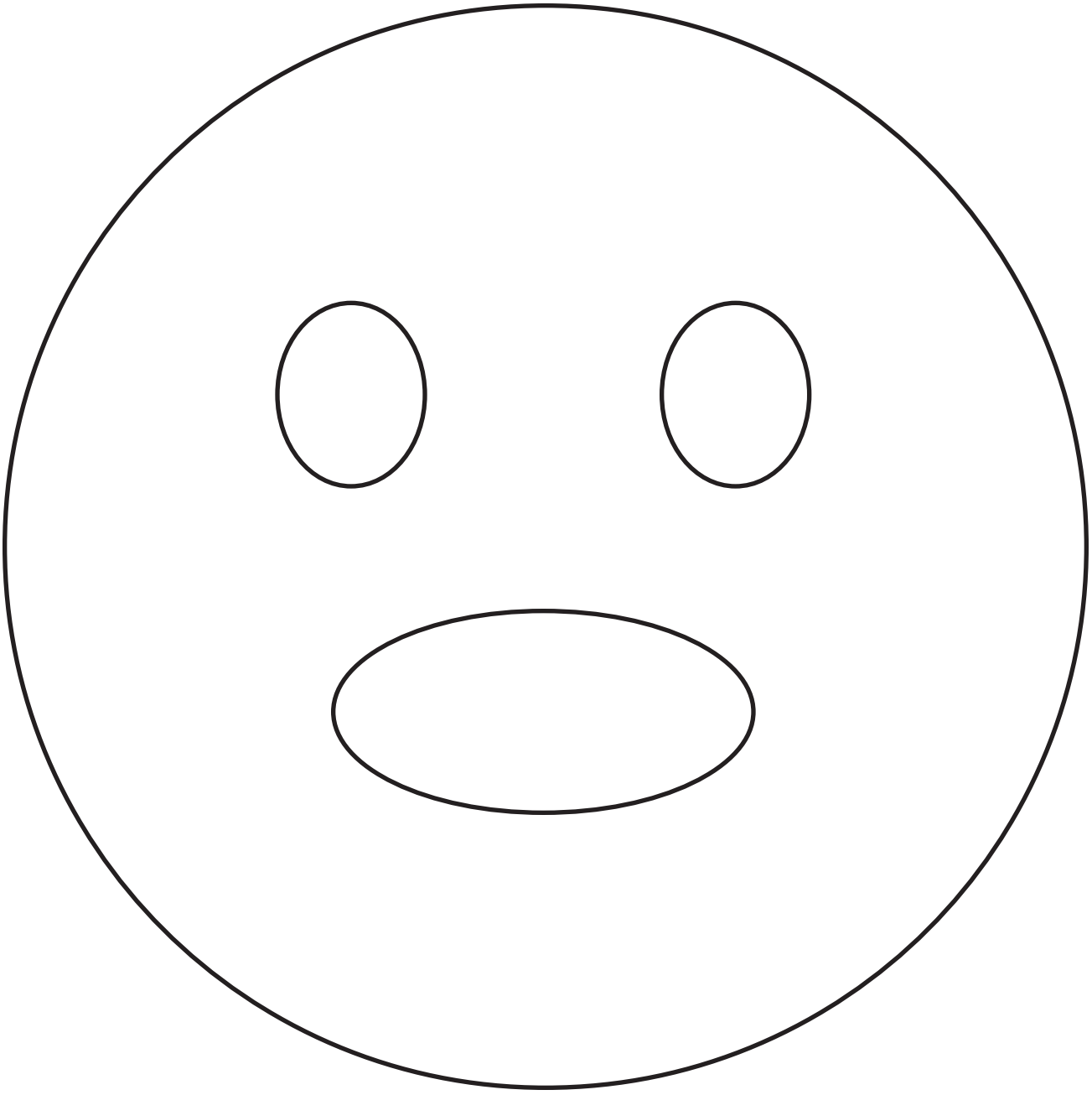
Shy

ANGRY

Silly

EXCITED

Mood Face



Mood BINGO

Happy	Sad	Jealous	Thankful
Shy	Mad	Glad	Excited
Angry	Lonely	FREE	Ecstatic
Frustrated	Embarrassed	Envious	Silly

Colorful and Musical Feelings

Standard I:
Students will develop a sense of self.

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

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

Content Connections:
Lang. Arts VII – 1; Compose written draft
Math III – 3; Represent data

Content Standard I

Objective 3

Connections

Background Information

Mouse Paint by Ellen Stohl Walsh is a book about mixing the primary colors to make secondary colors. Your students should be very familiar with the primary colors and have had opportunities to use a variety of colors in works of art. As a teacher, you need to be familiar with a variety of works of art, how the colors were used, and what emotions the artist invokes by using those colors.

Students need to be exposed to a variety of music genres. Many classical pieces have been composed to portray a certain message and Vivaldi's "Four Seasons" is a good example of this. His music depicts the four seasons, Winter, Spring, Summer and Fall. Before teaching this lesson, teachers should be familiar with Vivaldi's "Four Seasons" and be able to point out the parts of the music that match each season. Teachers should also have available other music pieces they can teach their classes to sing or just listen to.

Research Basis

Berkeley, S.L., Mastropieri, M.A., & Scruggs, T.E. (2007). Peers helping peers. *Educational Leadership*. 64(5) 54-58.

In this article, the authors discuss the benefits of teachers using cooperative learning in their classroom. We all have students in our class that come from a variety of academic levels. By using cooperative learning, we can model the strengths of students to others in the classroom. As they work together, they learn from each other and also learn to work together.

Kendall, J.S., DeFrees, K., Pierce, J., Richardson, A., & Williams, J. (2002). Connecting ideas: a strategy for extending the curriculum. *ERIC Source*. Retrieved January 20, 2008, from http://www.eric.ed.gov.

This article talks about the importance of using connections when teaching students. They talk about how there is not enough time to teach them everything new, so we must find what they already know and build from there. We have to take what is essential to be taught and connect it with something else, so that we can fit it all in.

Invitation to Learn

Read the story *Mouse Paint* by Ellen Stohl Walsh. As you read the story, have students mix the primary colors to discover what color they will make, previous to reading the page in the book. For example, as the red mouse plays in the yellow puddle, stop and have students mix those two colors and see what they discover. After they mix the colors, continue on reading the story. To mix the colors, you could have them use paint, crayons, clay or even frosting on cookies. If you choose to use the frosting and cookies (vanilla wafer style), the students start with three tubs of white frosting at their tables. When they meet the three mice in the story, you go and put food coloring in the frosting to make it red, yellow, and blue. They then frost three cookies, one red, one yellow, and one blue. As you get to the parts where the mice mix the colors, add new food coloring to the frosting and have the students mix it and see what color it becomes. They then frost three more cookies, and by the end of the story they have six cookies one red, orange, yellow, green, blue, and purple.

Materials

- ❑ *Mouse Paint*
- ❑ Cookies
- ❑ Frosting
- ❑ Food coloring
- ❑ Plate or napkins
- ❑ Paint
- ❑ Crayons
- ❑ Paper
- ❑ *Mouse*
- ❑ Chart (class graph)
- ❑ *Mouse Graph*
- ❑ Ink pad
- ❑ Greeting cards
- ❑ Blank white cardstock
- ❑ *Color Wheel*

Instructional Procedures

Color Explorations

1. Discuss with your class what happened in the story and what colors were mixed to make new colors. Display on the board all the colors: red, orange, yellow, green, blue, purple. They can be displayed using squares of paper with the color words written on them.
2. Using the *Mouse* worksheet that has been copied in the six colors (red, orange, yellow, green, blue and purple), have students pick their favorite color of mouse and cut it out. Have students graph their mouse on a big class graph made of butcher paper or a pocket chart. The graph should be labeled with the colors on the bottom so students know where to place their mice. Once everyone is done, look at it as a class and discuss what they notice or what information they can gather, such as which color has the most, which color has the least, etc.

3. Students will make their own representation of the graph from the class graph. Using the *Mouse Graph* worksheet, have your students mark the boxes for each color. Students could make mouse thumbprints by making a thumb print and then decorate it like a mouse. Once they are done, have them compare it to the class graph to see if it is the same.
4. Discuss with the class how different colors can make us feel different ways. Show your students some greeting cards and talk about what colors were used to decorate the card and what message the artist is trying to portray. Play a game using the cards where you show the front of the card and have the students guess what the message is on the inside.
5. Give students blank cards, have them decorate them and write their message on the inside. They can then share them with their neighbors and see if they can guess what message is inside.

Moody Music

Materials

- ❑ Vivaldi's "Four Seasons"
- ❑ Paper
- ❑ Crayons
- ❑ Pencils
- ❑ Index cards
- ❑ Class graph

1. Discuss with your class how music is composed to portray a certain message and makes us feel certain moods or feelings.
2. Introduce your students to Vivaldi's "Four Seasons." Discuss how the music was written to make listeners feel and imagine what each season is like.
3. Play one of the seasons and have students draw pictures of that season. Remind them to think of what activities they participate in during the seasons.
4. On the back of their paper, have students write about their season and then share it with others.
5. Repeat this activity with all the seasons, creating a season book. Each child will have created four pages and it is then put into a book. They will each have their own book that they can share with others.
6. Students can pick their favorite season. Give them each a 3x5 card and have them draw their favorite thing that reminds them of the season and then place it on a graph that the whole class can see. The graph can be made out of butcher paper or a pocket chart that is labeled with all the seasons at the bottom. As a class, compare and contrast it.

Assessment Suggestions

- Give students the *Color Wheel* worksheet. Have them color in the wheel. Guide them on coloring in the red, yellow, and blue space, and then let them do the rest on their own. Observe to see if they recognize which colors mixed together to make the new colors.
- Play one of Vivaldi's "Four Seasons" and have the students identify which season it is.
- Create a graph of the class' favorite colors, using the data that you collected from graphing their colored mice in the *Mouse Paint* lesson. Have them read the graph and answer questions such as: which color has the most, which color has the least, etc.

Curriculum Extensions/Adaptations/ Integration

- Using a variety of poetry styles, students can create a poetry book about all the colors. They can write acrostics, haikus, lists, etc. Read the book, *Hailstones and Halibut Bones* to them to show an example of color poems.
- Using a variety of poetry, have students write poems about the four seasons.
- Pick a famous work of art. Share it with the class and have them notice the colors that were used. Talk about the mood that is created through the colors. Have the students create their own work of art trying to portray a mood through the colors.
- Give each group of 5-6 students a large container of crayons. Have them sort them into the different shades of colors (red, orange, yellow, green, blue, purple). As a group they will have to discuss which color they think each crayon fits into. When they are done, have them walk around and see how the others tables sorted theirs. Discuss it as a class and why you would use different shades of a color.
- Discuss dynamics of music (loud, soft, etc.) Teach your class the different symbols that are used in music so that those playing the music will know what to play. Have students share what mood or feeling would go with each dynamic.
- Listen to and/or sing a song that has similes about feelings in the lyrics. Introduce your students to writing similes. Have

them write about a feeling using similes. Have them include things like colors, times they feel that way, and levels of noise. For example:

Happy is yellow

Happy is playing in the snow

Happy is medium loud

Family Connections

- Assign students to make a color collage at home. Have them pick their favorite color and then find pictures in magazines or draw things that are that color. Have them bring them to class and share them.
- Have students ask their family members what their favorite color is and make a graph using the *Mouse Graph* worksheet.
- Teach students songs at school, send the words home with them and have them share the songs with their family.
- Ask students to ask their family what season is their favorite, have them make a graph and bring it back to school to share.

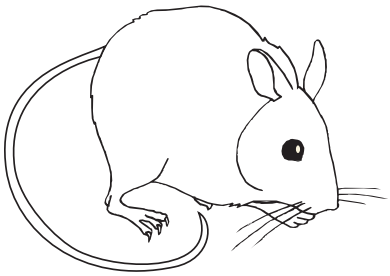
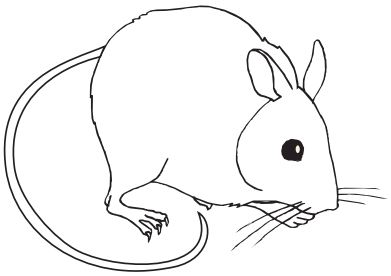
Additional Resources

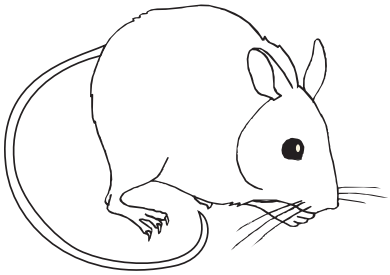
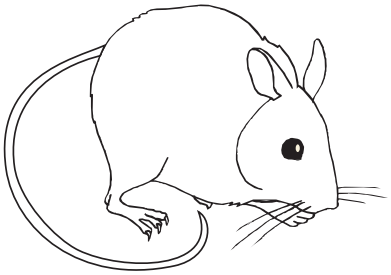
Books

Mouse Paint, by Ellen Stohl Walsh; ISBN 0152002650

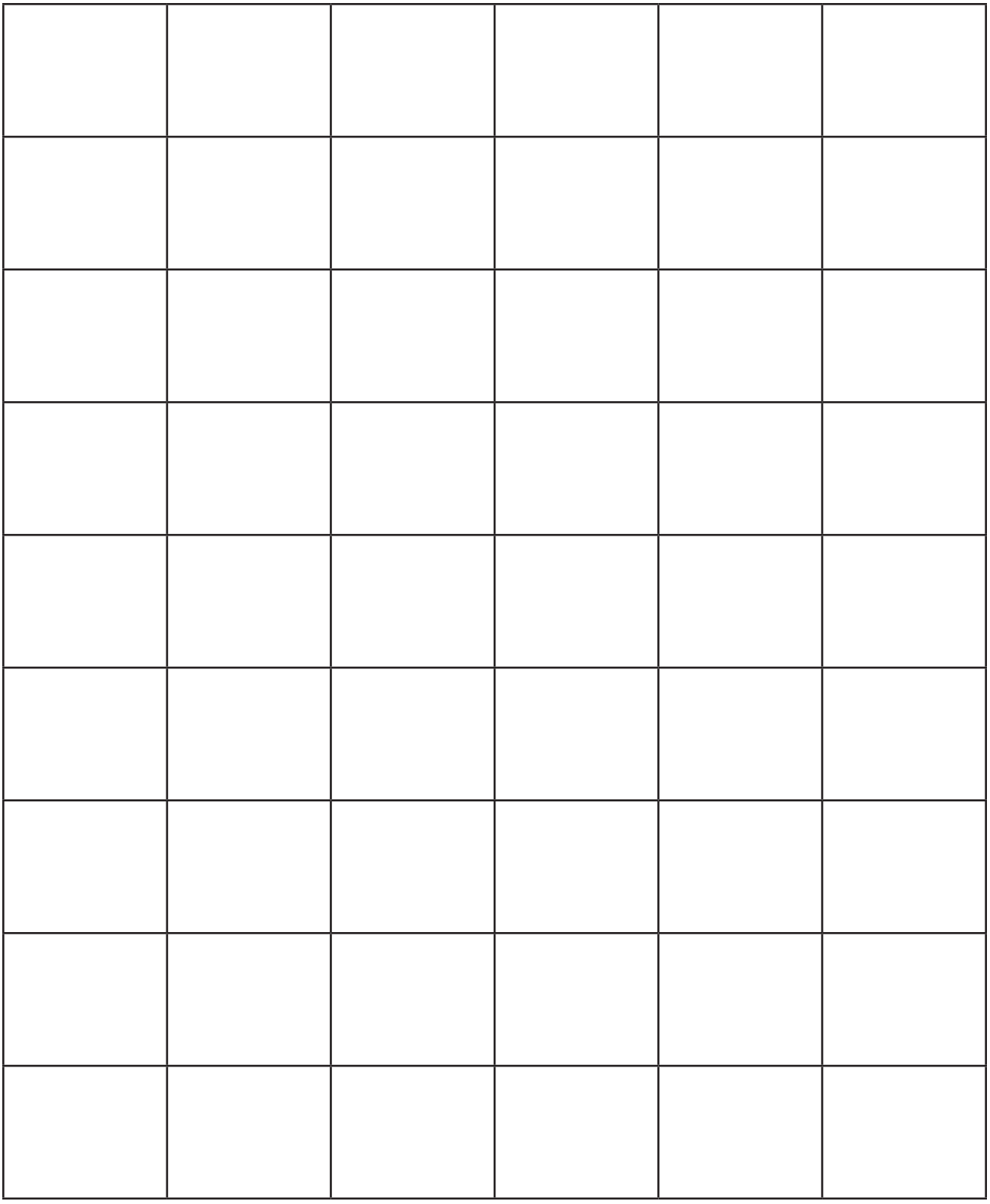
Hailstones and Hailbut Bones, by Mary O'Neill; ISBN 0385410786

Mice

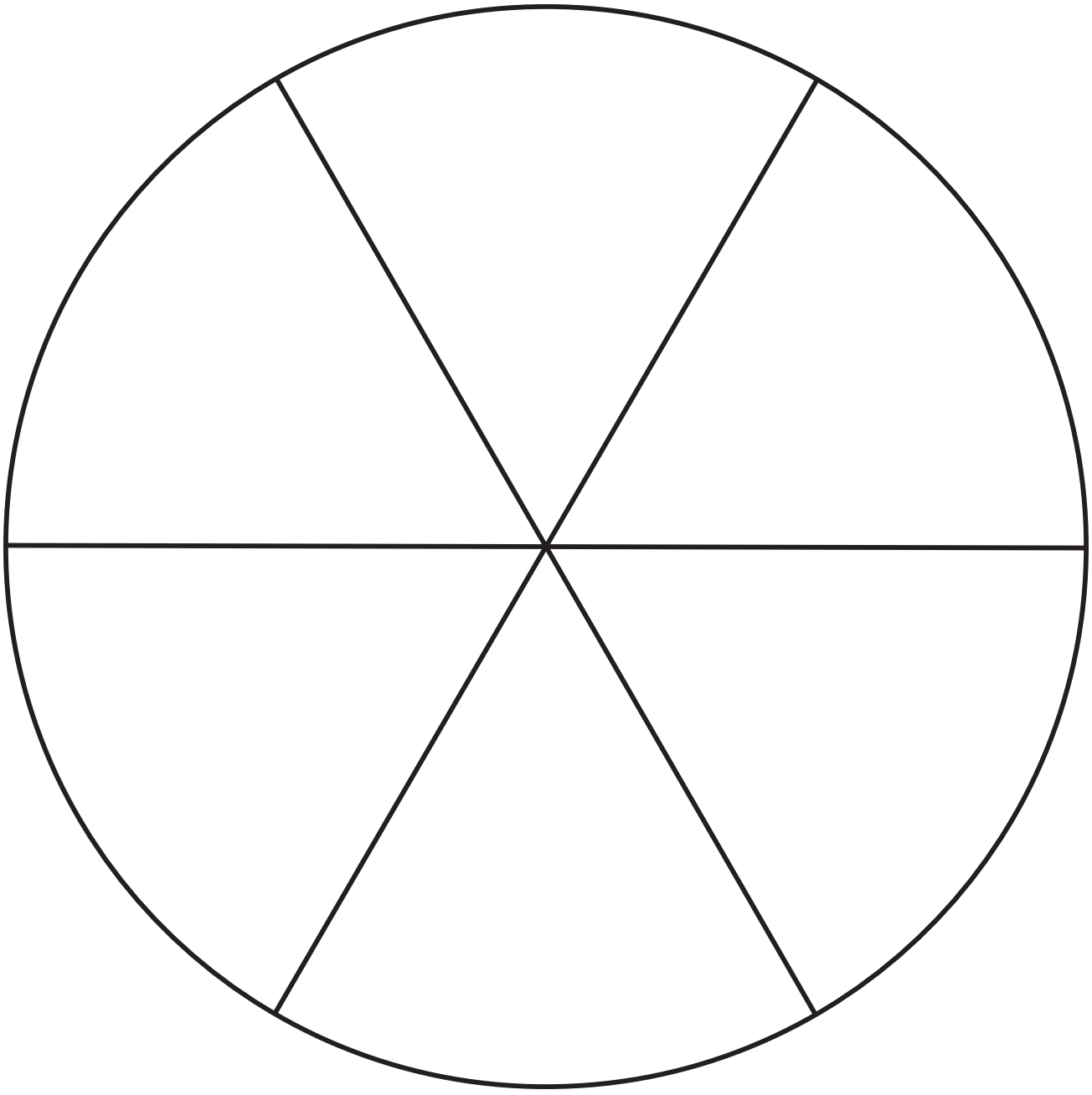




Mouse Graph



Color Wheel



Content II-3

Activities

Culture

Art and Culture

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:
5. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:
Math III-I; Geometric figures
Content I-3; Communicate and express feelings

Content Standard II

Objective 3

Connections

Background Information

Art is not what you see, but what you make others see. (Edgar Degas)

Artists are influenced by they world around them. Their culture, families, environment, and experiences are often evident in their completed work. Art is an excellent way for children to see the world from a different perspective. Consider the cultures in your classroom when selecting art prints and art forms to study. The emphasis of the following lessons is for students to reflect their culture through art. As young children are exposed to a variety of art forms, not only will their appreciation for fine art grow but their willingness to experiment with different techniques and styles will develop as well. There are many different forms of media that can be used for artistic creations. Printing, watercolor, pencil drawings, collage, and abstract are just a few of the forms. Shape, color and texture are also all used in art. Art can be as complicated or simple as you make it. Let children explore and they will probably teach you a thing or two!

Research Basis

Rabkin, N., Redmond, R. (2006). The arts make a difference. *Education Leadership.* 63(5) 60-64.

This article gives evidence, that arts integration, when done effectively turns curriculum into work that is not just reproducing knowledge but rather is showing children how to use it in authentic and intellectual ways. It discusses what exactly arts integration is, and the power of using art in k-8 classrooms.

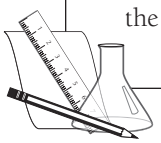
Gallavan, N.P., & Kottler, E. (2007). Eight types of graphic organizers for empowering social studies students and teachers. *The Social Studies*. 98(3) 117-23.

Graphic organizers provide a way for teachers and students to have the tools, concepts and language to organize, understand and apply information. Often, teachers feel that social studies overwhelms students. Graphic organizers help students sort, show relationships, make meaning, and manage information quickly and easily before, during and after reading and discussion. In the article, the authors present eight types of graphic organizers with descriptions, vocabulary and examples.

Invitation to Learn

Materials

- ❑ *Shape Element Cards*
- ❑ Overhead or poster of a piece of artwork that you are familiar with (an overhead can easily be made from a piece of artwork printed from the internet)



Art Match

Give each group a set of the *Art Element Cards*. Talk about the words that are on each card. With students, using a piece of artwork that all can see, show one of your *Art Element Cards* and find an example in the artwork of this specific shape element. Use an overhead or poster of a piece of artwork that you are familiar with to demonstrate. (An overhead can easily be made from a piece of artwork printed from the internet). Explain to the students that just as we see shapes in the world around us, there are shapes used in artwork and that they are going to be looking for them in all different types of art. Now that you have provided a model for students, ask groups to place all of their *Art Elements Cards* face down. Have the groups turn over one of their *Art Elements Cards* at a time and find an example in a piece of artwork. They could use artwork that you've displayed (posters, overheads). Postcards or pictures from calendars could also be used in smaller groups at their desks. This activity should take no longer than five to ten minutes. It should just give students enough time to look and see that all art includes the shape elements.

Instructional Procedures

Materials

- ❑ Pictures of African Masks
- ❑ *African Mask Template*
- ❑ Material/string
- ❑ Geometric Shape
- ❑ Crayons, markers, etc.
- ❑ Drum (optional)
- ❑ *Venn Diagram*

African Masks

1. Show students pictures of African masks. You may find pictures online and make them into overheads. The books listed in Additional Resources have pictures that include good representations of African artwork (websites are also listed).
2. Discuss how artists use colors, shapes, and forms to symbolize and communicate within their artwork.
3. Have students decide on 3-5 colors they like and discuss what these colors may communicate to the viewer (happiness,

strength, sadness and so forth). During this time you can also refer students back to the shape element cards. Brainstorm with students what colors and shapes they would like to have on their own African mask that they will create. Encourage them to think about what their chosen colors and shapes will communicate about themselves. You could make a list on chart paper of shapes and colors that describe their current emotions and or interests.

4. Students can utilize art materials and the *African Mask Template* to create their own African mask art. Any media form can be used. You may choose to have geometric shapes cut out (from die-cuts) that the students could use to glue onto the template.
5. After modeling using your own mask, have students think of a sentence that they could use to describe their African mask. You could also use one or two students' masks as examples, and have the class generate sentences for those masks. Pose questions to help them generate their sentence such as: What colors and shapes did you pick? What would you wear this mask for? How do you feel when you are wearing this mask?
6. Have students wear (or hold their mask in front of their face) and read their sentence. To make this more dramatic, you could play "African Music" or beat a drum while they read their sentences.

Pop Culture Art

1. Explain to students that even in America we have artwork that is unique to our culture. Explain that one type of artwork that we see is called Pop Culture Art.
2. As a shared reading, read aloud the biographical paragraph about *Andy Warhol* (you may also choose to show a picture of Andy Warhol). Explain that just like Andy Warhol, who is an American Artist, they are going to be artists also. Andy Warhol used famous people and common everyday things to create art. "In our classroom we are all famous and we are going to use our very own faces to create art!"
3. Read the poem *Millions of People* and have a discussion about how "everyone in our classroom looks different but there are things that are the same about us too" (the poem can be read together as a class and put into a poetry binder, made into a poster, or used for shared reading).
4. Using pictures of two students in your classroom compare and contrast, with a Venn diagram. You could use the Venn

Materials

- ❏ *Andy Warhol Bio*
- ❏ *Millions of People Poem*
- ❏ *Venn Diagram*
- ❏ Andy Warhol prints
- ❏ Student pictures
- ❏ *Four Square Art Page*
- ❏ Styrofoam
- ❏ Toothpicks
- ❏ Tempera paint

diagram pocket chart for this activity. Have students look with you at the two pictures and see how the children in the two pictures are the same and how they are different (note: make sure to pick students that could handle having their picture used as the example).

5. Using two of Andy Warhol's prints, compare and contrast the two prints (how are they the same, how are they different?). This will force the students to look very carefully at the artwork and they will be more ready to make their own small changes as they recreate and make their own personal "pop-art". You will want students to think back to their art elements cards and the five shape elements you discussed during the introduction. Remind them that when you are looking at their artwork you will want to see color changes and shape element changes. Have the shape element cards available for reference.
6. Discuss how when Andy Warhol, who you read about when you first started the lesson, changed the color on his prints, he changed what people felt and thought when they saw his work. Ask what colors they think would show someone being happy, sad, excited, confused, etc. (note: this brainstorming will also help them later when they are giving each of their prints a name).
7. Now students are ready to make their own "pop"-style artwork. There are two options to choose from as you have students create:
   a. Take a picture of each student (black and white). If the picture is digital, it is easy to print a page with 4-6 small black and white prints of the same picture. Using the *Four Square Art Page,* have each child paste a picture of him/herself into each box. Have children use different types of art media to make each picture look different. Have them brainstorm "names" for each of their pictures.
   b. Have each child, using thin Styrofoam and a toothpick, etch into the Styrofoam what they look like. If you have mirrors you could have them look in the mirror to do this. Then, using tempera paints and a paintbrush they pick a color to put over their "print." Have them stamp the print into one of the four square boxes on the template provided. Then, they can pick a new color and either paint over, or wash off their print and start again for each box, until all four boxes are complete. After this is dry have them brainstorm a word to describe (preferably not a color word) each different picture.

8. Display artwork in an "art gallery" within your school, or in your classroom. Using artwork, and basing artwork on famous artists is a great idea for displays before parent-teacher conferences.

Assessment Suggestions

- Display the student mask art creations within the classroom. Let students each have a set of *Art Element Cards*. Each child can look critically at another child's African mask creation and fill out the *African Mask Rubric*. Students could also fill out a rubric for their own mask if desired.
- As part of a journal prompt, have students complete the sentence: "Art can be_____." to see if they understand that art can take many forms.
- Check to see if students included the elements of art that were discussed – (shapes, colors) in making their artwork unique to them. They can use the *African Mask Rubric* to self-assess. You may choose to use the rubric to assess and give feedback, as well.
- Have the students complete a journal entry about how their artwork is an expression of themselves. Asses to see if they are using any of the shape element words or talking about how or why colors were used (Note: If you've set them up to be thinking about these elements while they complete their projects, you'll get a much richer reflection in their journals).

Curriculum Extensions/Adaptations/ Integration

- Make "art word charts" that students can refer to. For example, for textures, words such as *rough, smooth, silky, and bumpy* may be added to the chart. For patterns words like *checked, striped, borders* and *dotted* are likely. The goal is to find unusual and descriptive words to expand concepts behind art elements and add words to charts. These word charts will accommodate for students as they write descriptions for their artwork and as they do written reflections in their journals.
- Postcards: Use art postcards to have students do sorts and finds. For example, groups can sort by subject matter (e.g., portraits, landscapes) styles, and art elements (e.g., color,

texture). Connect sorts to units: sort by cultures, animals, and plants. Students can also do open sorts where they are given postcards and find different ways to group them. Students can also use a Venn pocket chart in groups, or a *Venn Diagram* in sorting.

- Make your own postcard: Give each child a postcard size piece of cardstock or other heavy paper and have them create their own piece of artwork. Even a simple 3x5 or 4x6 index card can be used. You may choose to gather these and then mail them home with a note to the parents about what students have been learning or a positive note about their child. These are also fun to use for birthdays.
- Study art from other countries and have students create their own pieces, related to the works studied, just as you have modeled in your African Masks and Pop Culture Art activities. Some ideas for other countries could include mosaics (European and Islamic cultures), totem poles or weaving (Native American).

Family Connections

- Send home a note to parents, telling them that you are learning about different art forms from different countries and see if they have any art that they would like to send to school. You could have a "show and tell" art day.
- Send home postcards that children have made with a note about how well their child is doing in school.
- Have students pick a country or culture that they want to learn more about and assign reports to be done at home with parents. In this way, students will learn and share more about different cultures/ countries, as well as different artwork!

Additional Resources

Books

The Art Book For Children; ISBN 978-0-7148-4530-2

A Child's Book of Art, by Lucy Micklethwait; ISBN 978-1-56458-203-4

Andy Warhol: The Life of an Artist, by Carin T. Ford; ISBN 0-7660-1880-6

Artists in their Time: Andy Warhol, by Linda Bolton; ISBN 0-531-16618-X

Ashanti to Zulu: African Traditions by Margaret Musgrove; ISBN 978-0140546040

Web sites

http://www.nmafa.si.edu/index2.html

This website links you to the National Museum of African Art. You can look at African Masks, listen to African music, and link to other lesson ideas.

www.famouspainter.com

This website gives you biographical information about many artists including Andy Warhol. There is also a picture of Andy on this website (however it is a little scary

http://www.alifetimeofcolor.com/

This website gives you lots of great art resources and information, including lesson plans for each grade level

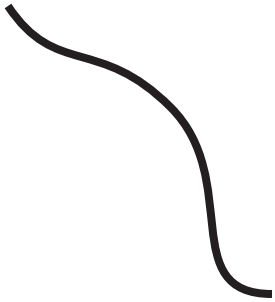
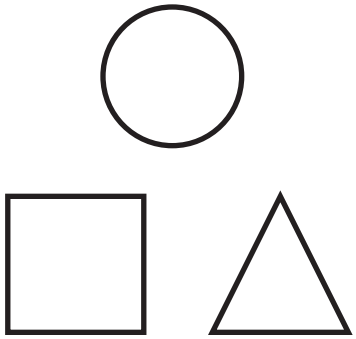
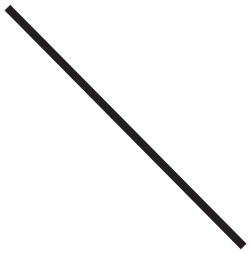
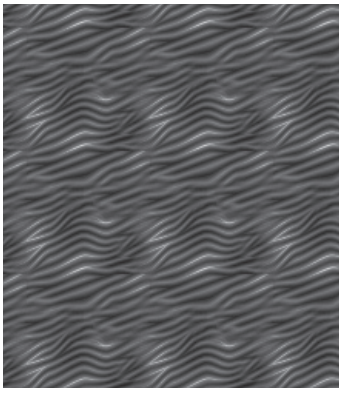
http://www.umfa.utah.edu/

This will link you to the Utah museum of Fine Arts website.

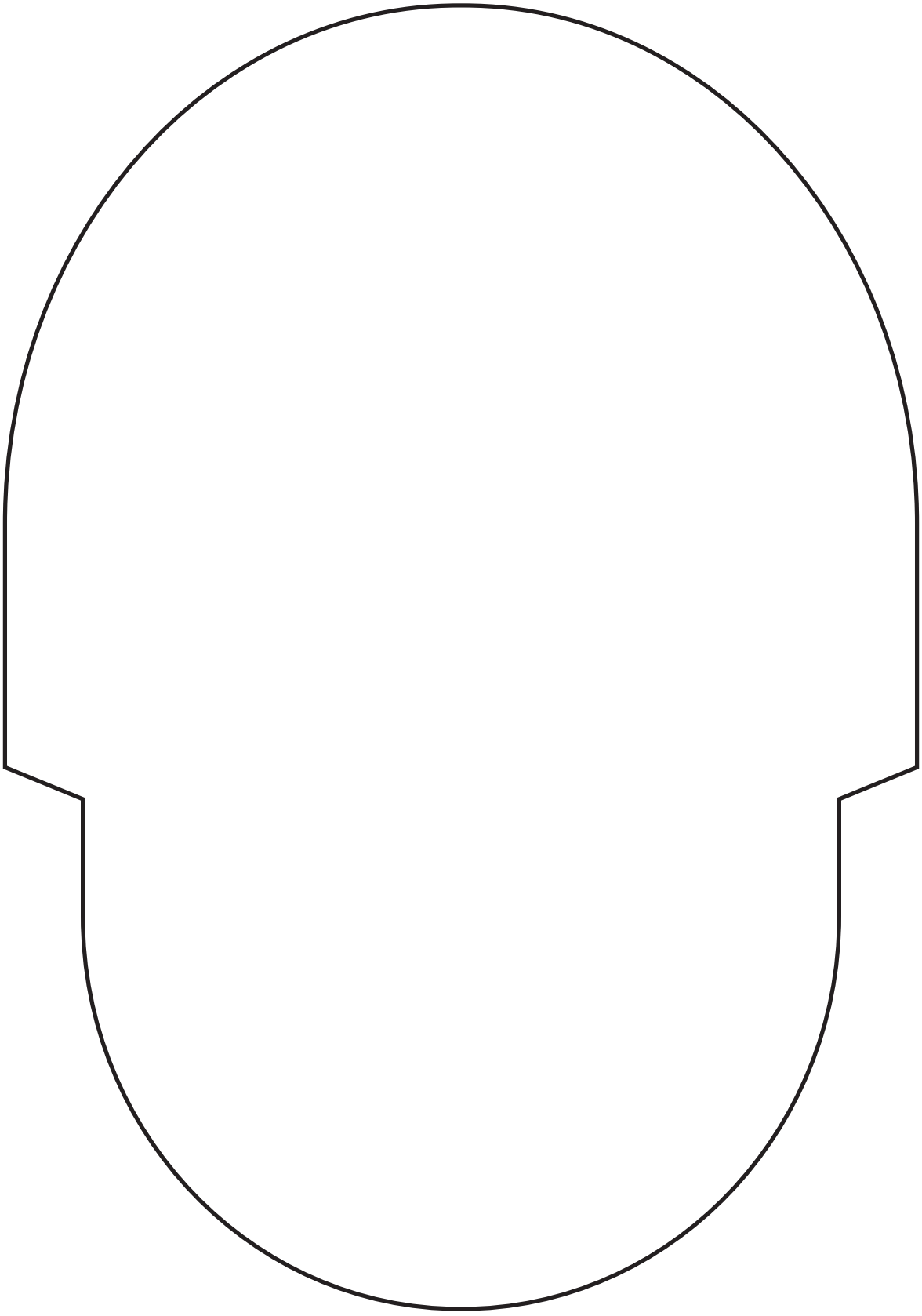
Organizations

Springville Museum of Art, 26 E. 400 S. Springville, Utah, 84663, 801-489-2727, http://sma.nebo.edu/

Art Element Cards

Straight Line	**Curved Line** 	**Shape** 
Dot 	**Angled Line** 	**Space**
Light 	**Color** 	**Texture** 

African Mask



Andy Warhol

Andy Warhol (1928-1987) was an important artist during the 20th century. He was a leader of the pop art movement, which used art to look at what was popular. He got ideas for his artwork from images such as comic books, soup cans, movie stars and the media to show that you can make art from anything.

He was not just an artist.... Warhol was a filmmaker, painter, collector, music producer, commercial designer and illustrator, author, magazine publisher, and fashion model.

Andy Warhol

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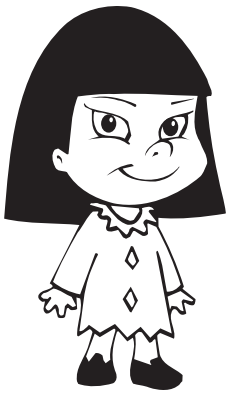
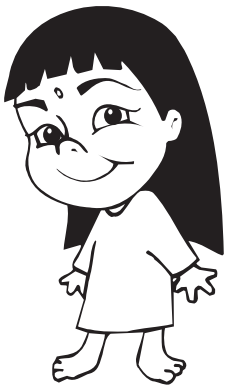
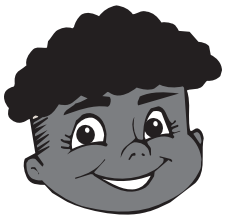
He was not just an artist.... Warhol was a filmmaker, painter, collector, music producer, commercial designer and illustrator, author, magazine publisher, and fashion model.

Millions of People



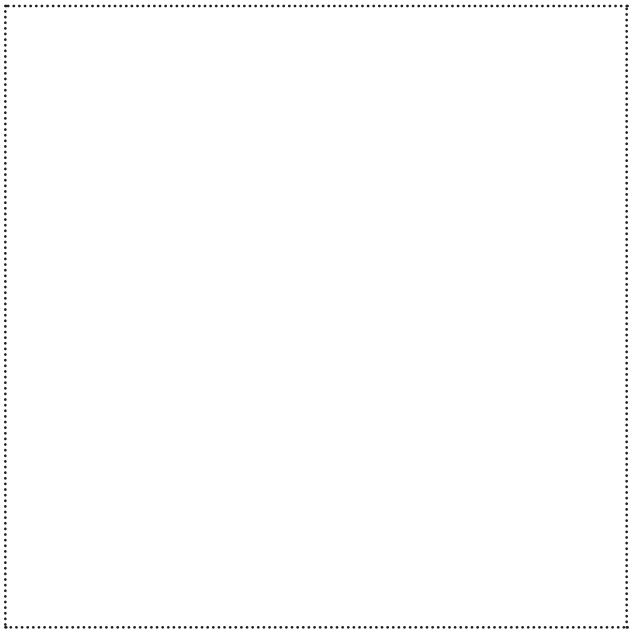


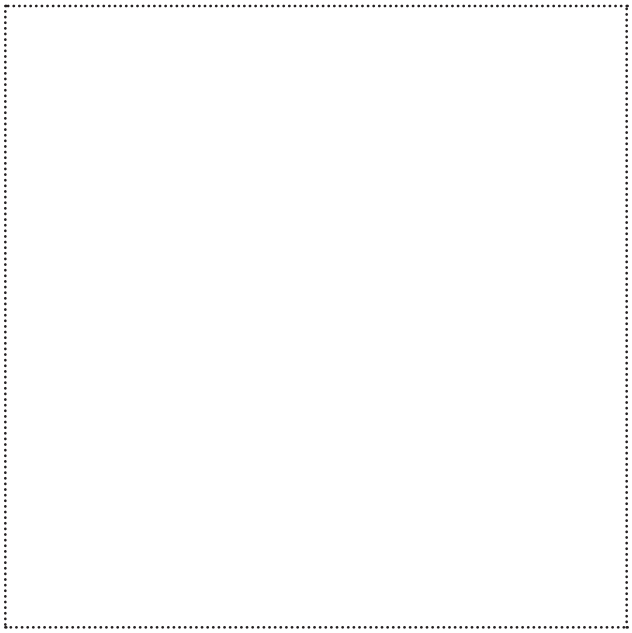
There are millions of people
In millions of places
And all of the people
Have different faces.
The tilt of the nose
May vary a bit;
The slant of the eye,
The curve of the lip.
You may look and look
At the fats and the thins
But no two people are alike
--- 'cept identical twins.
And they too may differ,
Even as we,
In some little way
That you cannot see.
No one can explain it
No one is to blame –
There are millions of people
And no two are the same.

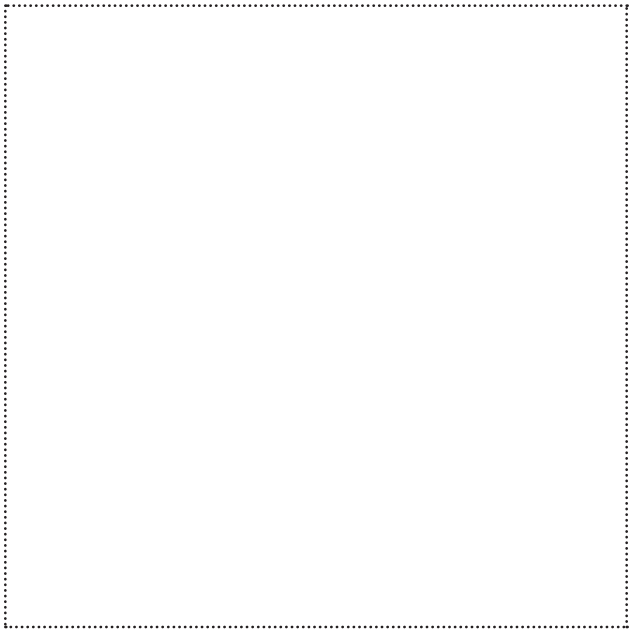


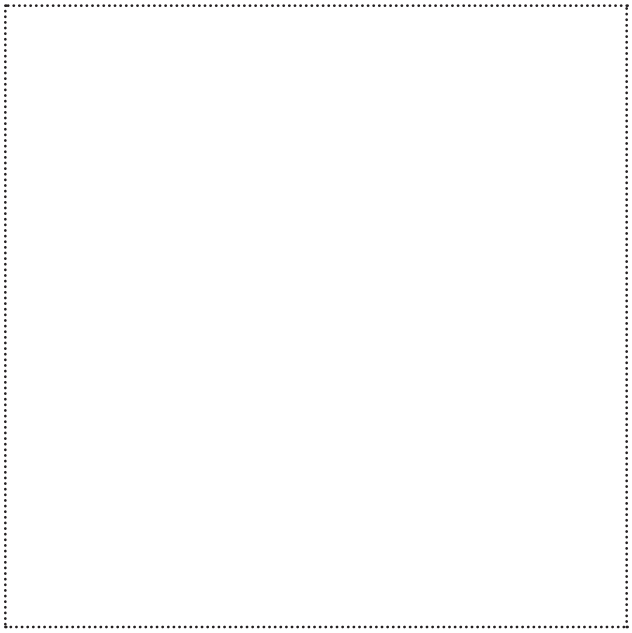
Jane W. Krows

Four Square Art Page

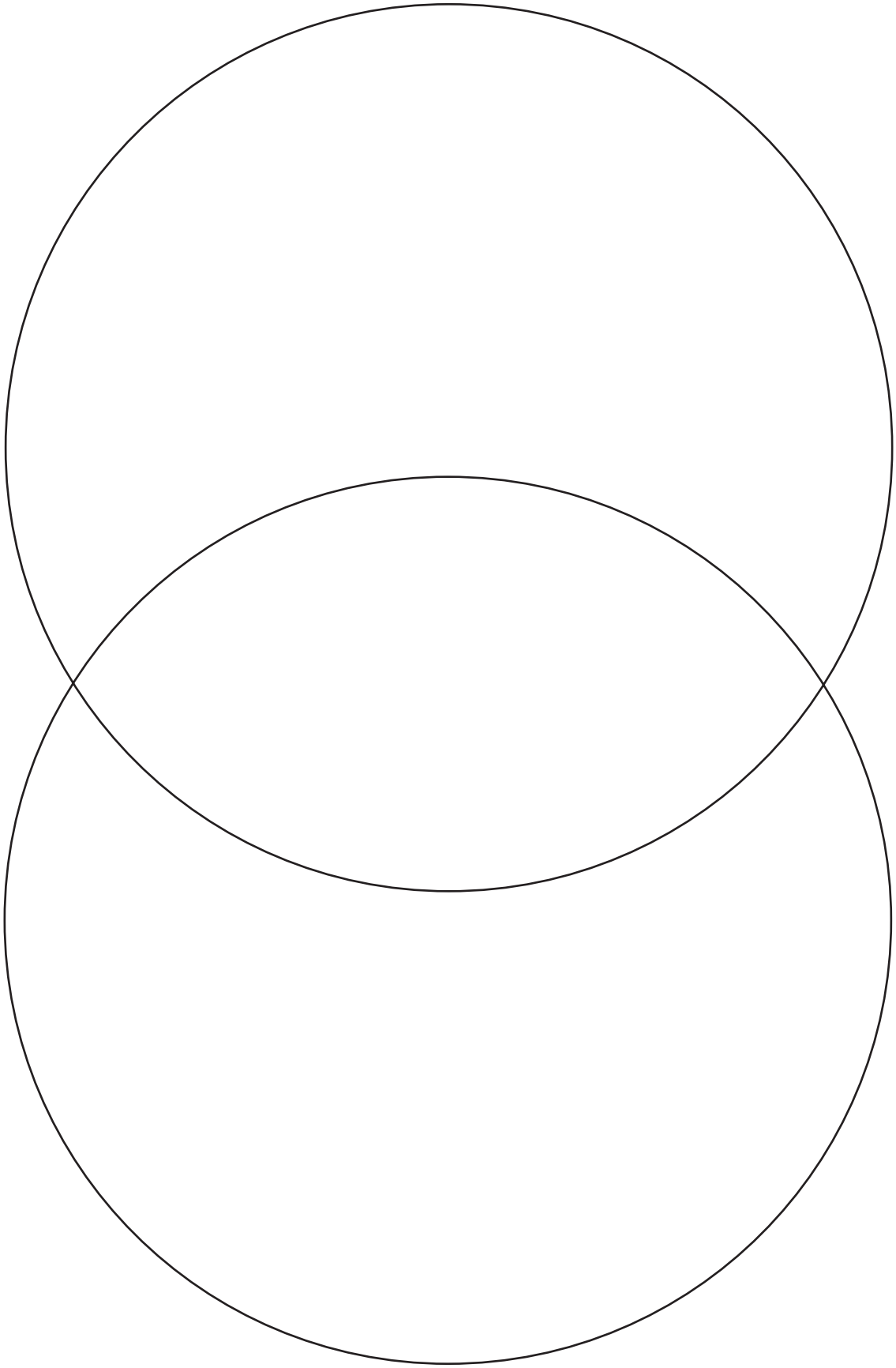








Venn Diagram



African Mask Rubric

Artist Critic's Name _____

I chose to look at _____ African Mask

Did the mask use more than one color? yes no

Does the mask show feelings? yes no

Are there straight, curved or angled lines? yes no

Are different shapes used? yes no

One word you would use to describe this mask _____

African Mask Rubric

Artist Critic's Name _____

I chose to look at _____ African Mask

Did the mask use more than one color? yes no

Does the mask show feelings? yes no

Are there straight, curved or angled lines? yes no

Are different shapes used? yes no

One word you would use to describe this mask _____

Cinderella: A Character with Culture

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:
1. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:
Language Arts Standard VII-2; Apply strategies to comprehend text
Language Arts Standard V-2; Develop reading fluency

Content Standard II

Objective 3

Connections

Background Information

Graphic Organizers are used in this lesson to help students to organize information from books that are read, and facts that are learned. Graphic Organizers are a good way to help students participate visually and orally. As students advance in their learning they are able to use graphic organizers on their own, as well as with a group to show their knowledge and understanding of information. Graphic Organizers are also a great way to help integrate the arts with other subjects by using reading and writing to understand content area topics.

Readers' theater offers students an effective tool for connecting literature, oral reading and drama. Through readers' theater, children are able to become more fluent in their reading and perfect their oral presentation skills. Readers' theater also gives students a chance to work together cooperatively in reading and listening and giving each other feedback. Through readers' theater children can be taught about voice level, intonation, pitch, and body positioning when reading. Children also learn how to communicate to an audience and interpret text. Readers' theaters can easily be written and are adaptable to most subject matter.

Research Basis

Cornett, C.E. (2006). Center stage: Arts-based read-alouds. *The Reading Teacher*. 60(3) 234-40.

This article opens with examples of two classroom teachers who use music and drama as core strategies to introduce, develop, and follow-up on a reading lesson during an integrated social studies unit. These examples introduce an expanded definition of literacy that includes use of language and the arts as equal communication partners.

The article goes on to explain the process of collaborative arts-based literacy planning, showing how team of teachers selects specific music, visual art, drama, and dance strategies to develop a book's "big ideas" or themes. Arts strategies are then used as processes to help students make meaning before, during, and after reading.

Biegler, L. (1998). Implementing dramatization as an effective storytelling method to increase comprehension. (ERIC Document Reproduction Service No. ED 417377)

This research study shows that students who used dramatization had greater comprehension. The findings suggest that children who reenact a story become more emotionally involved, and therefore more motivated and interested.

Invitation to Learn

Materials

- ❑ Tales Beneath Timp
- ❑ *Story Elements Graphic Organizer*

Show students the picture of Tales Beneath Timp by James Christensen or some other picture from a book cover that shows people reading. Talk about what they notice in the picture. What does it look like the people and animals in the picture are doing? They are listening to a tale. Another name for a story is a tale. This picture is showing people, some real and some pretend, listening to a tale. People all over the world like to listen to stories and there are lots of different stories, but every story has four important parts: character, setting, problem, and resolution. Refer students to the *Story Elements Graphic Organizer* that you will be using later in the lesson. Teach students the following chant:

- Who were the characters (put your hands by your face as you move your head from side to side)?
- What was the setting (Hands above your head like you are making the roof of a house)?
- What was the problem (Make two fists, like you are ready to fight)?
- What's the resolution or how was the problem solved (whisper to your neighbor with your hand on their shoulder)?

Instructional Procedures

Materials

- ❑ Traditional Cinderella storybook
- ❑ *Story Elements Graphic Organizer*
- ❑ *Mufaro's Beautiful Daughters*
- ❑ *Venn Diagram*

Comparing Cinderellas

1. Explain to students that you are going to read a story aloud and that you need their help finding the character, setting, problem and solution in the story that is being read. Explain that when they hear a character identified in the story they can put their hands by their face, when they hear the setting they can put

their hands about their head to form a roof, etc. (refer to the invitation to learn), as a signal that they found one of the story elements.

2. Read a traditional tale of Cinderella to your students.
3. As a class, fill in the *Story Elements Graphic Organizer* poster with characters, setting, problem and solution. You can use pictures or words, depending on level of learners, or when in the school year the activity is completed.
4. Later, (the next day), remind the students about what you talked about before (invitation to learn): how every country has "tales" that they tell and read. Explain that now you are going to read a tale that is from another country, *Mufaro's Beautiful Daughters, a South African tale*.
5. On a globe or map show students the location of South Africa. Have a discussion about what they think may be different in this Cinderella-type story, as compared to the traditional tale read previously.
6. Explain that some of the parts of this story are a lot like the Cinderella story read previously, and some are very different. Make it clear that after you read, you are going to fill out the *Story Elements Graphic Organizer* poster as you did for the Cinderella story, previously, and you are going to need everyone to help. If you want to use a different color of marker to fill out the poster for the second Cinderella story, it would make it easy to use for a compare and contrast activity on a different day.
7. During the reading, when students recognize a character in the story have them put their hands by their face, when they hear something about the setting have them put their hands about their head to form a roof, etc., as a signal that they identified one of the story elements.
8. Have students pay special attention to the pictures as well as the words as you read the story, stopping to fill in the *Story Elements Graphic Organizer* poster as needed.
9. After the *Story Elements Graphic Organizer* has been filled in for both stories, discuss as a class the things you noticed that were similar or different between the two stories.
10. Introduce the *Venn Diagram*. Using the Venn Diagram pocket chart put the names of the two stories at the top of the intersecting circles. Model by thinking aloud "I noticed that both stories have sisters who are not nice so I am going to put that in the middle pocket because it shows how they are the

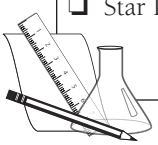
same. I also noticed that in *Mufaro's Beautiful Daughters* the setting was in a jungle village (refer them back to the *Story Elements Graphic Organizer*) but in the first story we read the setting was in a house. I am going to write jungle village and put it on this side, and house and put it on this side." You could also have pictures from the stories that you could put in either side of the pocket chart. After modeling and thinking aloud for students, see if any of them can think of story elements that are the same or different that they could add to the pocket chart.

11. Give students time to go back to their own seats and complete the *Venn Diagram* themselves. They can use pictures or words (preferably both) to show that they understand the differences and similarities in the two stories.
12. As a follow up in a future lesson you may want to discuss and reflect upon how the different versions of the tales read reflect the cultures of the authors who wrote them. You could find the countries on a map, talk about the history and culture that influenced the choices of the authors in their retelling of the story. Students can be given the opportunity to journal about their observations and things that they have learned through the compare and contrast process.
13. Now that you have completed the compare and contrast process you can easily complete instructional procedure steps four-twelve with a different culture's version of the Cinderella story (e.g. *The Rough-Faced Girl*).

Cinderella Readers Theater (for boys and girls alike)

Materials

- ❑ *Cinderella Readers Theaters*
- ❑ Craft Sticks
- ❑ Star Die Cuts



1. Give a script to each child in the classroom. There is a script for the boys, and a script for the girls. If you don't have the "right" numbers of students, more than one student can say the part at once.
2. Talk about what students notice about the script. Explain that there are different parts ("reader 1," "reader 2," "reader 3" and "all").
3. Model an oral reading of the script, while students follow along. If possible, you could use another child in your class to read with you. If this is not possible, you could physically move from side to side, demonstrating different parts. You could invite former students to come back and help you. Children love to see kids that are older than them, and realize that they can be just like them if they listen and learn.

4. Make sure that reading is done at a rate that students can easily follow along.
5. Re-read the script again as a non-example of good reading. Use a monotone voice and no expression.
6. Ask students what was wrong and make a list of their suggestions. Pose the question: Which reading was better?
7. Assign parts, and show students how to underline, with a crayon, only the part of the readers' theater that they will be reading. Make sure that you make note of who has what part.
8. Make a "magic" wand out of a straw and a star die cut that students can decorate. These magic wands can be used as trackers while students practice their readers' theater parts. As a teacher, model how the wand moves smooth and flowing as you read fluently as opposed to a lumpy, bumpy reading (see *Fluency Rubric*).
9. Have students practice their part and help them with words that might be tricky. They can practice alone, with a partner or in a small group.
10. After students have had time to practice their parts (this may stretched out over more than one day), allow them to perform for your class.

Assessment Suggestions

- Observe students' actions during reading of the Cinderella stories for clues that they are identifying story elements, through their physical representations.
- After having students fill out the *Venn Diagram,* check for accuracy (finding elements that are the same and different in each story).
- Do a running record with your individual students, using the readers' theater scripts, watching for expression, rate and accuracy of reading.
- Have students monitor their own reading progress, showing how they think they have improved, using the *Fluency Rubric*. This could be used before and after for a pre and post assessment.

Curriculum Extensions/Adaptations/ Integration

- In Africa, a drum is often used as part of storytelling. In order to make the connection to African culture, you could use a drum (you can even make your own out of an oatmeal container) to retell *Mufaro's Beautiful Daughters* to music. Show how you can use music to depict exciting or calm parts of the story with the beats of your drum.
- Explore sounds/music created around the world. Drum (Africa), Violin (Japan), Recorder (England) as you read the stories from those countries.
- On a map mark the places where the different Cinderella stories come from that you have read.
- Read other stories (books listed below) of Cinderella from various countries and follow the same process of comparing and contrasting.
- Repeat the steps under Comparing Cinderellas instructional procedures, using a new folk/fairy tale that has different renditions from other cultures/countries (e.g. The Three Little Pigs vs. The Three Javelinas, etc.).
- Make a list of descriptive words for the main characters in the story as an interactive writing activity, and to teach students about using descriptive words in their own writing.
- Use die cuts and craft sticks to make "magic wands" from straws and die cuts and have students use them as pointers as they read around the room.
- Have students write about their own wishes, just as Cinderella had wishes.
- You could also use the wands to take turns "tapping" one another and giving tasks to perform (spell a word, count the sounds, find a rhyme etc.).
- Retell one of the "tales" on one sheet of paper using "thumbprint" art. Each child can use their thumb to make the main characters on a sheet of paper and write a speech bubble for each character (e.g. Cinderella says, "I want to go to the ball"), or sentence about the story.
- Fold a Story: Using a square piece of paper, fold all four corners into the center to from four triangles. On each triangle write about one of the story elements (character, setting,

problem, resolution) and on the inside draw a picture to go with the story.

- Sing the Song *Fairy Tales.* Higher-level students could write their own verse to go with the song, and or illustrate the song to make a class book.

Family Connections

- Send home a note to see if any families have Cinderella stories that are from different places around the world. Let the child read (or just bring) the book to school to be read. Talk about the country where the book comes from.
- Have students take their readers' theater scripts home and perform for their families.
- Invite families to school for a performance of this and other readers' theaters.

Additional Resources

Books

Mufaro's Beautiful Daughters An African Tale, by John Steptoe; ISBN 0-590-42058-5

Teaching With Cinderella Stories From Around the World, by Kathleen M. Hollenbeck; ISBN 0-439-18843-1

Cendrillon: A Caribbean Cinderella, by Robert D. San Souci & Charles Perrault; ISBN 9780689848889

Cinder Edna, by Ellen B. Jackson & Kevin O'Malley; ISBN 9780688162955

Cindy Ellen: A wild western Cinderella, by Susan Lowell; ISBN 0439270065

The Persian Cinderella, by Shirley Climo; ISBN 0060267631

Cinderella, by Charles Perrault, Loek; ISBN 9780735814868

Glass Slipper, Gold Sandal: A Worldwide Cinderella, by Paul Fleischman; ISBN 978080507953

Egyptian Cinderella, by Shirley Climo; ISBN 9780064432795

Cinderella, by Barbara McClintock; ISBN 0439561450

Yeh-Shen, by Ai Ling Louie & Ed Young; ISBN 0698113888

The Korean Cinderella, by Shirley Climo; ISBN 006020432X

Websites

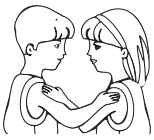
http://www.acs.ucalgary.ca/~dkbrown/cinderella.html

This website gives links to books and other Cinderella activities.

Story Elements Graphic Organizer

Story Title _____

Four boxes for students to record information in:

Character 	**Setting** 
Problem 	**Solution** 

In Search of Cinderella (for boys)

☺ Reader 1: From dusk to dawn,

☞ Reader 2: From town to town,

☯ Reader 3: Without a single clue.

☺ Reader 1: I seek the tender, slender foot

☞ Reader 2: To fit this crystal shoe.

☺ Reader 1: From dusk to dawn,

☞ Reader 2: I try it on

☯ Reader 3: Each damsel that I meet.

☺ Reader 1: And I still love her so, but oh,

☺☞☯ All: I've started hating feet.

Waiting Cinderella (for girls)

Reader 1: My foot

Reader 2: It hurts!

Reader 3: I lost my crystal shoe!

Reader 1: I don't know where I left it.

Reader 2: Whatever shall I do?

Reader 3: My Prince will find

Reader 1: My fallen shoe

Reader 2: The one I left behind

Reader 1: He's looking hard for me just now

Reader 2: I hope he isn't far.

Reader 3: I know he'll find me soon. . . .

All: But how?

Name _____

Fluency Rubric

1. I use a voice with expression to show excitement or sadness and pay attention to punctuation.

2. I read "just right." Not too fast, not too slow.

3. I stay together when I am reading with the other people in my readers' theater group.

4. I know all the words in my parts with no lumps or bumps.

5. I am excited about reading.

Teacher Comments:

_____

_____

_____

FAIRY TALES

(to the tune of "Jingle Bells")

Once upon a time,
In a land far away,
A girl kissed a frog -
That just made his day!

Far across the town,
Red Riding Hood took fright -
She found a wolf
In granny's bed
When she told her goodnight!

Fairy Tales! Fairy Tales!
Read them every day!
Oh what fun it is to hear
How Goldilocks got away!

Fairy Tales! Fairy Tales!
Full of joy and laughter!
Do you know how this one ends?
Why, it's HAPPILY EVER AFTER!

Available online at: http://home.att.net/~cattonn/fairy.html

Games People Play

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:
5. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:
Language Arts VIII-6; Write in different genres
Math I-2; Number relationships

Content Standard II

Objective 3

Connections

Background Information

The different and varied cultures represented in each classroom provide an opportunity for students to learn about others and themselves. Targeting specific cultures represented in individual classrooms validates student's backgrounds and gives them a chance to understand and appreciate one another. When teaching about cultures it is important to be sensitive and not to stereotype. Let the diversity of your class guide your decisions and discussions. It is important to integrate discussion about appreciating, valuing, and respecting differences of cultures. It would be wisest to teach this lesson sometime after the first few months of school. Students will be more responsive to learning about other cultures if they are secure in who they are individually. The beginning of the year you could start out by doing lots of writing and sharing activities that focus on what each student as an individual likes and dislikes, what kind of families they come from, what they look like and other things that make them unique. This activity focuses on the people, traditions and specifically the games unique to different countries.

Research Basis

Cornett, C.E. (3rd ed.). (2007). *Creating Meaning Through Literature and the Arts: An Integration Resource for Classroom Teachers*. New Jersey: Pearson Education.

This book outlines the growing trend toward arts integration in the curriculum. With an emphasis on differentiation and integrating multiple disciplines into classroom instruction this book provides hands on ideas for each of the different art disciplines. Content across five art disciplines is included – literature, visual arts, drama, dance and music.

Livingston, N., Kurkjian, C. (2005). Circles and celebrations: Learning about other cultures through literature. *The Reading Teacher*. 58(5) 696-703.

This research article outlines how we can appropriately develop cultural awareness through literature in our classrooms. It discusses how teachers can utilize literature, not just for what the text says, but also to explore the artwork and underlying themes. It proposes that there are two types of culture. One of them is culture as we traditionally see it – music, fine arts, and philosophy and the other is culture including social issues and beliefs of people. The article shows that both types of culture are important to discuss and that through literature this can easily be accomplished.

Invitation to Learn

Materials

- ❑ *People*

Invite your students to look at the cover of the book *People*. Discuss and brainstorm with the class why there are so many people on the cover of this book. Ask what they think this book might be about. Read the book aloud to the class, ensuring that they can all see the pictures (Note: this could also be done as a power-point presentation with the pictures scanned in so that they are more accessible to the students).

Instructional Procedures

Materials

- ❑ *People*
- ❑ *America Words*
- ❑ *In America*

In America

1. Discuss the book *People,* by Peter Spier that was read during the introduction. Brainstorm with students what they noticed about the pictures. Were the people all the same? Were there things that you had never seen before? Let students know that now you are going to look at the book again and write some things down to help us remember what we read and saw.
2. Have students recall with you what they noticed in the book. On an overhead, or chart paper (you can make a poster of the *America Words*) list and categorize some of the characteristics the book talked about (e.g. physical features, clothes, what we do to "play," our homes, pets and holidays, food, religion, where we work, how we communicate/languages). Give students a chance to come and share the pen to write as you fill in the graphic organizer (by allowing the students to help you write they will be more engaged in the activity) and think of words that can go with each category to describe life in America (e.g. by clothes you could write shirts and pants, etc.). As you go through this list children will most likely want to continue to explore the book and see how what we do differs from other countries. Let them! Explain to students that just

like people all over the world are different, each one of us is different and yet, in ways we are the same. Just like we read in the book *People*, sometimes when people come to visit America from other countries they think that they way we do things are interesting, just like we think that the things that they do, where they live, or what they eat might be interesting.

3. Refer to the list that was made during the *America Words* interactive writing activity and have students identify something under each category that they want to write more about, or that they think that someone reading a book about America for the first time would want to know. Have a few students share what they think is something important to them about living in America (e.g. a student might say, "I think it is important that in America we have national monuments or parks)."
4. Explain that if we were to go to a different country (e.g. Japan) there might be some traditions we recognize. For example, in Japan most children go to school. However, we wouldn't know or understand everything about their culture, like their money, language, favorite foods and even what games they like to play at school. Similarly, when people come to America from different countries, they have a lot to learn about our culture. So, we are going to create a book to teach visitors about our culture. (If there is someone in the class who has a friend or someone they know who has a unique cultural heritage, or possibly even someone in the class you could have that person be your target audience).
5. All students will start by finishing the open-ended sentence on the *In America* template: In America _____. This could be followed by a number of varied responses. Encourage students to be creative and think of something unique and meaningful to them (e.g. In America there are mountains where I live. In America I play jump rope with my friends at recess. In America we have pets like dogs and cats that live in our houses and backyards. In America we go to school with boys and girls).
6. Children can add an illustration that matches the sentence(s) that they completed.
7. After completion students can read their pages to the class.
8. Pages can be compiled into a class book and kept in the classroom library or displayed.

9. After completion of class book, pick a country or place that you know a lot about (or have a students' parent or someone else that could help you to get information about a country) and repeat the process by discussing the culture of that country and making a class book.

Games People Play

Materials

- ❑ *Friends Around the World*
- ❑ *American Words*
- ❑ *In America*
- ❑ Beans
- ❑ *Counting to Five in Different Languages*
- ❑ Dice
- ❑ Unifix cubes

1. Read the poem about games that people play: *Friends Around the World.*
2. Give each child a copy of the poem. Have students underline with you some of the names of different countries that are found in the poem. If you have a map or a globe, this would be a great time to locate those countries that are in the poem.
3. Make a list of games that the students in your class like to play. Make a list of games that are included in the poem. After the lists are made have students look at it and see if there are any games listed that are on both sides. Point out that some games are played in other countries, but they are just called by a different name
4. Talk about numbers and how every child, no matter where they live, has to learn to count and know their numbers. Some numbers are written differently, and/or said differently. Just like we play games, and have rhymes to learn our numbers, so do children in other countries. Explain that they are going to learn and then be able to play some games from other countries. Instruct them to watch for things that might be the same or different about the games that they learn, and games that they are already familiar with. Teach children some of the number games below.

Number Games From Around the World

Africa

Skills practiced: counting, making sets

From the Mbundu tribe in Angloa, West Africa, this number game is played by children as soon as they are old enough to count. The game is noncompetitive and encourages cooperation among the children. The numbers one, two, three, four, and five are called out in the Mbundu language as mosi, vali, tatu, swala, and talu. The children in East Africa, would use the language of Swahili to call the numbers as moja (MO-jah), mbili (mm-BEE-lee) tatu (TAH-too), nne (NN-nay), and tano (TAH-no.)

It is best to play this game with the whole class. One student is designated as the Caller.

1. One player is chosen to be the Caller. The remaining children gather in a circle.
2. The Caller shouts out a number between one and five, then the players group themselves accordingly. For example, if the Caller calls out mbili (two), the players then scramble into groups of two.
3. If there are leftover players, they form their own group and shout their number to the Caller.
4. Play continues with the Caller calling out different numbers for three more games, then a new Caller is chosen.
5. For more of a challenge, play this game in several different languages to represent each culture in your classroom.

Odd Or Even: Greece

Skill practiced: one to one correspondence, even and odd

From ancient Greece, the idea for this game is simple: correctly guess whether a player holds an odd or even number of beans in their hand.

Each player needs one partner.

Each player needs 5 or 6 dried beans.

The object of the game is to guess correctly whether a player holds an odd or even number of beans.

1. The first players hide several beans in their closed hands. They ask their opponents, odd or even?
2. The opponents make their guess and the other players must open their hands to show the beans.
3. If the opponent's guesses are right, they win one bean. If their guess is wrong, they must give up a bean. Now it is their turn to hide their beans and the other player's turn to guess.
4. Play continues until a player is out of beans. (Note: When there are several pairs of children, the players can change partners after each game. At the end of a specified time (ten minutes, for example) everyone stops and counts their beans. They player who has the most beans is the winner.)
5. To check their answers, encourage the students to try to pair up the beans which are held in their hands. If each bean does not have another bean to form a pair, then the set is odd.

Jan Ken Po: Japan

Skill practiced: probability, cooperation

Known as Paper, Rock, Scissors, in the United States, Jan Ken Po has been played in Japan for centuries. Many times it has been used to settle disputes or to decide who goes first. The outcome is almost always accepted without question!

Each player needs at least one partner.

The object of the game is to win the match with a superior hand. The combinations and the winners are shown below:

- Paper & Rock = Paper wins (paper covers rock)
- Scissors & Paper = Scissors wins (scissors cuts paper)
- Rock & Scissors = Rock wins (rock crushes scissors)

1. Players sit facing each other and begin by chanting Jan, Ken Po! They pump their hands up and down on the first two syllables, then on Po! They make a sign for one of the following: Rock is a closed fist, paper is a flat hand, and scissors is a 'v' with the index and middle fingers.
2. Whoever wins three times in a row becomes the leader. All players try to beat the leader. Whoever beats the leader three times in a row becomes the new leader.

Going To Boston: United States

Skill practiced: counting, addition, comparing more than and less than.

Dice games exist all over the world in many different cultures. Dice have been designed in many different styles: the two-sided dice used by the Native Americans, the four-sided dice used by the Egyptians, and the pyramid-shaped dice of other cultures. Going To Boston, history tells us, started in the United States on a train ride to Boston. It uses six-sided dice. (If you don't have six sided dice a four sided dice can be used.)

Each group consists of two or more players. Using three dice and a cup to shake and spill the dice, and a set of Unifix cubes or paper and pencil for keeping score.

The object of the game is to score the highest total after five rolls.

1. Players take turns throwing one die to determine the order of play. The person with the highest number goes first. The first

player puts all three dice into the dice cup, gives it a shake and spills out the dice.

2. The player saves the die showing the highest number and places the two remaining dice back into the cup.
3. For the young learner, direct the player to snap together Unifix Cubes into a train to equal the number showing on the saved die.
4. The player then shakes and spills the remaining dice in the cup, saving the die showing the highest number. Direct them to add this number of Unifix Cubes to their original train.
6. Once this player has finished shaking, spilling, and snapping, it is the next player's turn.
7. When the partner is finished, tell the pair to compare their Unifix trains. The player with the highest score after three rolls wins. Tell them to compare their trains: who has more and by how many (students can identify their trains as more than and less than if they cannot count)?

Assessment Suggestions

- Before beginning the activities, have students write what they know about games from different countries. Following the teaching, have students write again and see if they are able to express, in words, what they know now. A KWL chart could be used to do this as a whole class.
- For the *In America* book, assess based on whether or not children were able to generate a sentence that made sense and included something about the culture of America.
- If games are played over a span of days, or in the same day in centers or another type of rotation you could have a checklist of the games and have students make sure they have played each game and then journal about their favorite game and why.

Curriculum Extensions/Adaptations/ Integration

- Make up verses and sing the song: I am from _____ (name of country) I _____ (something that is done in that country) sung to the tune of I am the Music Man.
- Advanced Learners could research another country and make their own book (all about book) for that culture. They could

be required to find three examples of things that the children or persons within that culture would like or do.

- Have students find a shape with their bodies that shows something about who they are. What kind of poses and shapes would people from another country have?
- Learners with special needs could work with a buddy or work with the teacher during games. Using a Venn diagram you could compare and contrast games we play and games that children in other countries play.
- Have students journal about what they learned about numbers by playing the number games. Ask them to write about which number game they thought was easiest, hardest, or most enjoyable.

Family Connections

- Where do our names come from? Send a note home with students to research where their name comes from (country of origin). They can come back and share with the class where their name is from, and how they got it. You could also use a map and put the students pictures showing where their country of origin is located.
- Send home the games that were played in class for students to teach their parents and play at home.
- Discuss different family cultures, and have them complete a "family culture page" where they would fill out a paper: In our family we _____. This will spark discussion about how families, not just cultures are different from one another.

Additional Resources

Books

People, by Peter Spier; ISBN 038513181X

Whoever You Are, by Mem Fox; ISBN 0152007873

The Colors of Us, by Karen Katz; ISBN 978-0805071634

Count on Your Fingers African Style, by Claudia Zaslavsky; ISBN 0863162509

This Is The Way We Eat our Lunch: A Book About Children Around the World; by Edith Baer; ISBN 978-0590468879

Count Your Way Through Africa, by James Haskins; ISBN 0876143478

Web sites

http://www.topics-mag.com/edition11/games-section.htm

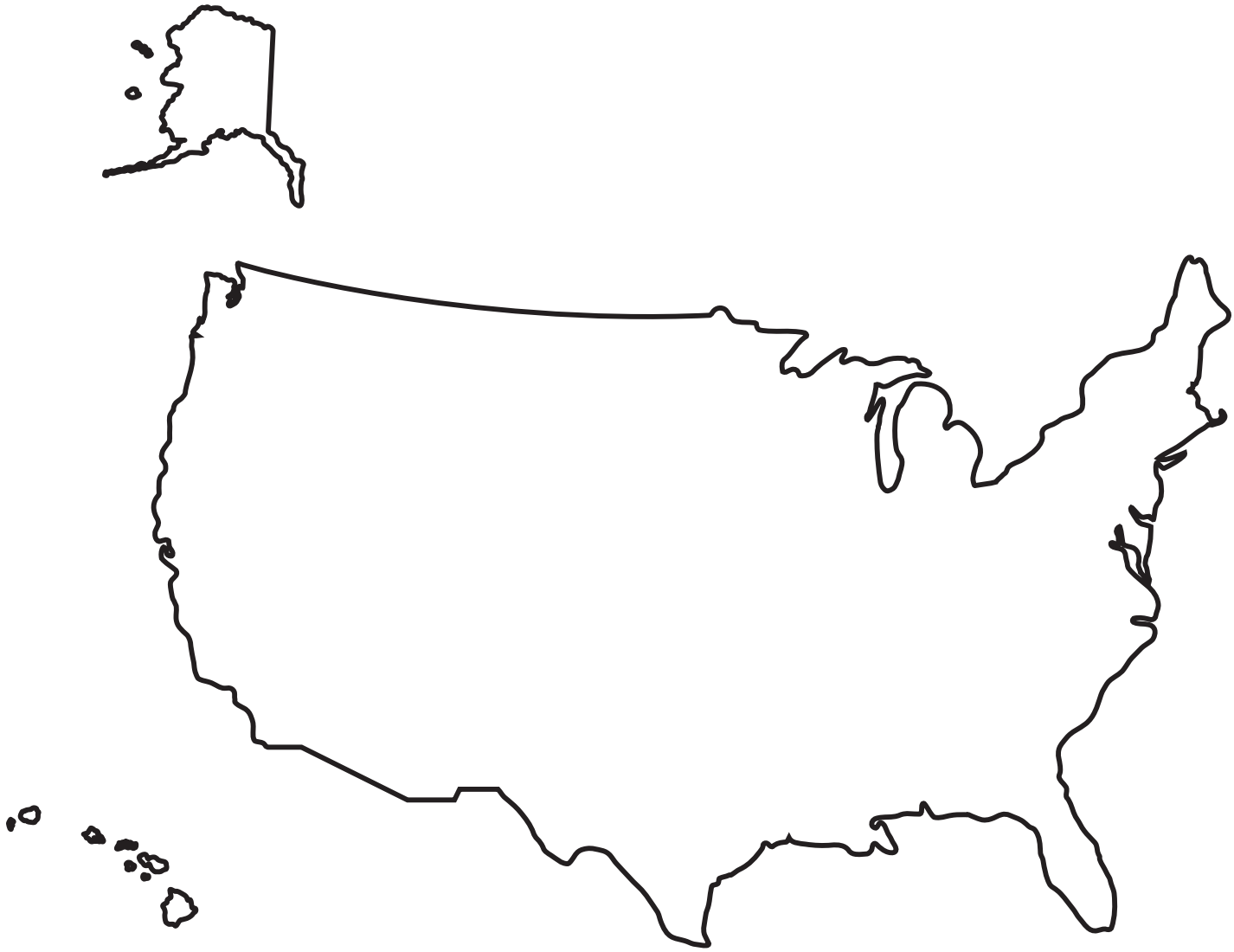
http://library.thinkquest.org/J0110166/

These websites gives ideas for all different games that children play around the world.

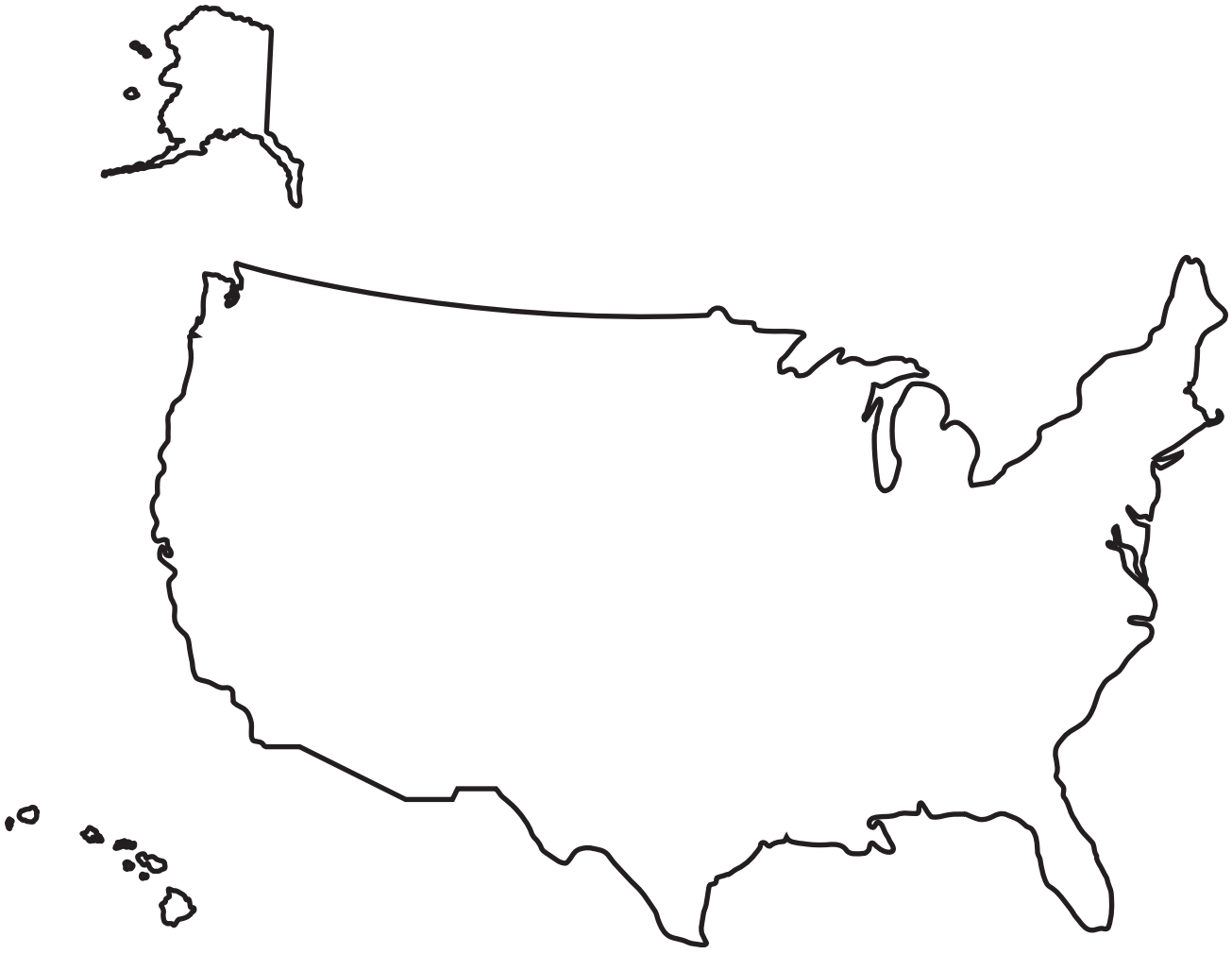
http://www.communityschool.net/topics_of_study/childeren's_games.htm

This website lists games, and also has included a downloadable (PDF) book of more in-depth games that could be taught!

America: Wonderful Describing Words



In America



Written by _____

Friends Around the World

If I should go to London
I'd find a child like me;
He'd probably play cricket
And have bread and jam for tea.

If I should go to Holland
When winter's on the sea,
I'd find the children skating
Upon the Zuyder Zee.

If I should go to China,
Or down to Mexico
I'd find kites or balls or marbles
Or something I would know.

It's curious to think of it ---
Wherever I might be,
In Spain or France or Russia,
I'd find children just like me.

-- Blanche Jennings Thompson

Counting to Five in Different Languages

South Africa (Mbundu Language)

One		1	Mosi		1
Two		2	Vali		2
Three		3	Tatu		3
Four		4	Swala		4
Five		5	Talu		5

Swahili moja (MO-jah), mbili (mm-BEE-lee), tatu (TAH-too), nne (NN-nay), and tano (TAH-no.)

One		1	Moja		1
Two		2	Mbili		2
Three		3	Tatu		3
Four		4	Nne		4
Five		5	Tano		5

Counting to Five in Different Languages

One	 1	
Two	 2	
Three	 3	
Four	 4	
Five	 5	

Math II-1

Activities

Patterns

Who Stole the Numbers?

Standard II:
Students will identify and use number patterns and properties to describe and represent mathematical relationships.

Objective 1:
Recognize, describe, and represent patterns with more than one attribute.

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

Content Connections:
Language Arts VIII-2; Writing

Math Standard II

Objective 1

Connections

Background Information

Prior to teaching this lesson, students will need to be introduced to patterns and be able to recognize patterns on the hundreds chart. Students will also need a basic knowledge of skip counting. Singing skip counting songs and having the students skip count by 2's 5's and 10's on a regular basis will be helpful before starting this lesson. It will also be helpful for students to have basic number sense and understanding of greater than and less than before beginning this activity. Helping students make connections from real world to math helps solidify these concepts. The following activity can be done multiple times with many different missing patterns and numbers.

Research Basis

Bonotto, C. June 2001. How to connect school mathematics with students' out-of-school knowledge. *ZDM*. Vol. 33. pg 75-84.

In this study supermarket receipts were used to construct new knowledge for the students. In the study, the receipts became tools of mediation and integration between in and out-of-school knowledge. They were utilized to create new mathematical goals, thus becoming real mathematizing tools and constituting an interface between in and out-of-school mathematics.

Fosnot, C.T., Dolk, M. 2001. *Young Mathematicians At Work*. ISBN 0-325-00353-X

The mind is never a blank slate. Children always attempt to understand "how many." How many plums are in the grocer's box, how many stairs did they climb, how many fish are in the tank. This uses various schemas. Teachers need to bring every day activities to classroom routines so that student's mathematics is real to life and teachers have achieved mathematizing (connecting to the world) in the classroom.

Invitation to Learn

This activity is called "Start With." Begin by writing a single digit number on the board. Underneath the number write the next number in the counting sequence as if counting by 2's, 5,s or 10's. Continue writing the correct numbers in the sequence until students notice the pattern. Discuss the pattern with the class using the hundreds chart to help with the understanding. Have students record findings in their math journals. (e.g., 3, 8, 13, 18, 23, 28, etc.)

Instructional Procedures

Materials

- ❑ Hundreds chart
- ❑ *Mini Hundreds Charts*
- ❑ Regular markers
- ❑ Transparent covers

1. Remove numbers from the hundreds chart in a pattern. (By 2's, 3's, 4's, growing, etc.) Do not remove any numbers higher than 20. This should be done while the students are out of the classroom.
2. Begin by putting an addition problem on the board and ask the students to use the hundreds chart to figure out the answer. The students will notice that there are some numbers missing from the hundreds chart. Say, "Who stole the numbers?"
3. Talk with the class about the missing numbers. This should take at least five minutes. Here are some sample questions to ask students;

   What numbers are gone?

   How do you know those are the missing ones?

   What can you tell me about the missing numbers?

   What would the pattern look like if it were to continue on the hundreds chart?
4. Give students their own *Mini Hundreds Chart* and a marker. Have each student complete the pattern by coloring the numbers that should be removed if the pattern continued. Students also color any numbers that have already been removed.
5. After students have finished coloring the *Mini Hundreds Chart,* have them identify the patterns they noticed. Discuss the different strategies that were used by students to color in the hundreds chart.
6. Lead students to discover that the pattern is skip counting.
7. Have the students help to identify the rest of the numbers in the hundreds chart following the pattern. Use transparent covers to place over the numbers.
8. Leave the transparent covers in the hundreds chart for a few days and refer to it often before moving onto a different pattern of skip counting.

Assessment Suggestions

- As the students are coloring in their hundreds chart observe strategies they are using to figure out what number to color in next. Notice if they are able to do the work independently or if they are looking to classmates and teacher for help. Make a note of any students that may be struggling.
- Allow students to share their strategies in a class meeting or discussion. Provide an opportunity for them to demonstrate their thinking. This provides students a chance to teach each other and is a great observation for you to assess their understanding.
- Students could be asked to respond to questions in their journal that would give evidence of understanding. Some possible questions are:

  -What patterns do you notice in the hundreds chart?

  -How did you discover the skip counting pattern?
- Use effective questioning to find out students' levels of understanding and to stimulate thinking.

Curriculum Extensions/Adaptations/Integration

- Take down the hundreds chart or provide a mini hundreds board with removable numbers and allow students to manipulate it to show counting by a chosen number you provide for them.
- This activity can be repeated numerous times with different patterns. Using growing patterns with this activity also works well.
- You can integrate this lesson with interactive writing by composing a class letter to "Whoever is stealing the numbers out of our room." Make sure to describe the numbers using odd, even, pattern, etc. Help students understand the different parts of a letter. Students can copy the letter in their journal for handwriting practice or compose an original letter of their own.
- Students can work in pairs if needed. Some students may need larger hundreds boards to write on. Another adaptation is to give students a 1-20 board.

Family Connections

- Send home a letter asking parents to gather 12 pennies and sit at a table with their student. The parent should then instruct

the student to divide the pennies into groups of 2, 3 then 4. Students write a three sentence summary of the activity.

- Have students notice things at home that come in 2's 3's or 4's and tell the class about it for show and tell time.
- Send home skip counting cards that students can practice at home.
- Students can compose a letter to a family member telling of the adventures in your classroom.

Additional Resources

Books

98,99,100! Ready or Not, Here I Come!, by Teddy Slater; ISBN 9780590120093
What Comes In 2's, 3's, & 4's?, by Suzanne Aker; ISBN 9780590478389
A Pair of Socks, by Stuart J. Murphy; ISBN 978059006259
Skip Count by 5, Its No Jive, by Tracy Kompelein; ISBN 9781599285436
Skip Count by 2, Now Can You, by Tracy Kompelein; ISBN 9781599285450
Skip Count by 10, Lets Do It Again, by Tracy Kompelein; ISBN 9781599285412
Ants Go Marching Two by Two, by Maria Fleming; ISBN 9780439690249
The Skip Count Song, by Rozanne Lanczak Williams; ISBN 9780916119997
Skip Counting By Twos, Threes, Fives, and Tens, by Kari Jenson Gold; ISBN 9781582731445
Reese's Pieces Count by Fives, by Jerry Pallotta, Rob Bolster; ISBN 9780439135207

Web sites

http://nlvm.usu.edu/en/nav/vlibrary.html
http://www.carlscorner.us
http://teacher.scholastic.com/maven/cafeteri/index.htm
http://teacher.scholastic.com/max/
http://www.scholastic.com/clifford/play/sortitout/noflash.htm
http://www.sitesforteachers.com
http://www.edhelper.com
http://www.teacherplanet.com
http://www.worksheets4teachers.com
http://www.abcteach.com
http://www.primarygames.com
http://www.songsforteaching.com
http://www.theteacherscorner.net
http://www.softschools.com
http://illuninations.nctm.org
http://www.ucutips.org
http://www.utips.org

Organizations

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191-1502 (703) 620-9840, http://www.nctm.org

Mini Hundreds Charts

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

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

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51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
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91	92	93	94	95	96	97	98	99	100

Mini Hundreds Charts

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51	52	53	54	55	56	57	58	59	60
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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

The Sort of Things

Standard II:

Students will identify and use number patterns and properties to describe and represent mathematical relationships.

Objective 1:

Recognize, describe, and represent patterns with more than one attribute.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

Language Arts I-1; Develop language through listening and speaking.

Math Standard II

Objective 1

Connections

Background Information

A very important part of sorting is being able to identify different categories. Before doing this activity make sure that students have had exposure to several category recognition activities. For example use attribute blocks and discuss the many ways to describe them. Help students understand that the different attributes could be categories. As a class, select some categories and identify the attribute blocks that could fit into each category. Another idea would be to have the class sort category cards into their proper categories. You can have them make a poster of different categories and items to fit in them. This lesson allows students to discover representations of intersecting sets, and introduces them to Venn Diagrams. Effective questioning will guide students to a deeper understanding of these concepts.

Research Basis

McClure, CT. Questions can be powerful. *District Administration*. Sept 2007, p 66.

Researchers have identified effective questioning as a tool for building students' higher level thinking skills. Higher-level questions promote the development of thinking skills. Another important aspect of effective questioning is wait time before calling on a student as well as after the student responds. If this wait time is increased students usually give responses that are longer and more complex with evidence to support their ideas. Students are also more likely to ask questions, listen to others, and increase classroom participation.

Napell, SM. Using questions to enhance classroom learning. *Education*. 2001 Vol. 99 No. 2. p188.

The questions instructors ask in the classroom and the ways in which they ask them can have adverse effects on class participation

and students' learning. Learning the skills of effective questioning techniques can change students from passive classroom spectators to active, creative participants in the learning process. In this paper questions are classified and analyzed, with methods for effective questioning demonstrated.

Wragg, E.C, & Brown, G. *Questioning in the Primary School*. ISBN 0-415-24951-1

Children's own thinking and learning can be improved significantly if they have the opportunity to respond to teachers' questions and to enjoy the process of interaction with them. The principal focus of this book is on everyday questions and questioning within the classroom, whether that classroom is organized in groups, for individual learning, or for whole class activities.

Invitation to Learn

This activity is called "1-2-3 Categories." Have students sit on the floor in a large circle. Begin the game by slapping your knees twice, clapping your hands once then doing thumbs up over your shoulders once. After showing the clapping pattern explain that you are going to do the clapping as a class and everyone is going to say a word that fits the category when you do the thumbs up part. Show them an example. Have the students practice the clapping pattern. When students have the pattern and rhythm begin the chant. It goes "1-2-3 categories" the first time. The second time it is "1-2-3 colors" (or another category). The students continue around the circle naming a different color until they cannot think of any other colors to fit in that category. Discuss with the students the things they just named. What are they? Why would we name all of these things? Continue the game with a different category.

Instructional Procedures

Materials

- ❑ *Zooba Cards*
- ❑ *Sorting Labels*
- ❑ Grouping circles
- ❑ *Venn Diagram*
- ❑ Venn Diagram chart
- ❑ Math journals

Zooba Cards

1. Make the *Zooba Cards*. See black line master for instructions. One set per four students. Also make one overhead set and a matching paper set.
2. Make *Sorting Labels*. See black line master for instructions.
3. Give each group of students a set of *Zooba Cards* and two grouping circles. Next, give students two *Sorting Labels* such as (hair, no hair) for the grouping circles and have them sort the cards appropriately. Make sure that the *Zooba Cards* cannot fit in both circles.

4. Repeat this process by changing the *Sorting Labels* and making sure that one *Zooba Card* cannot fit in both circles.
5. After the students can successfully sort the cards into two categories, give students *Sorting Labels* that will require *Zooba Cards* to fit in more than one circle such as (hair, circle). Observe students as they discover the problem and try to come up with solutions.
6. As you are prompting students to make the grouping circles into Venn Diagrams ask probing questions to different groups to engage thinking. Some example questions follow:
   - Where should this one go?
   - What are you going to do about this?
   - Does this card go in this circle or this circle?
   - How can we make this card be in both circles at the same time?
   - What do you notice about these cards?
7. After students have figured out the Venn Diagram give them the *Venn Diagram*. Have them work in their groups and fill out the sheet by drawing what they have in their circles. One sheet for each student.
8. Discuss with the class the observations as each group moved the grouping circles to become Venn Diagrams. Introduce the Venn Diagram pocket chart and explain the meaning of the different sections. Place a label at the top of the two sections of the pocket chart.
9. Using the overhead set of *Zooba Cards* sort them as a class using *Sorting Labels* that overlap. Have students place the identical paper set of *Zooba Cards* in the Venn Diagram pocket chart.
10. Discuss other things that can be sorted in the Venn Diagram. (e.g., buttons, words, pattern blocks, etc.)
11. Have students record observations in their math journals.

Assessment Suggestions

- During these activities walk around and observe the students. Make notes of questions they ask one another, conversations they have, and thought processes you observe. Make note of difficulty and mastery of these activities.

- When adding the Venn Diagram to the lesson ask many questions for understanding. Observe interactions and conversations they are having with one another.
- Give students the *Venn Diagram* and place some buttons at each table. Have students sort the buttons into the recording sheet.
- Students can be invited to a table one at a time to sort items into a Venn Diagram for you.
- As part of a class discussion explore other items/categories for sorting.

Curriculum Extensions/Adaptations/ Integration

- Add a third circle to the Venn diagram for sorting purposes.
- Make a set of different colored, different shaped pieces from construction paper. On half of them put a frown on the other half put a smile. Use these for sorting into the grouping circles and the Venn Diagram.
- Use a variety of items for sorting. (e.g., buttons, attribute blocks, pasta, lids, etc.)
- Play "Guess My Rule." Look at students clothing and pick one attribute. (e.g., brown pants, stripes, shoes that tie, etc.) Have 3 or 4 students come to the front of the room that fit your rule. Now ask the class if they can place another student in your line that fits your rule. Give clues as needed. When all the students have been placed in the line at the front of the room ask, "What is my rule?"
- Some students may need items to sort with just two attributes, to start off with, like blue and red buttons. Let students work in groups and discuss their thinking.
- Let students come to a table and help you sort items into the Venn Diagram. Offer suggestions for why you sort a certain way. Ask questions to help students sort a few items on their own.
- Provide sorting labels in the students' native tongue.

Family Connections

- Send home an activity sheet asking parents to help students sort laundry into the following categories; socks, shirts, and pants.
- Send home a letter asking parents to help students sort the contents of a grocery bag after a trip to the store. Use the following categories: hard things/soft things, cans/boxes/bottles, and items they like to eat/items they don't like to eat.
- Prepare a take home bag, which includes sorting activities for the students to share with their families.
- Have the students make their own set of *Zooba Cards* to take home.
- Send home a letter asking families to send in things that can be sorted as a class. (e.g., buttons, stickers, pasta, toy cars, plastic lids, etc.)

Additional Resources

Books

3 Little Firefighters, by Stuart Murphy; ISBN 9780060001209

Dave's Down-to-Earth Rock Shop, by Stuart Murphy; ISBN 9780064467292

Sorting Foods, by Patricia Whitehouse; ISBN 9781588107473

Let's Sort, by D. Bauer, D. Olson, T, Olson; 9780736820141

Sorting, by Henry Pluckrose; ISBN 9780516454580

Sorting and Sets, by Henry Pluckrose; 9781597710381

The Button Box, by Margarette S. Reid; 9780140554955

Web sites

http://nlvm.usu.edu/en/nav/vlibrary.html

http://www.carlscorner.us

http://teacher.scholastic.com/maven/cafeteri/index.htm

http://teacher.scholastic.com/max/

http://www.scholastic.com/clifford/play/sortitout/noflash.htm

http://www.sitesforteachers.com

http://www.edhelper.com

http://www.teacherplanet.com

http://www.worksheets4teachers.com

http://www.abcteach.com

http://www.primarygames.com

http://www.songsforteaching.com

http://www.theteacherscorner.net

http://www.softschools.com

http://illuninations.nctm.org

http://www.ucutips.org

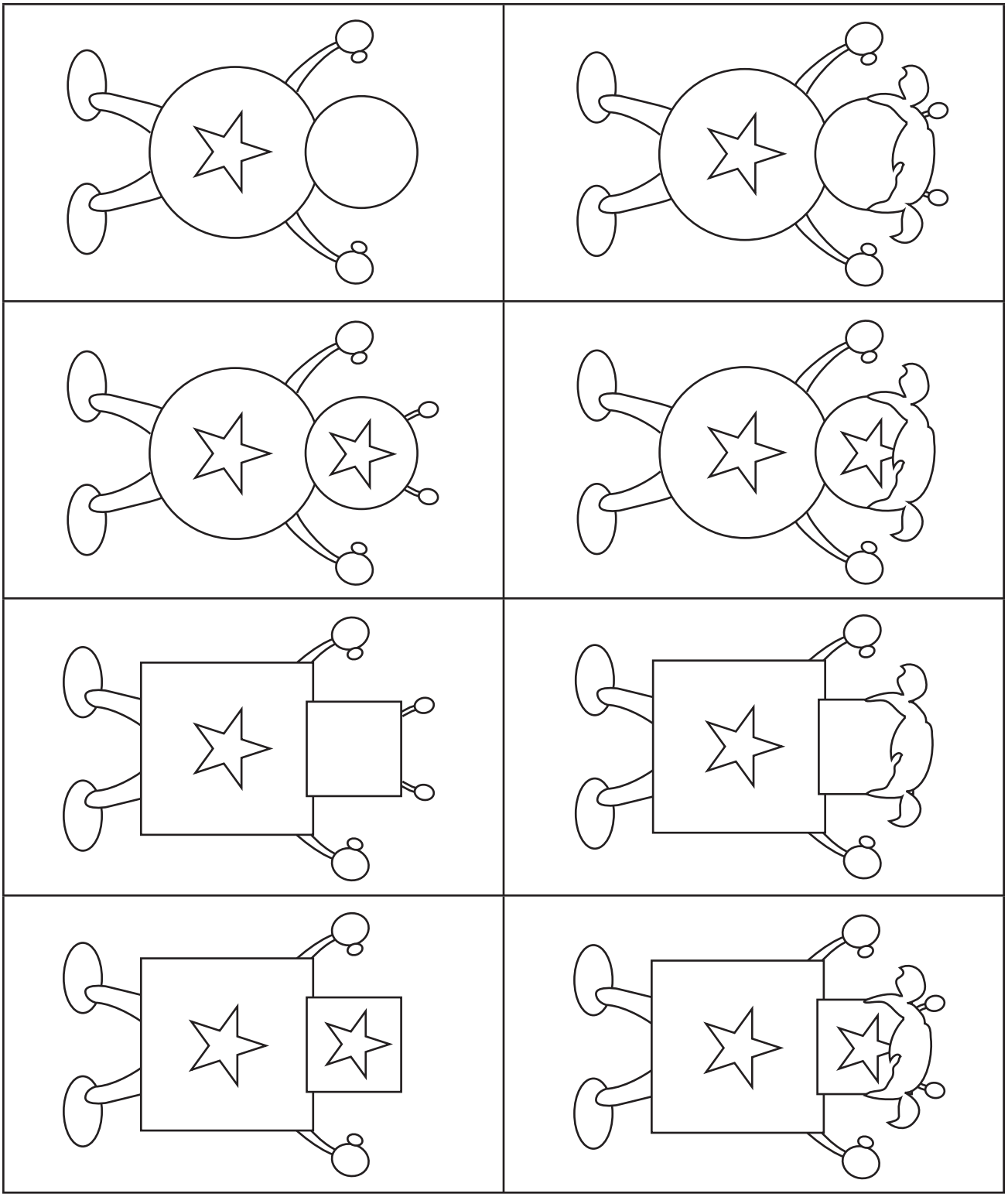
http://www.utips.org

Organizations

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191-1502 (703) 620-9840, http://www.nctm.org

Zooba Cards

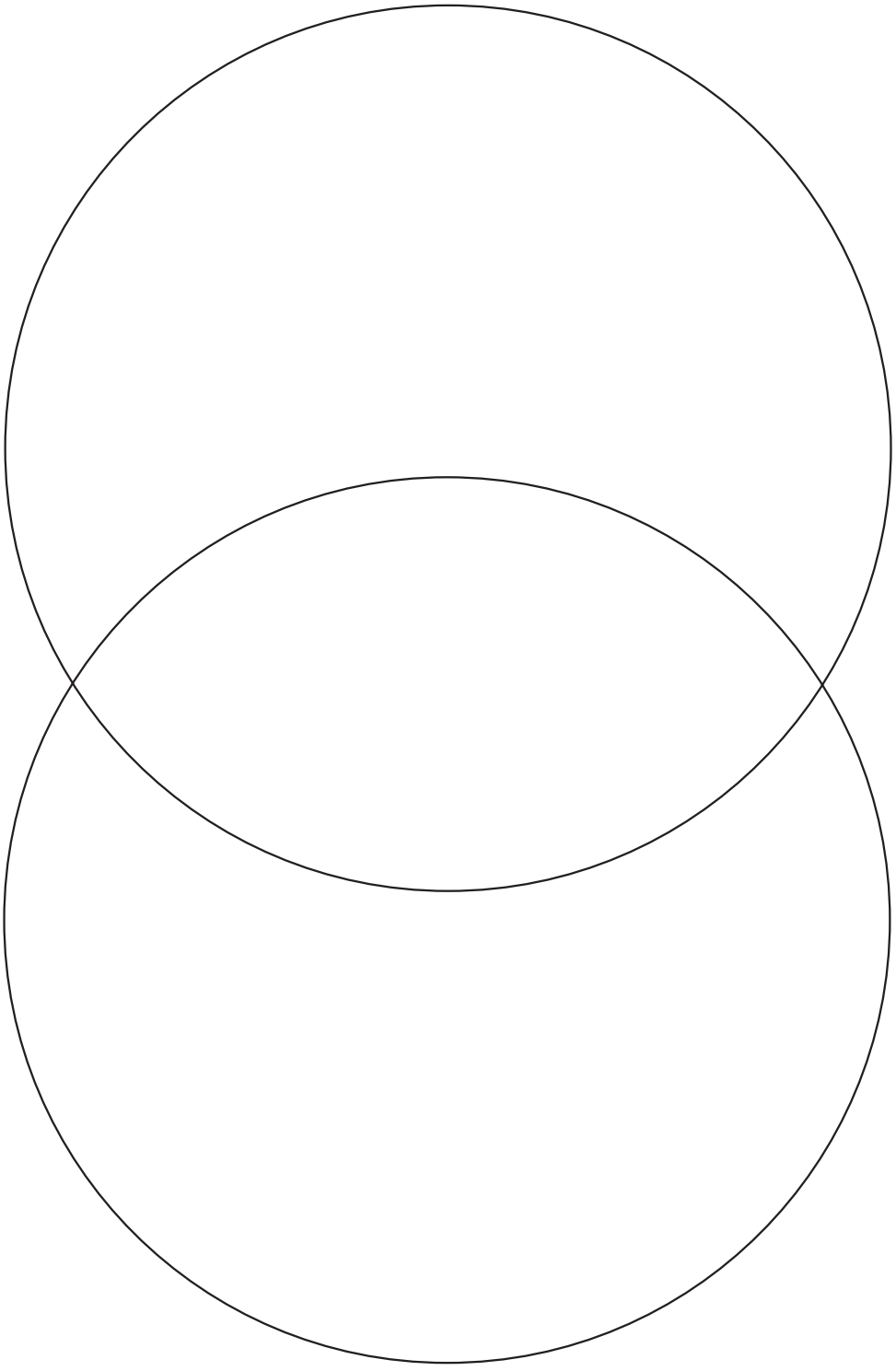
Make two copies on white card stock for each set of Zooba Cards. Color one set purple and the other set green by tracing around the inside of the shapes. Leave the remainder of the cards white.



Sorting Labels

One Star	Two Stars
Hair	No Hair
Circle	Square
Antenna	No Antenna
Purple	Green

Venn Diagram



Welcome to the Incorporated Corporation of Repetition Incorporated

Math Standard II

Objective 1

Standard II:

Students will identify and use number patterns and properties to describe and represent mathematical relationships.

Objective 1:

Recognize, describe, and represent patterns with more than one attribute.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills

Content Connections:

Content I-2; Develop fine motor skills

Connections

Background Information

The following activities are designed to use with students in small group settings. They are ideal for use in centers or stations. Depending on the needs of students and teachers, they may also be used as whole class instructional opportunities. It is important for students to notice patterns in their environment and daily activities. Help students recognize patterns in music and books. Help them see that daily routines, like breakfast, lunch and dinner are also patterns. Patterns should be a fun and educational part of a first grade classroom.

Research Basis

Davidson, N. (1990). *Cooperative Learning in Mathematics. A Handbook for Teachers.* ISBN 0-201-23299-5

Small-group cooperative learning provides an alternative to both traditional whole-class instruction and individual learning. Frequent use of small-group procedures has a profound impact upon the classroom climate. The classroom becomes a community of learners actively working together in small groups to enhance each ones mathematical knowledge.

Muth, D.K. (1997). Using cooperative learning to improve reading and writing in mathematical problem solving. *Reading & Writing Quarterly,* Jan-Mar, Vol. 13, Issue 1.

This article deals with four parts of cooperative learning. Part one is how cooperative learning plays an important role in helping students solve problems. Part two emphasizes the importance of communicating mathematical concepts through cooperative learning. Part three gives specific suggestions for implementing cooperative learning in the classroom. The final section presents classroom examples.

Ding, M., Li,X., Piccolo, D., & Kulm, G., (2007). Teacher interventions in cooperative-learning mathematics classes. *The Journal of Educational Research,* Jan.-Feb. Vol. 100 No. 3.

The potential of cooperative learning to improve students' academic and social performance has been widely recognized. In this article the authors explain how to balance peer resource and students' independent thinking and how to use peer resource to improve students' thinking. The authors also suggest detailed techniques to address students' thinking, such as identify, diversify, and deepen their thinking.

Invitation to Learn

Materials

- ❑ Music
- ❑ CD player

This activity is called "Pattern Dance." Play an age appropriate piece of music with a good pattern. The Harry Potter Soundtrack works well. Have the students listen quietly. After listening to the music a couple of times discuss the pattern in the song as the melody changes. Listen to the music again, pausing when there is a new melody. Label each change in the melody to get a pattern for the song (e.g., AABBC). Ask the students to describe how the melody of each section makes them feel. Title each section appropriately (e.g., jumpy, happy, etc.). Have the class come up with a movement for each title. After the entire song is completed, play it for the students and do the "Pattern Dance."

Instructional Procedures

Materials

- ❑ *Pattern Fish*
- ❑ *Patterns*
- ❑ Photographs of patterns
- ❑ Disposable cameras
- ❑ *Patterns at Home*

Pattern Pictures

1. Before doing this lesson take photographs of patterns that are in the community. (The fence at school or the pattern in the bricks at school.) Get them developed and have them ready for students to look at and explore.
2. Read the book *Pattern Fish* by Trudy Harris. As you read the book discover with students patterns in the words, borders, and illustrations. Identify the patterns. This book is so detailed it may be one lesson by itself.
3. Read the book *Patterns* by Henry Pluckrose. Discuss other places where patterns can be identified.
4. Show students photographs of patterns from around the community, and discuss the different types of patterns.
5. Ask students where they see or use patterns. Some examples are in bedtime routines, breakfast, lunch and dinner, or sunrise and sunset.

6. Send home a disposable camera with the students one at a time. Send the camera in a Ziploc bag with a note that has very specific instructions to the parents. Allow each student to take two pictures of patterns they identify in their environment.
7. After all students have had a turn and the pictures have been developed, have each student take both pictures and glue their favorite one to the *Patterns at Home* black line. Help students label the pattern in their picture.
8. Students will then complete the page in their neatest handwriting by writing a description of the pattern in their picture. They will then color the border and empty spaces on the page to match the pattern label that is in their picture. They may add as many pattern details as they wish.
9. When all students are finished, take the pages and make a class book of patterns for the students to enjoy at independent reading time.

Pattern Trains

Materials

- ❑ Cloth bags
- ❑ Unifix® cubes
- ❑ *Pattern Trains*
- ❑ Crayons

1. Note: The first time *Pattern Trains* is played, use the trains with six squares and have students pull out three cubes and repeat the pattern. As students progress, they can use the eight or ten cube train pages. For this example, the ten cube trains will be used.
2. Have students work in pairs. Give each pair a labeled cloth bag with a variety of colored Unifix® cubes (about ten per bag) and one *Pattern Train* page per student.
3. Have one student pull five cubes out of the bag without looking. The other student links the cubes in the order they were removed from the bag.
4. Both students use their own *Pattern Train* page to record the pattern that has been created by coloring the squares appropriately. Because each pattern train is ten cubes long on the black line each pattern will be repeated twice on the *Pattern Train* page.
5. After the pattern is colored students label the pattern (e.g., ABC. 123.) and record it in the space provided.
6. When the pattern is recorded the cubes are separated and returned to the bag. The students switch roles. One student pulls out five cubes and the other student links the cubes. This process is repeated until the pattern trains are complete.

Pattern Flip Book

1. Make the *Pattern Flip Book* before hand. The instructions are printed on the black line.
2. Students look at the pattern label that is displayed on the *Pattern Flip Book*.
3. Students use the printed foam sheet cut into squares to recreate that pattern from the book on the desk in front of them.
4. After making the pattern with the foam sheet squares, students will create the same pattern using stamps on the *Flip Book Recording Sheet.*
5. Have students label their pattern appropriately in the space provided.
6. Flip the page in the book and repeat the activity.

Materials

- ❑ *Pattern Flip Book*
- ❑ Printed foam sheets
- ❑ *Flip Book Recording Sheet*
- ❑ Stamps
- ❑ Stamp pads

Pattern Paths

1. Create *Pattern Path Game Boards*. (Students can color their own *Pattern Paths Game Board.*) To make *Pattern Paths* choose five different colors. Randomly color in the spaces making sure that the same color does not touch more than three times in a row.
2. The number cube needs to be made and have two fours, two fives, and two sixes on it.
3. Students take a *Pattern Paths Game Board, Pattern Paths Recording Sheet,* one Pattern Paths Number Cube, crayons and ten squares of white card stock. This game can be played alone or with a partner.
4. The student places a white cardstock square marker on the start space. The student rolls the number cube and moves that many spaces. They place a white square marker on that space.
5. Now they look at where they started and where they ended. They record the pattern between the white markers with crayons on the *Pattern Paths Recording Sheet*, and label the pattern.
6. The white markers stay on the board and the student rolls the number cube again. The process is repeated.
7. When you play with partners have students take turns rolling the number cube. Both students will record all patterns on their individual *Pattern Paths Recording Sheets*.

Materials

- ❑ *Pattern Paths Game Board*
- ❑ *Pattern Paths Recording Sheet*
- ❑ Pattern Path Number Cubes
- ❑ White card stock
- ❑ Crayons

Materials

- ❑ *Pattern Wheels*
- ❑ *Pattern Wheels Recording Sheet*
- ❑ Stamps
- ❑ Stamp pads

Pattern Wheels

1. Prepare the *Pattern Wheels* before hand. Instructions are included on the black line master.
2. Each student gets a *Pattern Wheel* and begins at any place on the wheel.
3. Students turn the wheel one time and record the image with the stamps on the *Pattern Wheels Recording Sheet*.
4. Students then turn the wheel one image and record that image with the appropriate stamp on the *Pattern Wheels Recording Sheet*.
5. One pattern is made when the wheel has been turned five times.
6. Students should label each pattern appropriately in the space provided.
7. One *Pattern Wheel* can create many different patterns for the students. They may use one wheel more than one time in a row.

Materials

- ❑ *Pattern Rain Cloud Shapes*
- ❑ Construction paper
- ❑ Glue

Pattern Rain Clouds

1. Copy the *Pattern Rain Cloud Shapes* on white paper. Cut long sheets of construction paper in half the long way.
2. Students will create a growing pattern with lightning bolts and clouds. They begin by cutting out the *Pattern Rain Cloud Shapes*. Each student will need one sheet.
3. Students glue one lightning bolts on the left side of the paper. A cloud goes next to the lightning bolt.
4. Now have the students glue two lightning bolts and then one cloud. Next three lightning bolts and one cloud.
5. The pattern continues until you run out of shapes.

Assessment Suggestions

- Observing students throughout the activities is an effective informal formative assessment for teachers.
- Some of the activities have worksheets that students complete while working on the activity. These worksheets are an excellent source of assessment.
- Math journals are a great assessment for diagnosis of understanding.

- Call students over to a table one at a time to complete any of these activities independently, as a performance assessment.
- Observe the students working on the various activities and assist as needed. Make notes of struggles as well as successes.

Curriculum Extensions/Adaptations/ Integration

- Have students label the patterns with letters or numbers.
- Give students a container of fruit loops and a piece of string. Have them create a pattern necklace.
- Leave any of these activities out for a fast finisher item.
- Give students some M&M's and read *The M&M's Color Pattern Book* as a class while the students create the patterns.
- Assign students to work in pairs throughout the unit.
- Adjust black line masters to have more or less problems to fit student's special needs.

Family Connections

- Send home a letter at the beginning of the pattern unit that encourages parents to look for patterns in everyday life.
- Allow students to take home a *Patterns Paths Game Board* to play with family members.
- Send home an assignment where the student is to bring a pattern to school. It could be fruit loops, stickers, macaroni, etc attached to a sheet. In the letter that explains the assignment give examples of different pattern types. (e.g., AB, ABBA, ABCA)

Additional Resources

Books

Pattern Fish, by Trudy Harris; ISBN 9780761317128

The M&M's color Pattern Book, by Barbara Barbieri; ISBN 9780439488435

Patterns, by Henry Pluckrose; ISBN 9780516454552

Math=Fun! Shapes and Patterns, by Jerry Pallotta; ISBN 9780545002400

Patterns, by Bev Schumacher; ISBN 9780976870630

Lots and Lots of Zebra Stripes: Patterns in Nature, by Stephen R. Swinburne; ISBN 9781563979804

Patterns, by Sara Pistoia; ISBN 9781592966905

Zoe's Hats: A Book of Color and Patterns, by Sharon Lane Holm; ISBN 9781590780428

Busy Bugs: A Book About Patterns, by Jayne Harvey, J. Adnet, B. Adnet; ISBN 9780448431598

A Pair of Socks, by Stuart J. Murphy, Lois Ehlert; ISBN 9780064467032

Web sites

http://nlvm.usu.edu/en/nav/vlibrary.html

http://www.carlscorner.us

http://www.edhelper.com

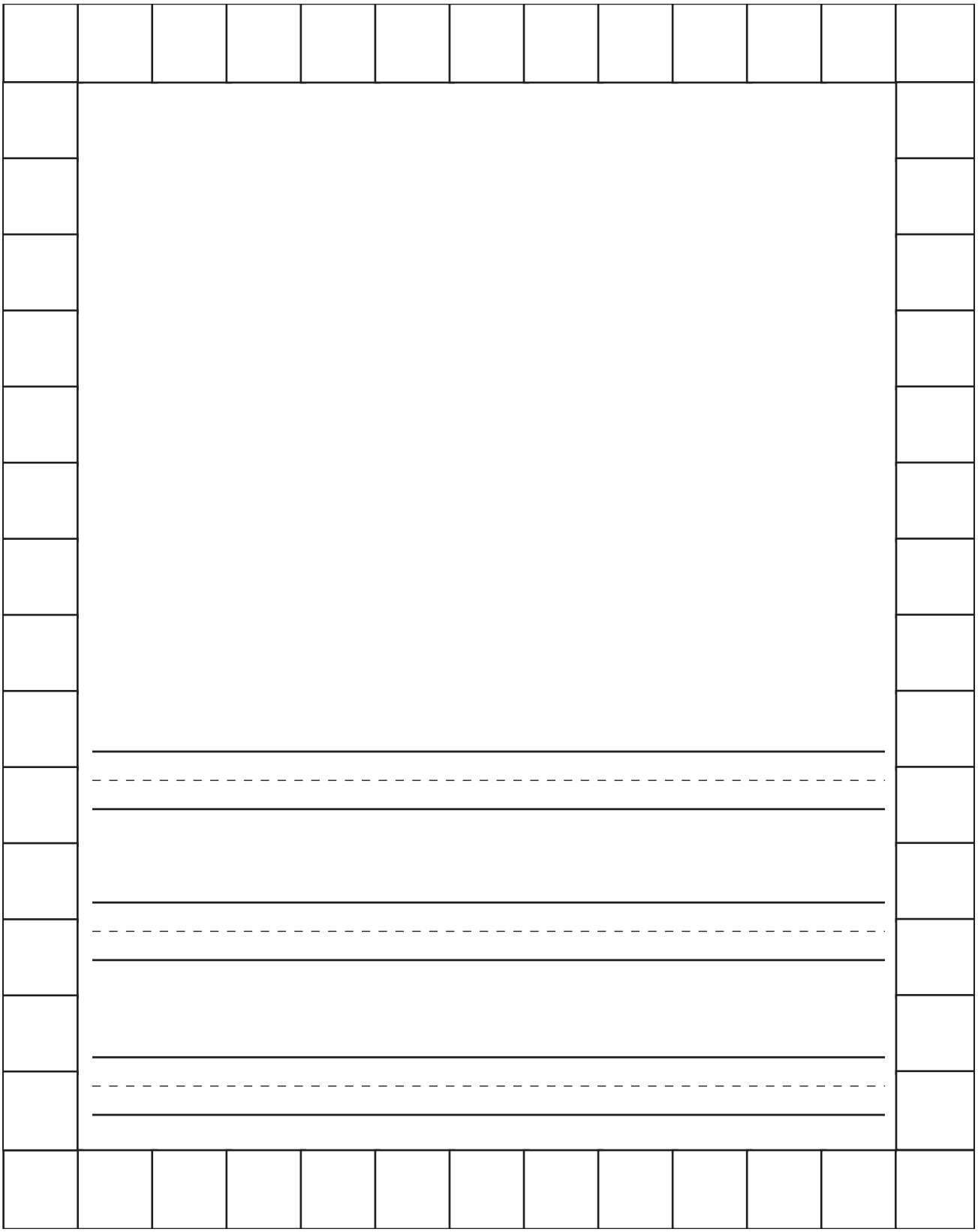
http://www.primarygames.com

http://illuninations.nctm.org

Organizations

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191-1502 (703) 620-9840, http://www.nctm.org

Patterns at Home

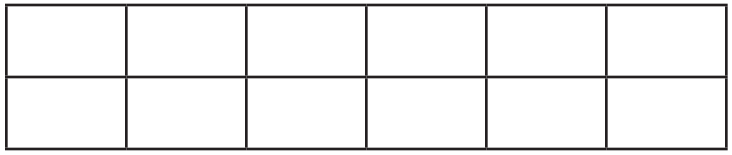


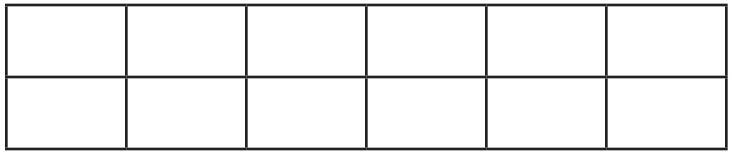
Name _____

Code Letter

Pattern Trains (6 square)

1 

2 

3 

4 

5 

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10 

11 

Name _____

Code Letter

Pattern Trains (8 square)

1 

2 

3 

4 

5 

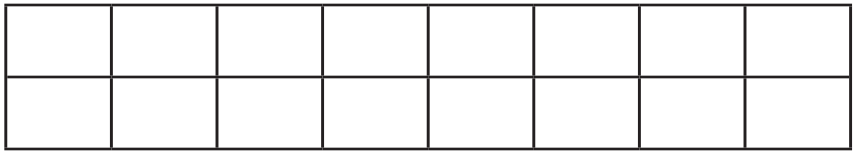
6 

7 

8 

9 

10 

11 

Name _____

Code Letter

Pattern Trains (10 square)

1

2

3

4

5

6

7

8

Pattern Flip Book

AB	AAB
ABC	AABB
ABCD	AABBC
ABB	AABC

Pattern Flip Book

ABCB	ABBAC
ABAC	ABCA
ABCC	ABCDC
ABBC	ABABC

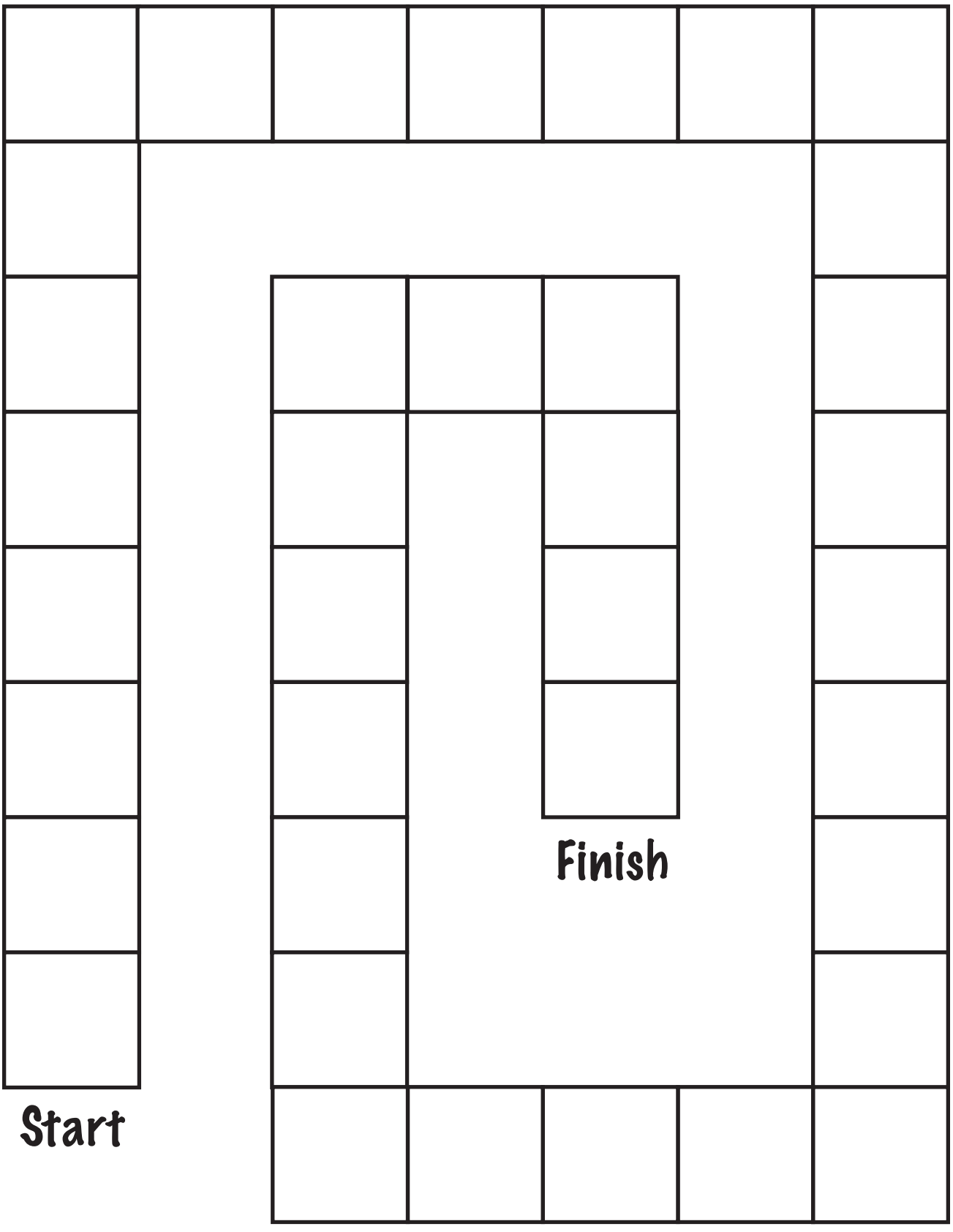
Pattern Flip Book

ABCBA	

Name _____

Recording Sheet

Pattern Paths Game Board

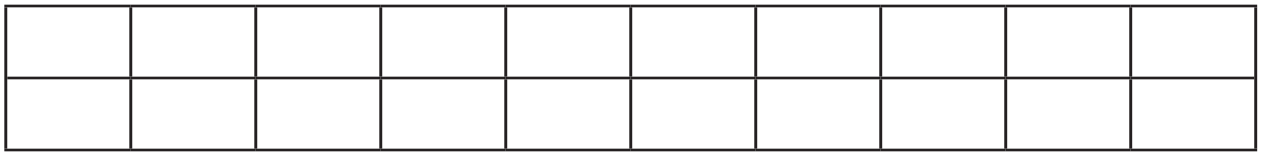


Name _____

Pattern Paths Recording Sheet

1

2



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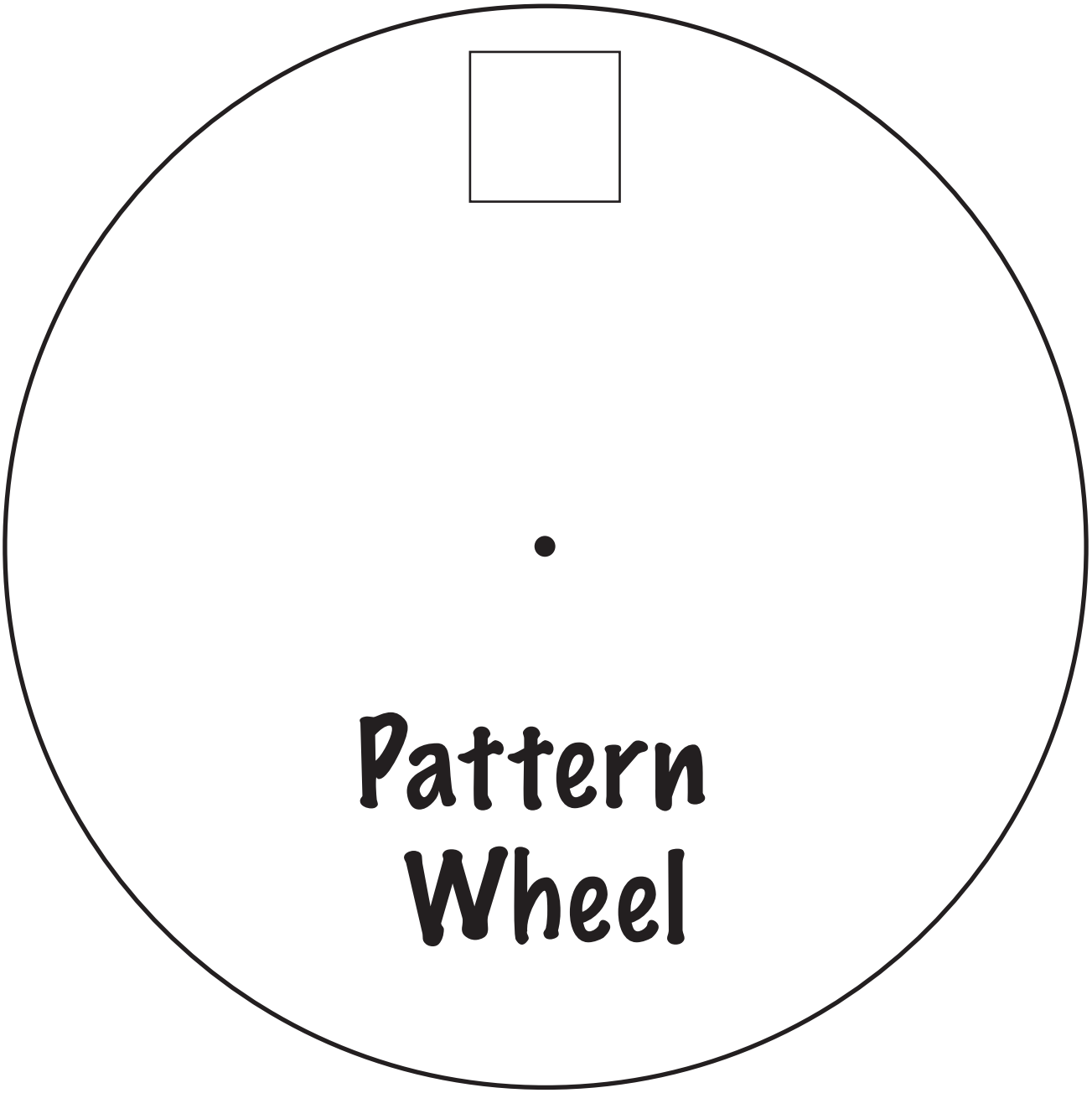
8

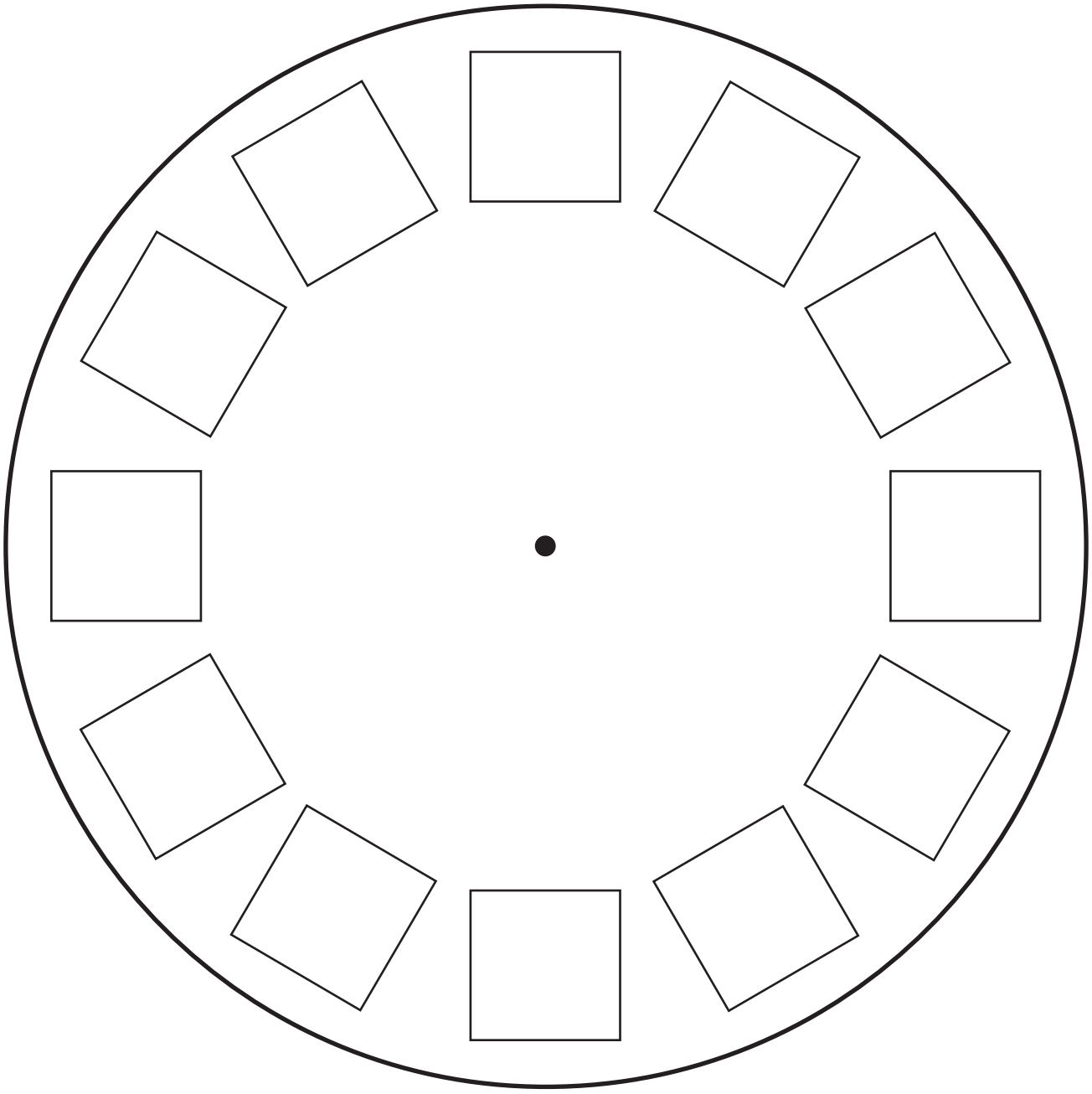
Pattern Wheel

Copy onto colored card stock. Cut out the square. Laminated then attach to other half.

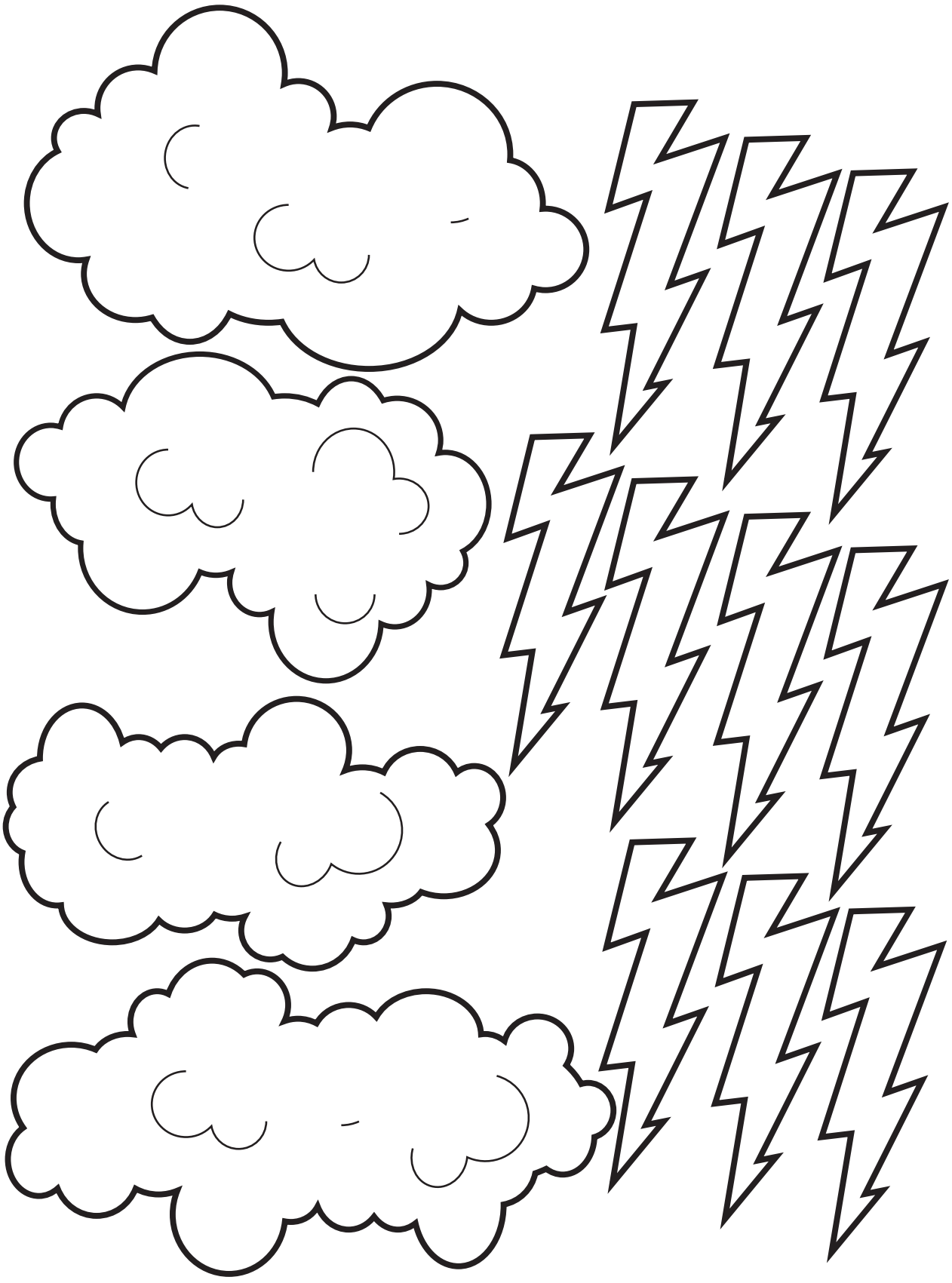


Pattern Wheel

Copy onto white card stock. Using two, three or four stamps randomly stamp all the squares. Laminate then attach to other half using a brad.



Pattern Rain Cloud Shapes



Math I-3

Activities

Operations

The Magic of Numbers

Standard I:

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

Objective 3:

Model, describe, and illustrate the meanings of addition and subtraction and use these operations to solve problems.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude.

Content Connections:

Language Arts VIII-6; write in different forms and genres

Math Standard I

Objective 3

Connections

Background Information

In order for a student to perform math operations and problem solving, they must first have number sense. They must have an understanding of basic number and numeration concepts. Giving students a concrete representation of what makes up a number will help develop required number sense. Teachers need to provide students the opportunity to explore with objects and different representations of numbers. By taking students through concrete, representational and abstract methods of learning, they will develop a deep understanding of the concept. Through experiences provided in the classroom they should be able to transfer knowledge to real-world quantities.

Research Basis

Burns, M., Silbey, R., (2001). Math Journals Boost Real Learning. *Instructor,* April 2001, Vol.110, Issue 7.

This article explains that a math journal is one of the best ways to introduce writing into a math class. It helps students expand their thinking and make sense of problems that sometimes leave them confused and/or frustrated.

Bender, W., (2005). Differentiating Math Instruction. p.14-20.

The importance of developing number sense is addressed in this part of the book. Bender explains that without number sense, the child may never succeed in math at even the lowest levels, since concepts such as numeration, addition, or subtraction would have no substantive meaning. Clearly, development of number sense is a critically important first step in math instruction.

Invitation to Learn

Materials

- ❑ *"12 Ways to get to 11"*
- ❑ Magician's cape
- ❑ Magic hat
- ❑ Items to pull from hat
- ❑ *Card Stack*
- ❑ Magic wand
- ❑ *Magic Journal*
- ❑ *Out of the Hat*

Read *"12 Ways to get to 11"*. As you read the story have the students' count the items listed and make sure there are 11.

Instructional Procedures

Out of the Hat

1. Refer back to the page of the magician in *"12 Ways to Get to 11."* Tell the students that you are going to be a magician to see if you can make different numbers other than 11. Put magician cape and hat on and pick up the magic wand.
2. Fill a magic hat with different types of items. (Fill hat with nine items-three different types. Make sure items are simple and the students will be able to draw them in their journals quickly without a lot of detail.)
3. Tell students that you will need a volunteer from the audience.
4. Chose a student to come and draw a number from *Card Stack*.
5. Using magic wand, say "Abracadabra the items will appear." (Or some magic phrase that will make the experience more magical.)
6. Pull the number of items from your hat that is shown on the card.
7. The students count aloud with you as you take the items from the hat.
8. Do a quick draw of the items on the board to show students how to draw them in their *Magic Journal* on the *Out of the Hat* journal page. Each student will need nine copies of this page for their *Magic Journal*.
9. Students will record in their *Magic Journal* the number that is drawn, and then draw the items that were pulled from the hat to represent that number.
10. Pull items from the hat until numbers have been represented from one to nine.

Materials

- ❑ Magician's cape
- ❑ Magic hat
- ❑ *Magic Signs (+)*
- ❑ *Magic Signs (-)*
- ❑ Items to pull from hat
- ❑ *Magic Journal*
- ❑ Magic wand

Magic Signs

1. Wearing a magician's cape, have a magician's hat with the large plus/addition, and equal sign in it, along with two different types of items. (Fill hat with 18 items – two different types)

2. Tell students that you are going to see what kind of magic can be pulled from the hat today.
3. Pull the plus/addition sign out of the hat and tell the students it is a magic sign that helps complete a number sentence to find how many in all.
4. Next, take the equal sign from the hat and explain that this magic sign helps complete the number sentence by making both sides equal, and the same.
5. Explain to students, that now we have our magic signs we need some numbers so the magic signs can do their magic.
6. Pull items from your hat as the students count the items with you. (Make sure that you pull different items from the hat.)
7. Count the items (e.g. two bugs and five blocks) Write the number of items in the blank number sentence and then have students count and find how many in all.
8. Do several of these as a class, then split class into learning groups with their own hat and have them develop their own number sentences.
9. In the groups they will take turns drawing items from their magic hats and the group will record in their *Magic Journal* the number sentences that they make. Emphasize that the number sentences all have to be different.
10. At the bottom of the *Magic Signs* journal page complete the blank number sentences, as a class to demonstrate the commutative property of addition. (e.g. 3+2=2+3)

Pick a Card any Card

Materials

- ❑ Magician's cape
- ❑ Magic hat
- ❑ *Magic Journal*
- ❑ Deck of cards
- ❑ *Card Stack*
- ❑ Large -/+ sign
- ❑ *Pick a Card Any Card*

1. Dressed in magician cape and hat, start lesson by doing a magic card trick for the students. Using any deck of cards, have a student draw a card from the deck. Tell the student to look at the card closely and make sure they do not forget it. Make sure they remember the color, number etc. While you are emphasizing this, glance at the card that will be above that card when they put their card back into the pile. Mix cards up a little by taking a couple off the top and bottom, but not moving the cards where the student placed the card they drew. From top of deck turn cards over one at a time, when you see the card you looked at the student's card will be the next one. Your students will be so impressed.
2. Tell students that there are many ways we can make number sentences. We can make them by counting objects, as we have

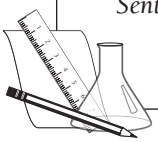
just learned. But, what are we going to do if we don't have blocks, bugs, etc? (elicit responses) We can use our math magic to find how many in all without objects to count.

3. Using *Card Stack,* have a student draw from your hand two cards then put them on the board on either side of the addition sign.
4. Show students how they can count the items on the cards to find how many in all or the total.
5. Put equal sign on board.
6. Count the shapes and draw the shapes on the board to represent the card, and then write the total number of shapes in the answer blank. (Show students a quick draw of how to make the shapes.)
7. Do several of these as a class.
8. Pair students giving each pair their own *Card Stack*.
9. Students will take turns drawing two cards from their partner and filling in their *Pick a Card Any Card* journal page in their journals. Each student will need four copies of this page for their *Magic Journal.* They will draw in the number of shapes from the card that they drew from their partner, and then write the answer. (Some students will have difficulty drawing the shapes. As a modification, those students can draw circles or use a tally mark for all cards instead of drawing the shape. Make sure the focus is not on drawing the shapes.)
10. Walk around the classroom observing that students are correctly drawing shapes and counting them correctly.

Magic Number Sentences

Materials

- ❑ 3x5 cards
- ❑ Magician's cape
- ❑ Magic hat
- ❑ Magic wand
- ❑ M&Ms, Skittles, etc.
- ❑ Small baggies
- ❑ *Magic Number Sentences*



1. Wearing magician's cape, give students a 3 x 5 card to write two of their own number sentences on. Make sure students write their name on their card (for assessment).
2. After they have completed the number sentences have the students drop them into the magic hat, tap the hat with your magic wand saying "This number sentence will magically appear again."
3. Using the students number sentences make representations of the sentence using M&Ms, Skittles, or some other type of treat, and put them in a baggie. Write students name on the baggie.
4. At the beginning of math, circle time or whenever you chose, tap hat and tell the number sentences to magically appear. Each

day pull out two or three baggies, and have the students use the representations of the treat to write the number sentence on their *Magic Number* Sentences journal page. Each student will need three copies of this page for their *Magic Journal*. Everyone will write the number sentence in their journals and solve it, and the student who put that number sentence in will get the treat.

5. After the students have written the sentence and solved it, ask the student who wrote the number sentence to talk about how they solved the problem. Use effective questioning to have the students talk about the commutative property of addition. Encourage the students to use appropriate math terms.

Magic Hat Worksheets

Materials

- ❑ *Magic Hat (+)*
- ❑ *Magic Hat (-)*
- ❑ *Magic Hat Problem Solving*
- ❑ Boxes
- ❑ Dry erase markers

1. Use the Magic Hat Worksheets for assessment and fluency. You may choose to laminate the worksheets and have them in Magic Math Boxes.
2. The students will go to a box and take out a hat to work on with a dry erase marker. You could have the boxes colored according to the level of difficulty.
3. There is a blank worksheet for you to add any variety of problems you would like to use.

__ Ways to get to __

Materials

- ❑ *__Ways to Get to ___* title page
- ❑ Materials to write and illustrate book (e.g. markers, crayons, watercolors, etc.)

1. For a language arts connection, students will make their own book about "eight ways to get to seven," "nine ways to get to eight," etc.
2. Do not put limits on this activity. Let students explore with different options, not just using two numbers to get the answer.
3. Differentiate this activity by assigning out different books titles. For the advanced learners give them the higher numbers, and for those that struggle give them the lower numbers to work with.
4. Have a class read aloud and let the students share their books as a celebration of learning.

Assessment Suggestions

- Check responses in *Magic Journals* for completeness and correctness.

- Observation of students, making sure students are completing activities correctly and not practicing mistakes.
- Student responses to effective questioning as you move around the classroom during completion of activities.
- *Magic Sentence* 3x5 cards
- *Magic Hat* worksheets
- To assess student's " __ Ways to Get to __" books, develop a rubric to meet your specifications.

Curriculum Extensions/Adaptations/ Integration

- This unit can be used for subtraction using the subtraction black line masters.
- Advanced learners could add 3 or more digits together, and use subtraction reciprocally.
- Allow advanced learners the opportunity to develop their own magic numbers trick.
- Provide students who struggle concrete objects for a longer period of time.
- At the end of the unit have a magic show that students will participate in.

Family Connections

- Send home *Magic Hat* worksheets for homework practice.
- Send home blank *Pick a Card Any Card* journal pages and have students complete them with their family members.
- After completing the unit using both addition and subtraction, have a magic show. Send home a celebration letter to parents telling them the students know the magic of numbers, and to celebrate they would like to have a magic show. Ask parents to help the students develop and practice a magic trick to perform. Invite parents to attend the show.

Additional Resources

Books

12 Ways to get to 11, by Eve Merriam; ISBN 978-0-689-80892-0

The Hershey's Kisses Addition Book, by Jerry Pallotta; ISBN 0439267285

MATH-terpieces The Art of Problem-Solving, by Greg Tang; ISBN 0-439-44388-1

Web sites

http://www.oswego.org/ocsd-web/games/Mathmagician/cathymath.html

http://www.aplusmath.com/games/index.html

http://www.dep.anl.gov/aattack.htm

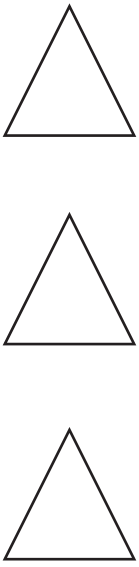
http://rubistar.4teachers.org/index.php

Card Stack - 1

1

2

3



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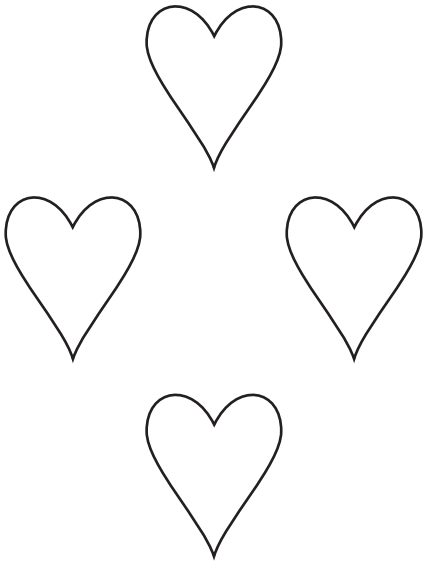

Card Stack - 2

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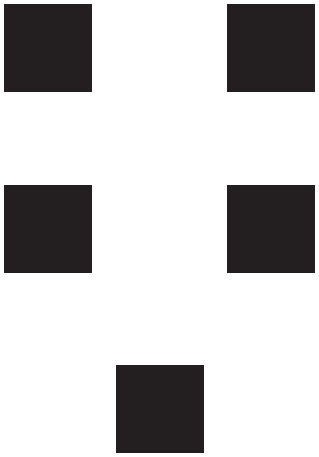

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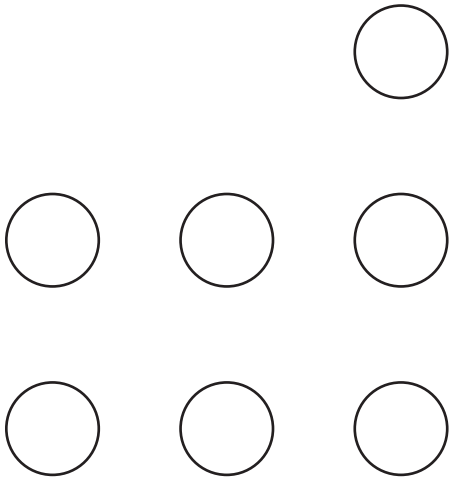

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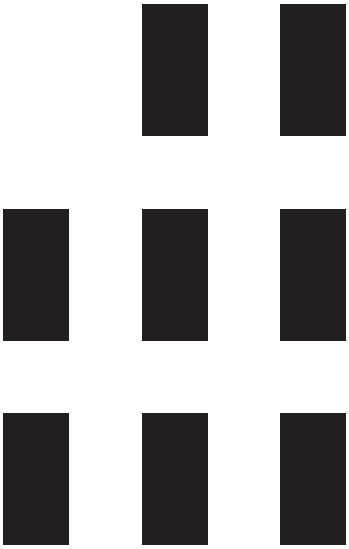
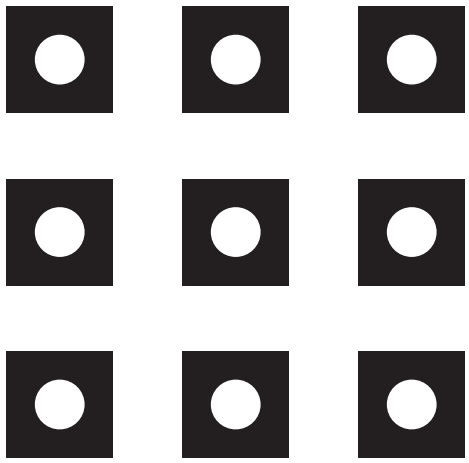
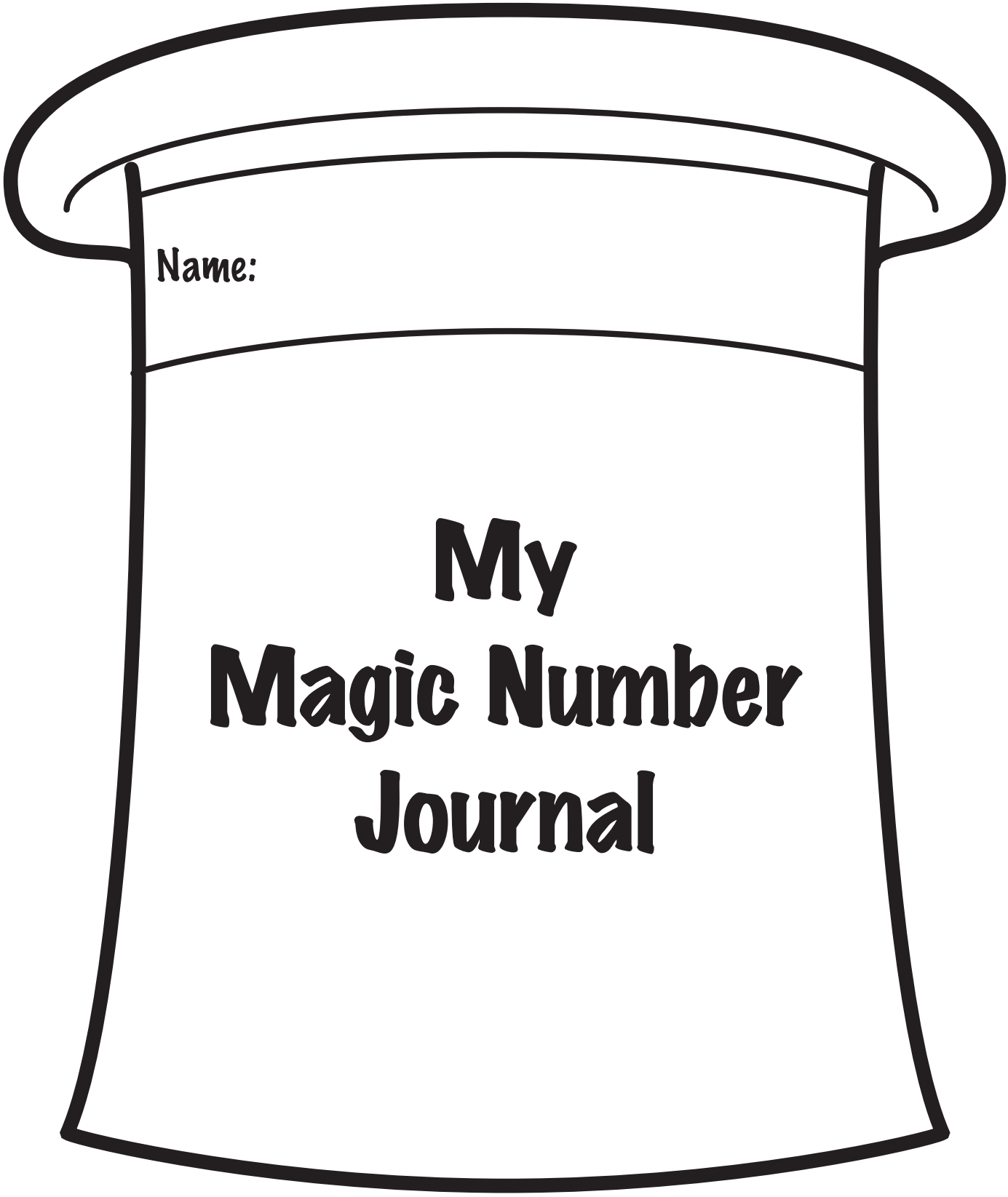
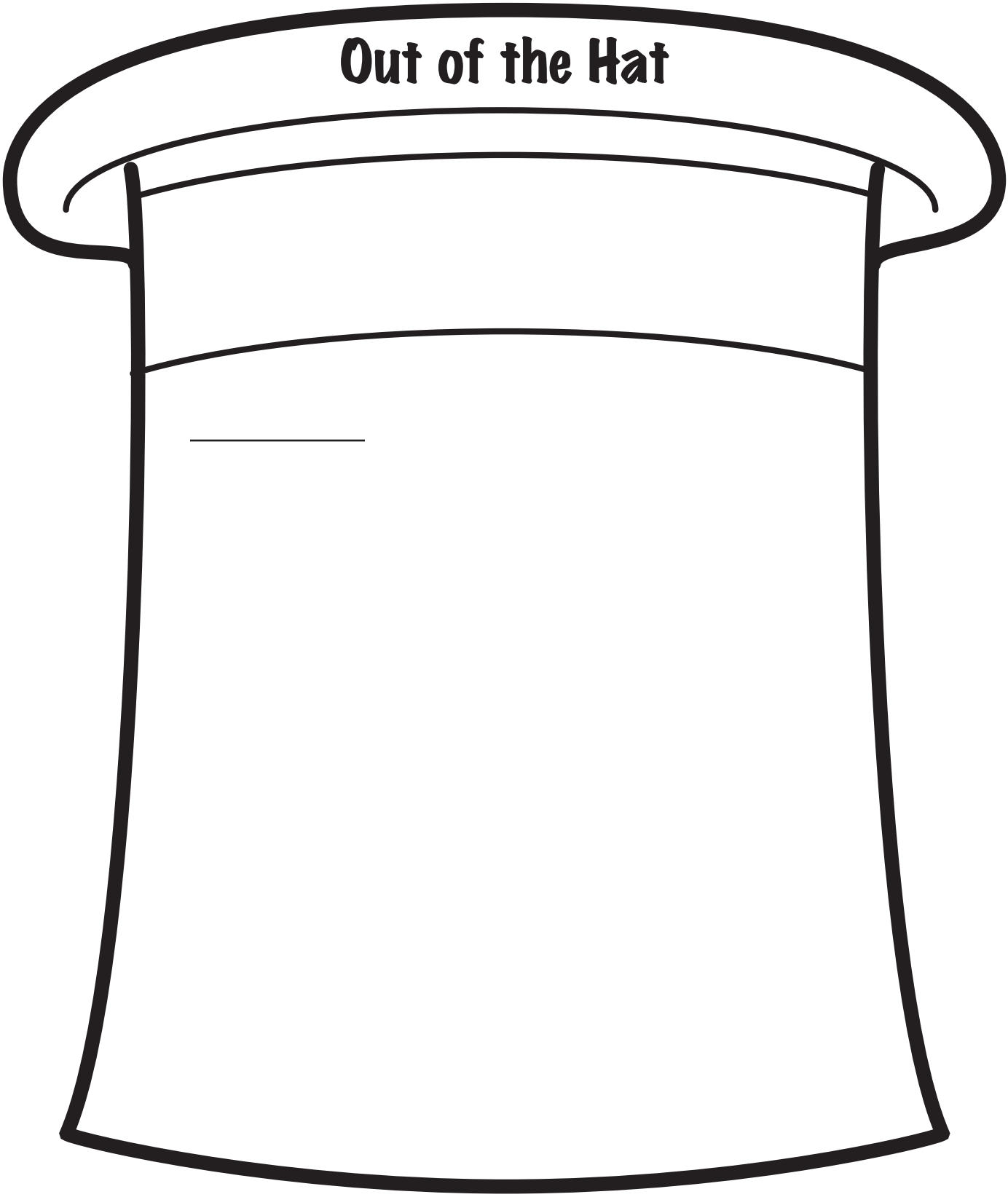
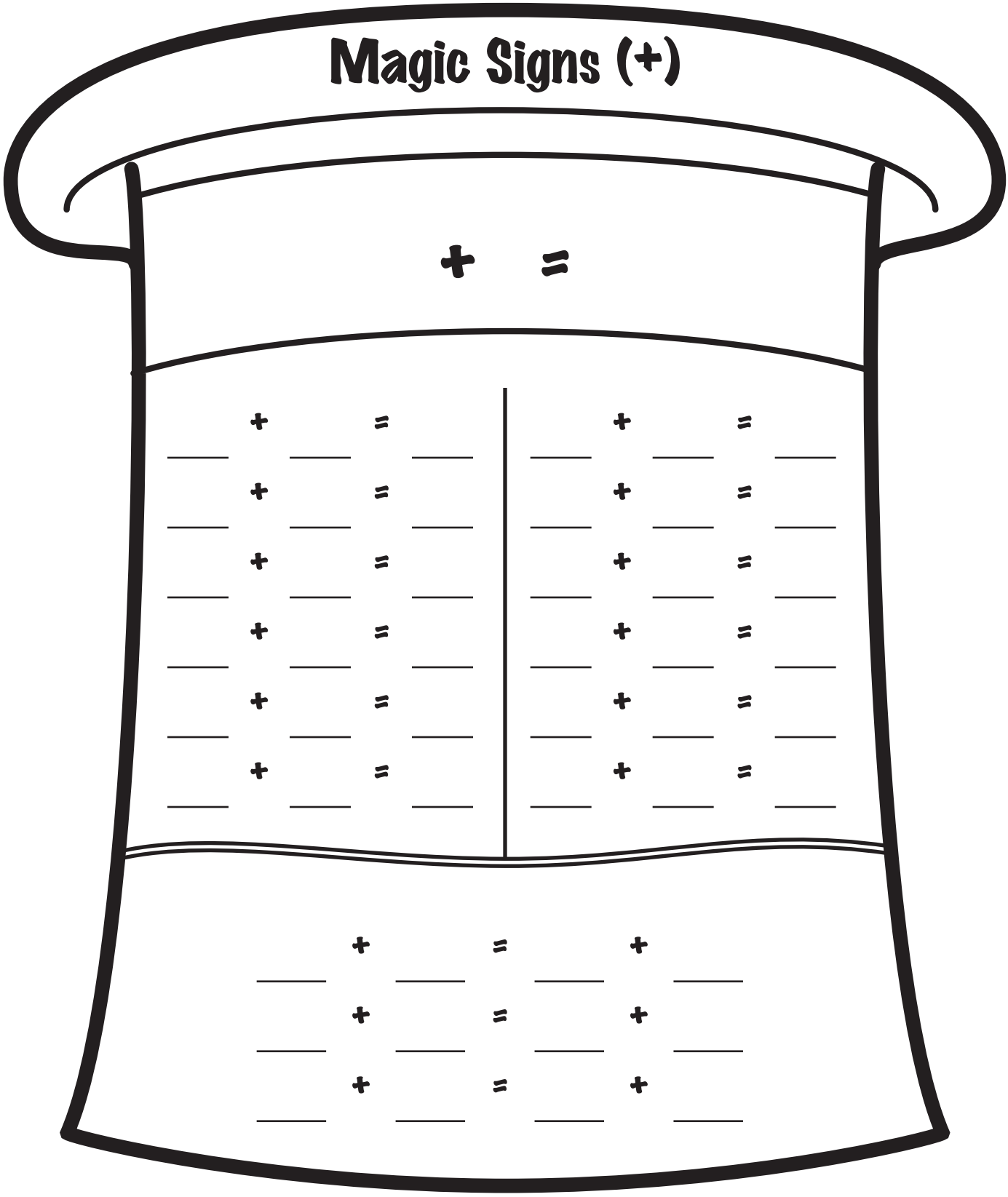


Card Stack - 3

9 	
	


Name:
My
Magic Number
Journal


Out of the Hat


Magic Signs (+)
+ =
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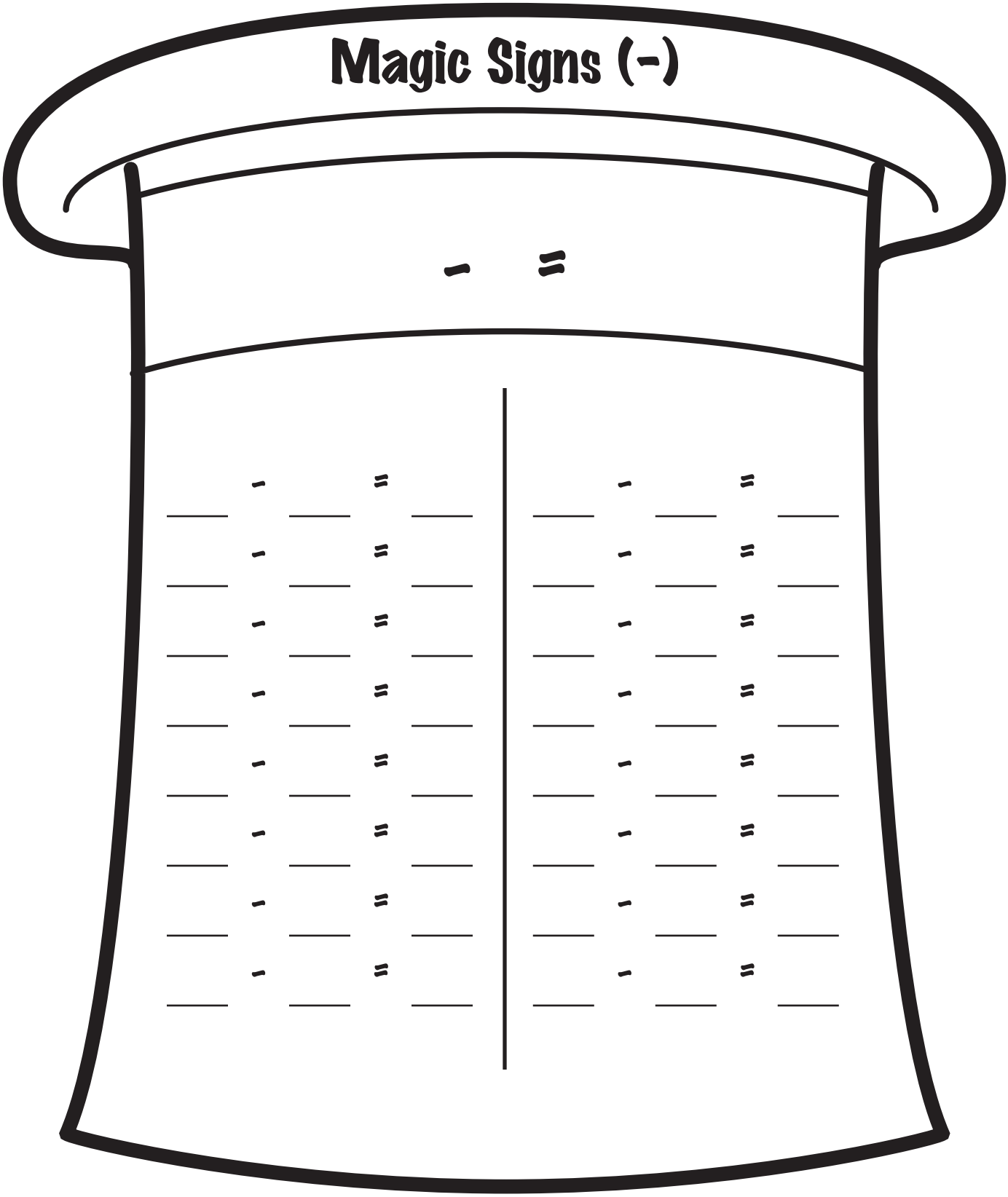
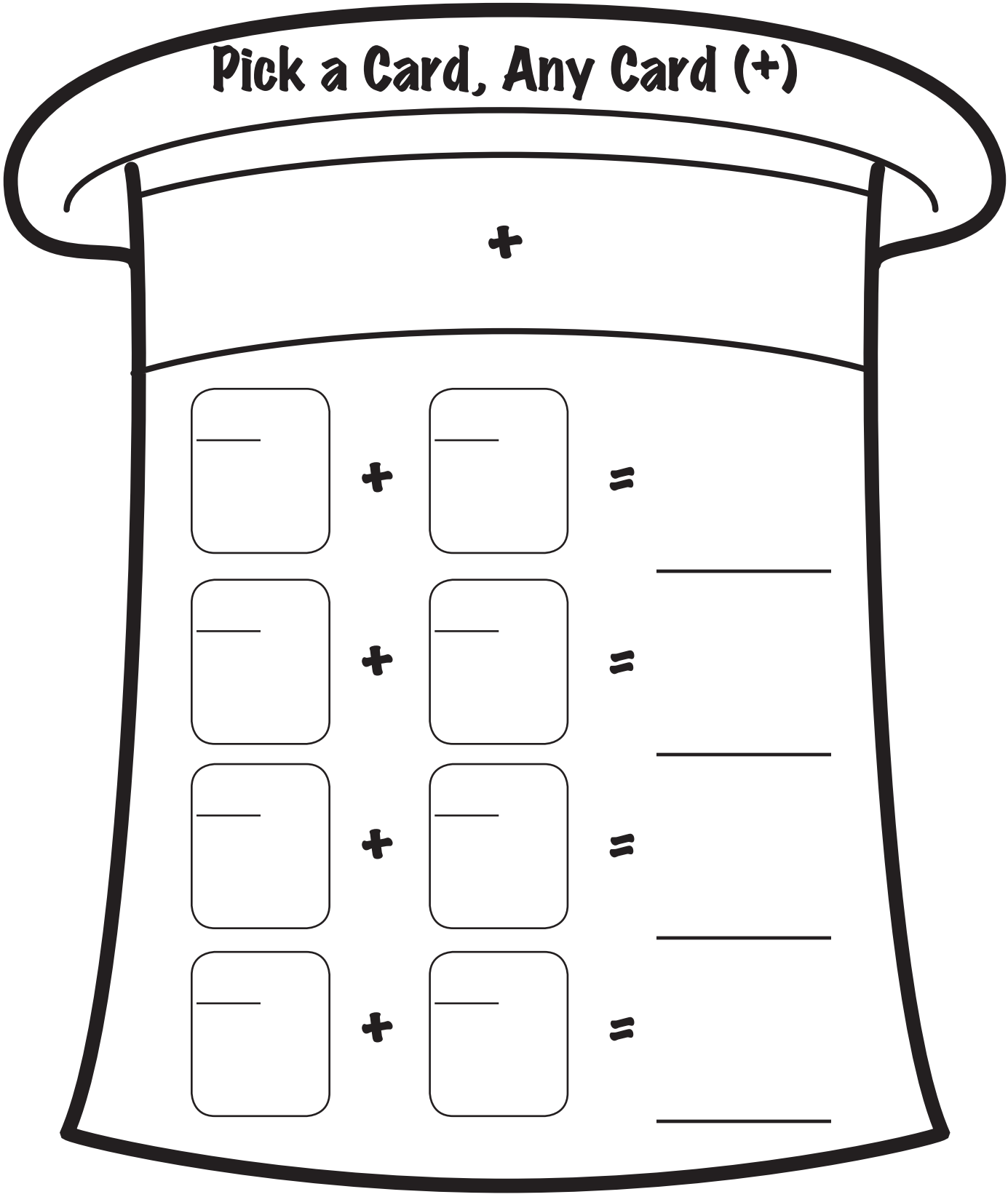
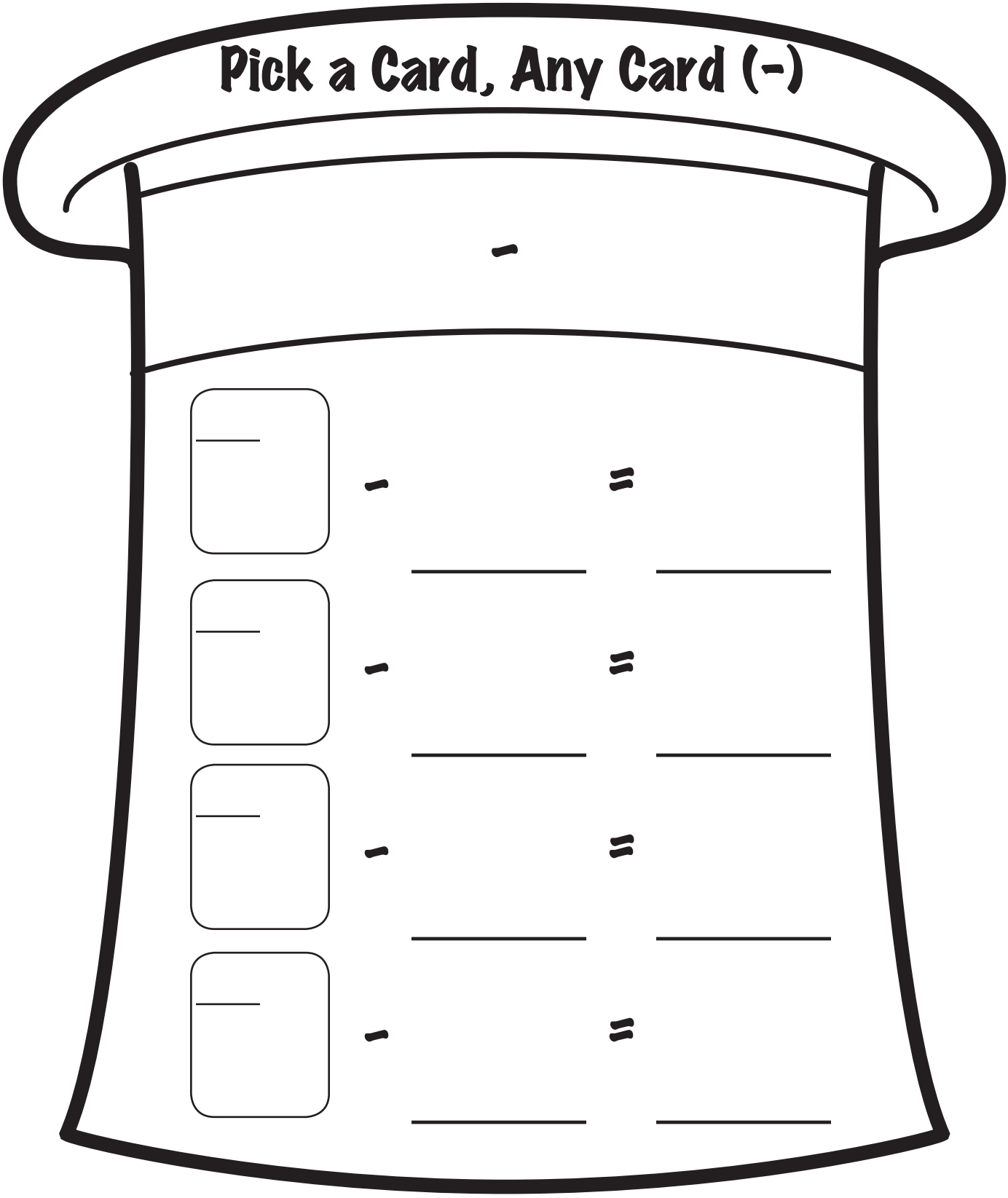
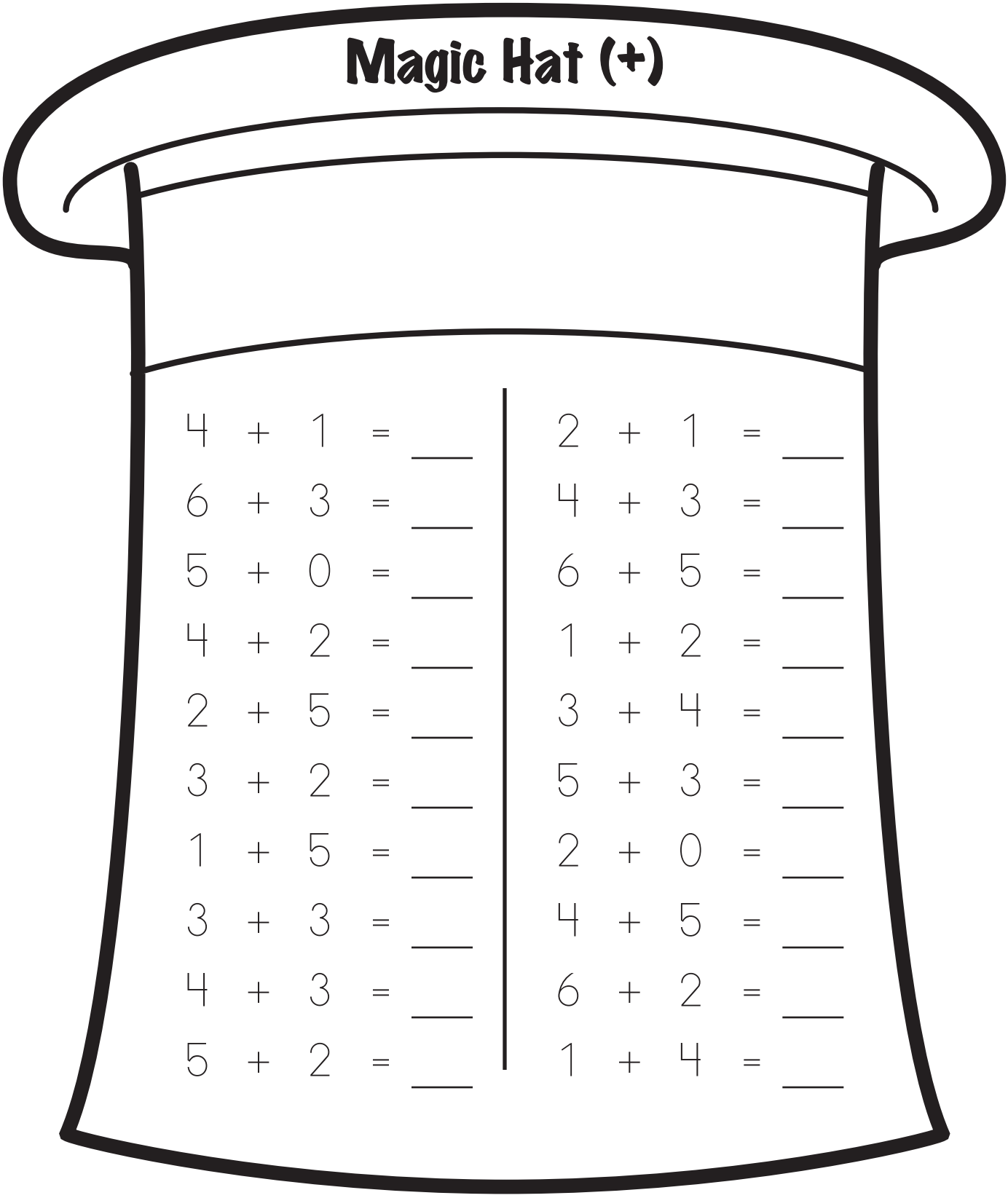

Magic Signs (-)
- =


Pick a Card, Any Card (+)
+
+ =
+ =
+ =
+ =


Pick a Card, Any Card (-)
-
-
=
-
=
-
=
-
=

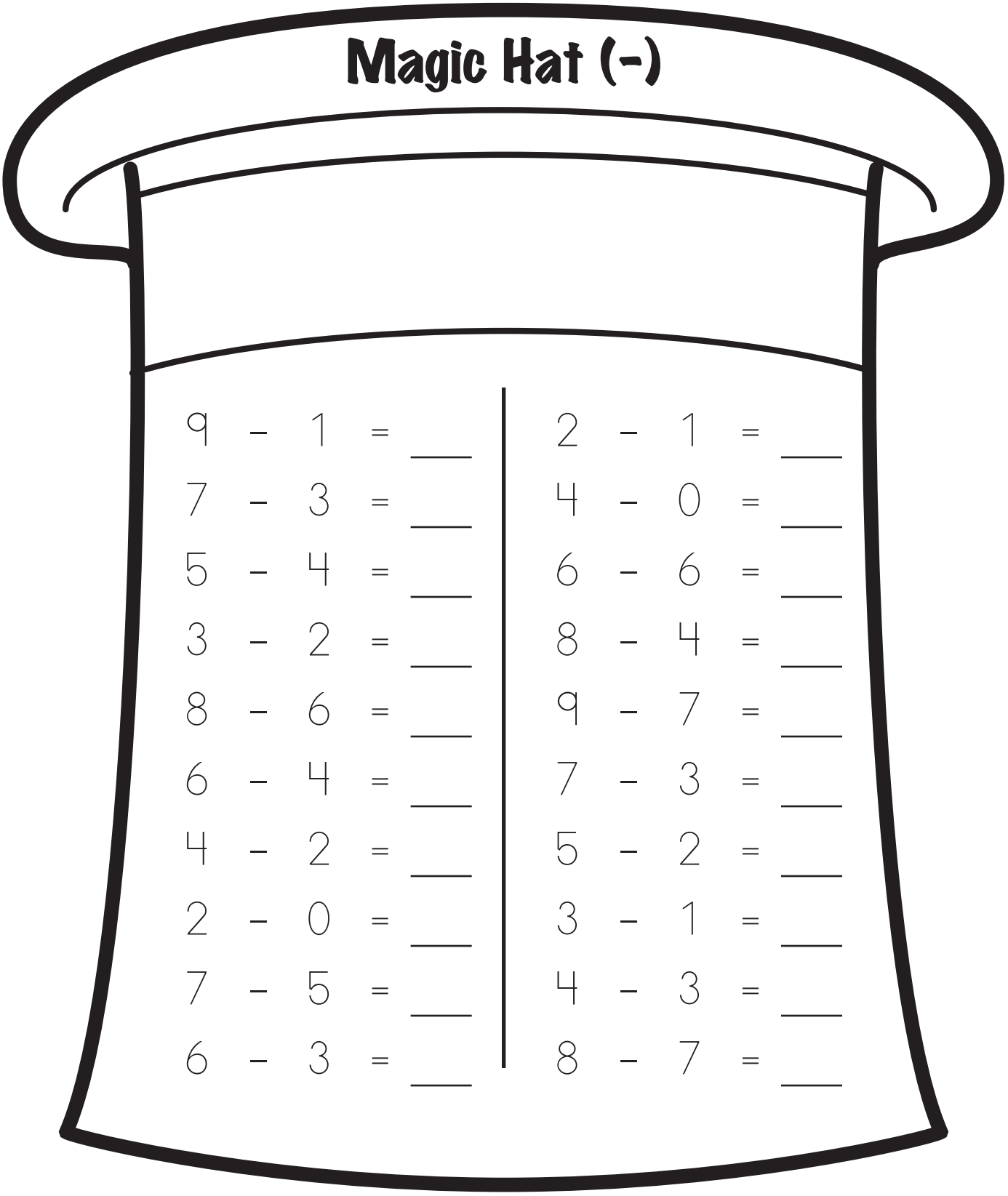

Magic Number Sentences

Magic Hat (+)



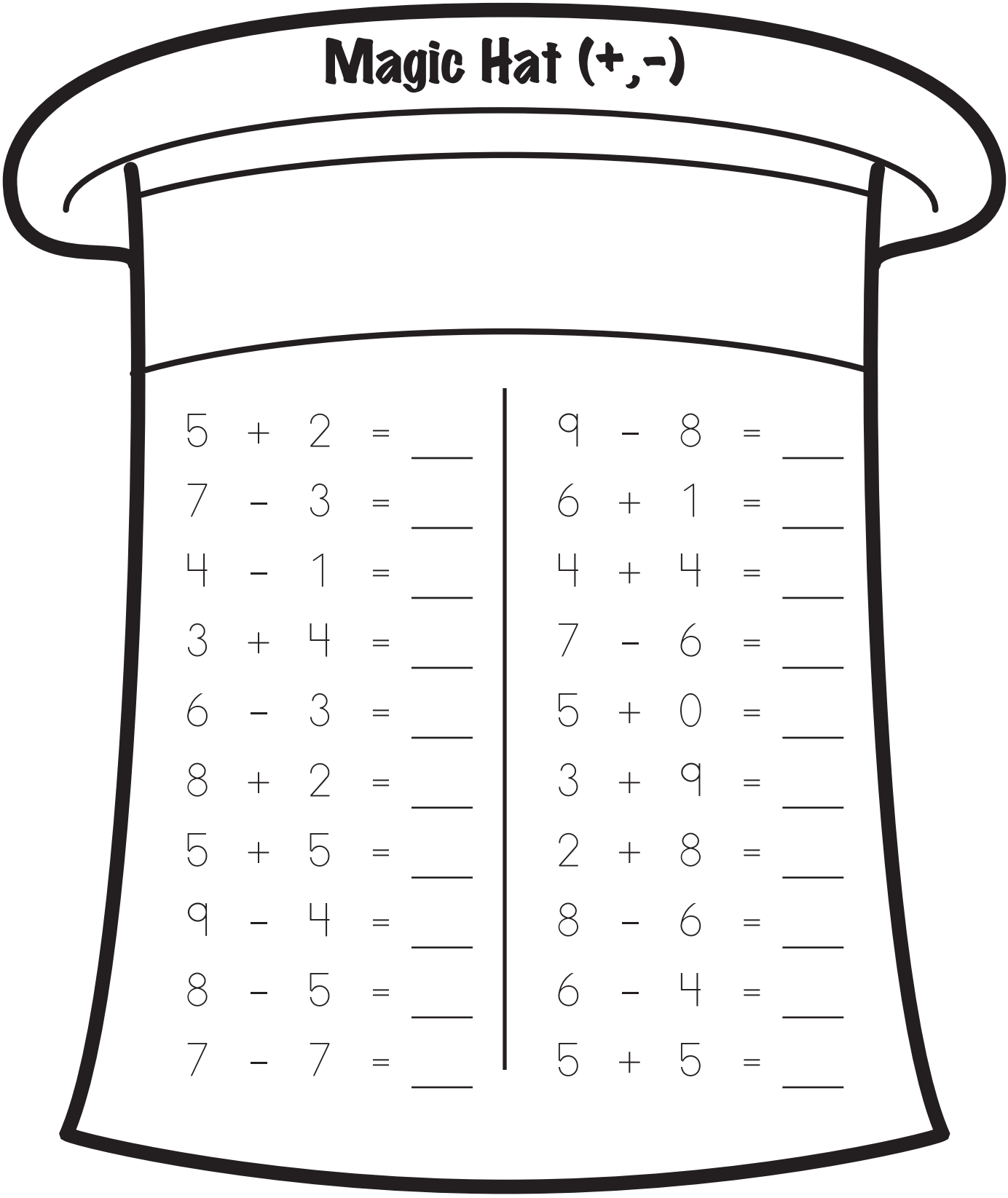
4 + 1 = ___	2 + 1 = ___
6 + 3 = ___	4 + 3 = ___
5 + 0 = ___	6 + 5 = ___
4 + 2 = ___	1 + 2 = ___
2 + 5 = ___	3 + 4 = ___
3 + 2 = ___	5 + 3 = ___
1 + 5 = ___	2 + 0 = ___
3 + 3 = ___	4 + 5 = ___
4 + 3 = ___	6 + 2 = ___
5 + 2 = ___	1 + 4 = ___

Magic Hat (-)



9 - 1 = ___	2 - 1 = ___
7 - 3 = ___	4 - 0 = ___
5 - 4 = ___	6 - 6 = ___
3 - 2 = ___	8 - 4 = ___
8 - 6 = ___	9 - 7 = ___
6 - 4 = ___	7 - 3 = ___
4 - 2 = ___	5 - 2 = ___
2 - 0 = ___	3 - 1 = ___
7 - 5 = ___	4 - 3 = ___
6 - 3 = ___	8 - 7 = ___

Magic Hat (+,-)



5	+	2	= ___	9	-	8	= ___
7	-	3	= ___	6	+	1	= ___
4	-	1	= ___	4	+	4	= ___
3	+	4	= ___	7	-	6	= ___
6	-	3	= ___	5	+	0	= ___
8	+	2	= ___	3	+	9	= ___
5	+	5	= ___	2	+	8	= ___
9	-	4	= ___	8	-	6	= ___
8	-	5	= ___	6	-	4	= ___
7	-	7	= ___	5	+	5	= ___

Magic Hat Worksheet

Problem Solving

1. Merlin pulled 6 rabbits from his magic hat, then he pulled out 2 more rabbits. How many rabbits did Merlin have in all? _____

2. Aladdin has 8 frogs in his magic hat, he took 3 frogs out of his hat. How many frogs are left in his hat?
   _____

3. 5 bunnies jumped into Merlin's hat, 2 frogs jumped in after the bunnies. How many animals did Merlin have in his hat?
   _____

4. Aladdin has 9 magic cards, he gave 4 cards to Merlin to use. How many cards does Aladdin have left?
   _____

5. 7 birds are in Merlin's magic hat, 4 were scared and flew away. How many birds are left in the hat?
   _____

Ways To Get To

A Family of Facts

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

Objective 3:
Model, describe, and illustrate the meanings of addition and subtraction and use these operations to solve problems.

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

Content Connections:
Content 2-1; relationship to families

Math Standard I

Objective 3

Connections

Background Information

Students need to understand that addition and subtraction are inverse operations. That is, when you add numbers, you can then subtract those same numbers from the sum to show equality in the number sentence.

Research Basis

Hudson, P., Miller, S.P., (2006). *Designing and Implementing Math Instruction for Students with Diverse Learning Needs*. p.200-220.

Because of the hierarchical nature of mathematics, it is very difficult for students who lack competence in addition and subtraction to advance their mathematical ability. Understanding the relationship between addition and subtraction helps build declarative knowledge.

Miller, S.P., Hudson, P.J., (2006). Helping students with disabilities understand what mathematics means. *Teaching Exceptional Children,* Sept./Oct. 2006, Vol. 39. No.1, pp.28-35.

The importance of conceptual understanding of mathematics is explained in this article. Students that have developed a conceptual knowledge understand the deep meaning of abstract mathematical symbols and operations. Providing a variety of ways to represent concepts will encourage meaningful understanding and the students should be able to generalize the skill.

Invitation to Learn

Read *Family* poem by Mary Ann Hoberman. After reading the poem have students discuss what makes up a family. Then, using boy and girl figures, tell a story about your family. For example: I

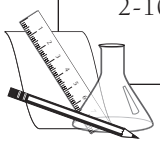
Materials
- ❑ *Family*
- ❑ Boy and girl figures

have five in my family. There is a dad (put a boy on board), A mom (put a girl on board), one brother (put another boy on the board), and two girls in my family (put two more girls on the board). This is how my family makes up five people. Leave your family representation on the board, and tell a story about a student in your classroom with a different number in their family. Then chose another student; one that has the same amount of people only with a different amount of boys and girls.

Instructional Procedures

Materials

- ❑ *My Family*
- ❑ Drawing tools
- ❑ Large numbers from 2-10

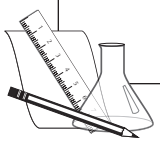


My Family

1. Give each student a copy of the *My Family* worksheet.
2. Instruct students to draw their family using their markers, crayons or colored pencils.
3. In the upper right hand corner of the paper, the students will write how many are in their family. They will also write how many boys and how many girls.
4. On the board, place large numbers from two-ten (Place numbers according to sizes of families. If you know your students do not have ten in their family, or if there are families with more, place that amount of numbers on the board.)
5. Students will take turns bringing their family pictures to the board and placing them under the number that they have in their family.
6. Explain to students that we have many different sizes of families.
7. Point out that a family of five might have two girls and three boys, or four boys and one girl, but it is still a family of five.
8. Go through the other numbers and point out the different combinations of boys and girls in a family.

Materials

- ❑ Sentence strips
- ❑ *Boy Die Cuts*
- ❑ *Girl Die Cuts*
- ❑ Pencils
- ❑ Glue sticks



Family Number Sentence

1. Demonstrate to students how to write a number sentence about your family. The number sentence will be illustrated with the *Boy and Girl Die Cuts* (e.g. 2+3=5 in my family, two boy die cuts are placed beside the number two and three girl die cuts are placed beside the number three.)
2. Give each student a sentence strip and *Boy and Girl Die Cuts*.

3. Students will now write their own family number sentence, gluing on die cuts to represent boys and girls in their family.
4. After students have completed their number sentences have them replace the pictures on the board of their families with their family number sentence.
5. Again point out the different combinations of boys and girls that equal five and the different combinations that equal six, etc.

House of …

Materials

- ❑ Chart paper
- ❑ Markers
- ❑ Boy and girl figures
- ❑ *House of… Journal*

1. On chart paper draw a large house and write the numeral one at the point of the roof, add a line to separate the roof from the house. Make sure students understand that a house of zero would be empty.
2. Explain to students that you are going to make a house of one.
3. Using boy and girl figures, show representations of ways to make one. (e.g. one boy or one girl)
4. Write number sentence on chart paper house. (1+0=1, 1-0=1)
5. Students will make their own Families of… in their *House of … Journal*. As you write the number sentences on the chart paper, students will write the number sentence in their journal.
6. On next large house write the numeral two at the point of the roof.
7. Explain that you are now making a house of two.
8. Using boy and girl figures, show representations of ways to make two. (e.g. two boys and zero girls, one girl and one boy, etc.)
9. Write number sentences (2+0=2, 1+1=2) on house.
10. Using story form, start by telling that there were two people in the house and one brother went to play with his friends, now there is only mom left at home. Show number sentences (2-1=1, 2-0=2)
11. Continue making Families of…through nine using all related math facts. (e.g.3+0=3, 2+1=3, 1+2=3, 0+3=3, 3-0=3, 3-1=2, 3-2=1, 3-3=0)
12. When incorporating the zero concept, you can simply state that all families are not alike, and in some families there might be all girls and no boys or visa versa.

Materials

- ❑ *Houses of…*
- ❑ Construction paper
- ❑ *Family Chain Pattern*
- ❑ Dry erase markers and erasers

Family Chain

1. Charts of *Houses of…* will be on the board.
2. Explain to students that we will now take a family from the *House of…* two.
3. Take out the *Family Chain*. This is a paper doll chain, with 5 people in the chain made from 12X18 construction paper.
4. On the head of the first person in the paper chain, write the number in your family. On one arm write the number of boys and on the other arm write the number of girls.
5. Explain to students that we now have the numbers needed to make a fact family. The fact family will have two addition problems and two subtraction problems.
6. Show students on the *Family Chain* the ways to make the fact family. On the second person, write the first addition fact. On the third person write the second addition fact. On the fourth person write the first subtraction fact, and on the fifth person write the second subtraction fact.
7. Students will now use their own *Family Chain*.
8. Have *Family Chains* already made and laminated.
9. Give each student a *Family Chain* and dry erase marker.
10. Tell them to take their own family from the house and show the facts that belong to their family.
11. After they have represented their own family, tell them to take another family from the house and show the facts that belong to that family.
12. Have students do at least one fact family from each house.

Materials

- ❑ Chart paper
- ❑ *Fact Family Triangles*
- ❑ *Fact Family - Roof Pieces*
- ❑ Containers

Fact Family Triangles

1. Using chart paper, draw a large house; in the roof write 3 numbers to use in number sentences that make up a fact family. As a class, develop the fact family number sentences and write them in the house. Practice until students see the pattern.
2. Give each student a copy of the *Fact Family Triangles* worksheet.
3. Sit students in groups to share the containers of the *Fact Family - Roof Pieces*. Students will work independently, by taking a roof piece and placing it on top of a house on the *Fact Family Triangles* worksheet, they will then write the addition and subtraction sentences that go with that fact family on their *Fact Family Triangles* worksheet.

4. After they have completed a fact family they will put the roof piece back in the container and take out another.
5. Students will continue to fill in each of the houses on their worksheet with different roof pieces.

Assessment Suggestions

- *Fact Family Triangles* worksheet
- Completion of *Families of… Journals*
- Use *Family Chains* to assess understanding of various fact families.

Curriculum Extensions/Adaptations/ Integration

- Advanced learners can develop problem solving questions about families.
- For advanced learners, put the numbers on the sides of the fact family triangles and then they chose the appropriate places for the numbers to go in the number sentences.
- Advanced learners can make their own fact family triangles and use them to make a game.
- Adaptations for learners with special needs would be to let the student use the die cuts to develop fact families.
- Another adaptation would be to, write one of the numbers in the fact family number sentences for the student.
- This activity could be used along with a unit on families.
- As a lesson in language arts, write about why the fact family numbers are together (focus on the patterns.)

Family Connections

- Take home *Family Chain* and have family help them make up a variety of fact families.
- Send home a blank *Fact Family Triangles* worksheet for the family to do. Write a letter asking parents to talk about relatives or neighborhood families and make their fact families like their relatives or neighborhood families.
- Have students teach their family how to make a fact family.

Additional Resources

Books

Love is a Family, by Roma Downey; ISBN 9780060393748

Web sites

http://www.haelmedia.com/basic_fact_sheets/index.html

http://www.quia.com/jg/387225.html

http://www.dositey.com/

http://www.canteach.ca/elementary/songspoems3.html (family poem)

FAMILY

What is a family?
Who is a family?
One and another makes two is a family!
Baby and father and mother: a family!
Parents and sister and brother: a family!

All kinds of people can make up a family
All kinds of mixtures can make up a family

What is a family?
Who is a family?
The children that lived in a shoe is a family!
A pair like a kanga and roo is a family!
A calf and a cow that go moo is a family!

All kinds of creatures can make up a family
All kinds of numbers can make up a family

What is a family?
Who is a family?
Either a lot or a few is a family;
But whether there's ten or there's two in your family,
All of your family plus you is a family!

Mary Ann Hoberman

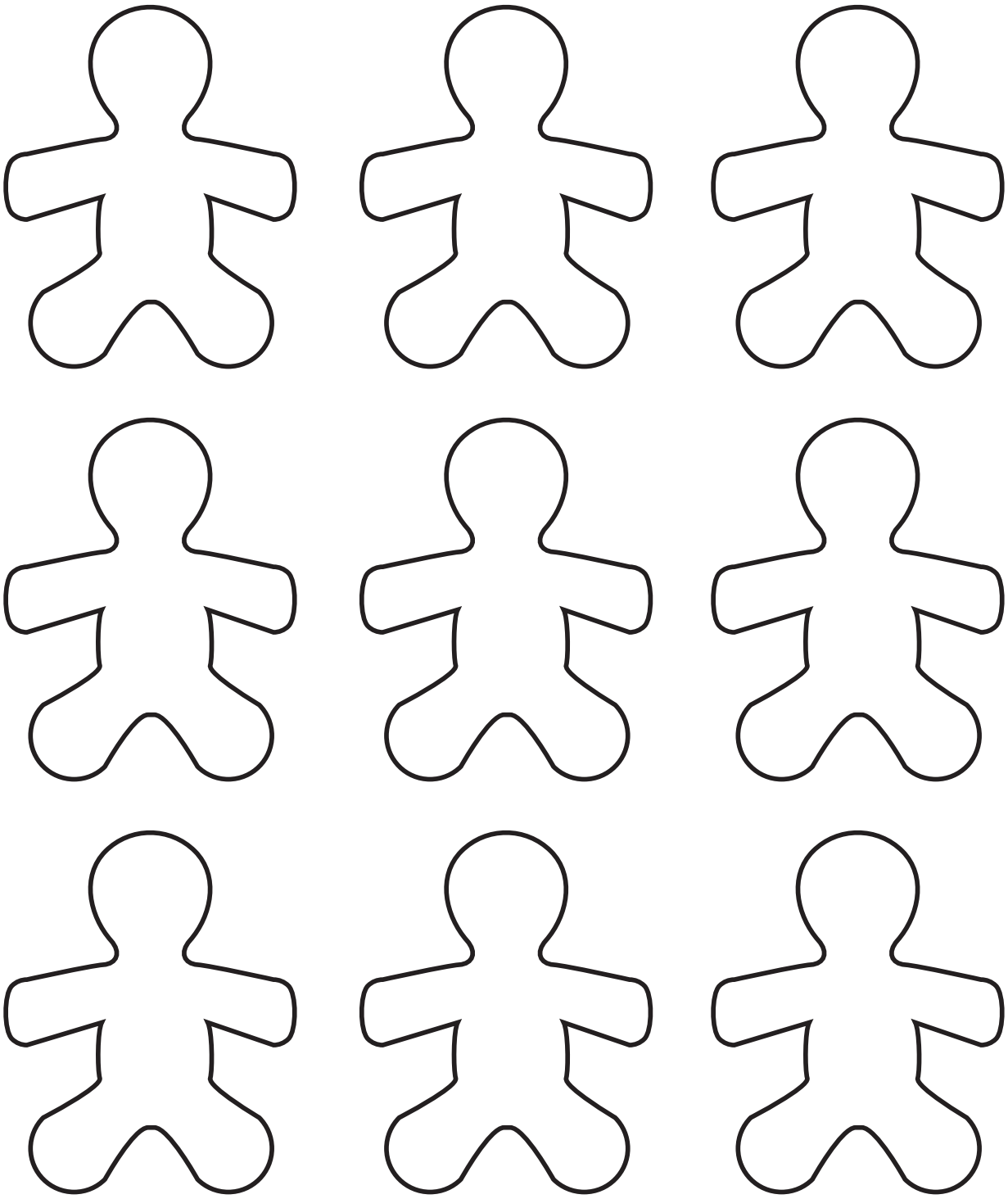
My Family

There are _____ people in my family.

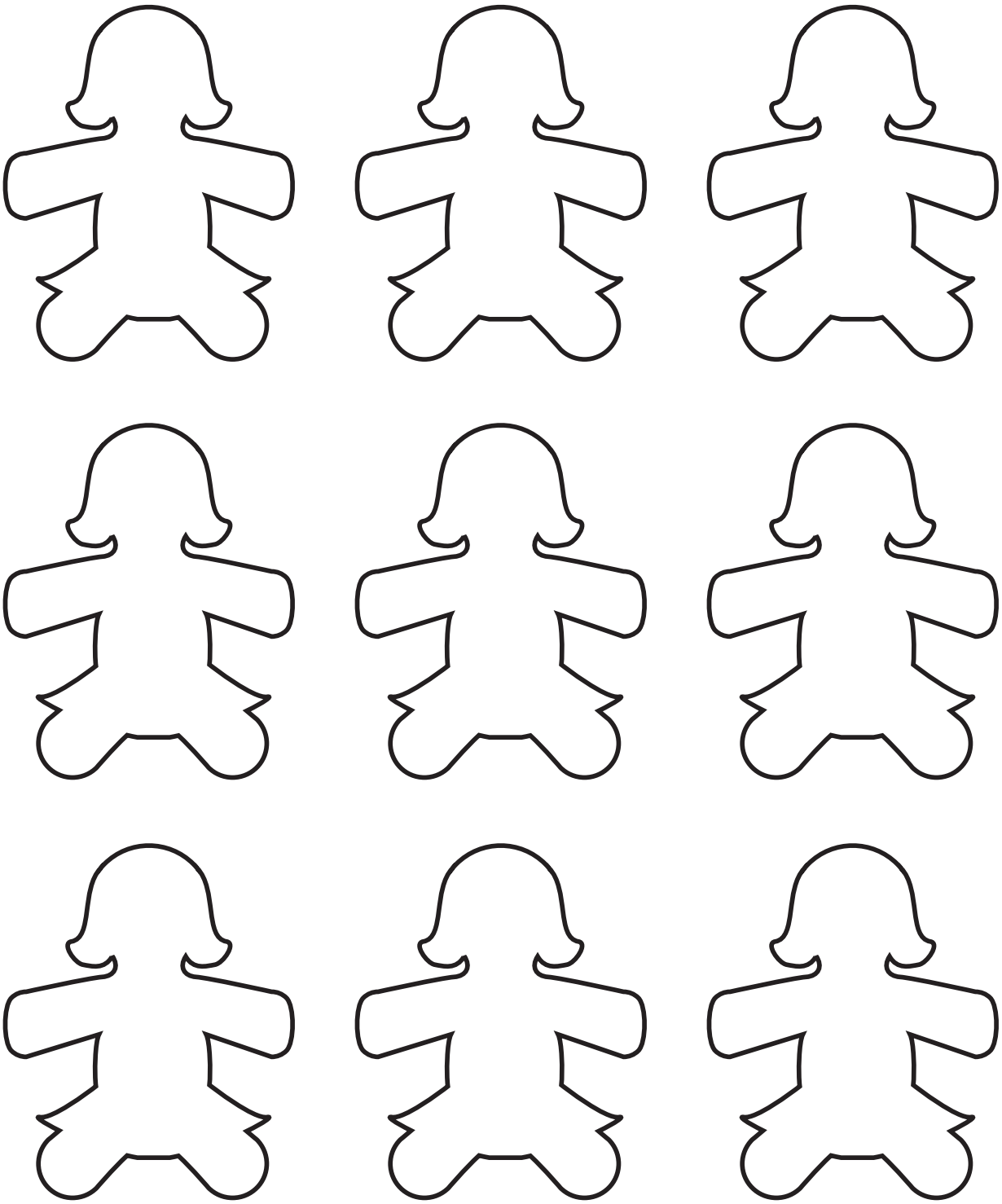
_____ boys

_____ girls

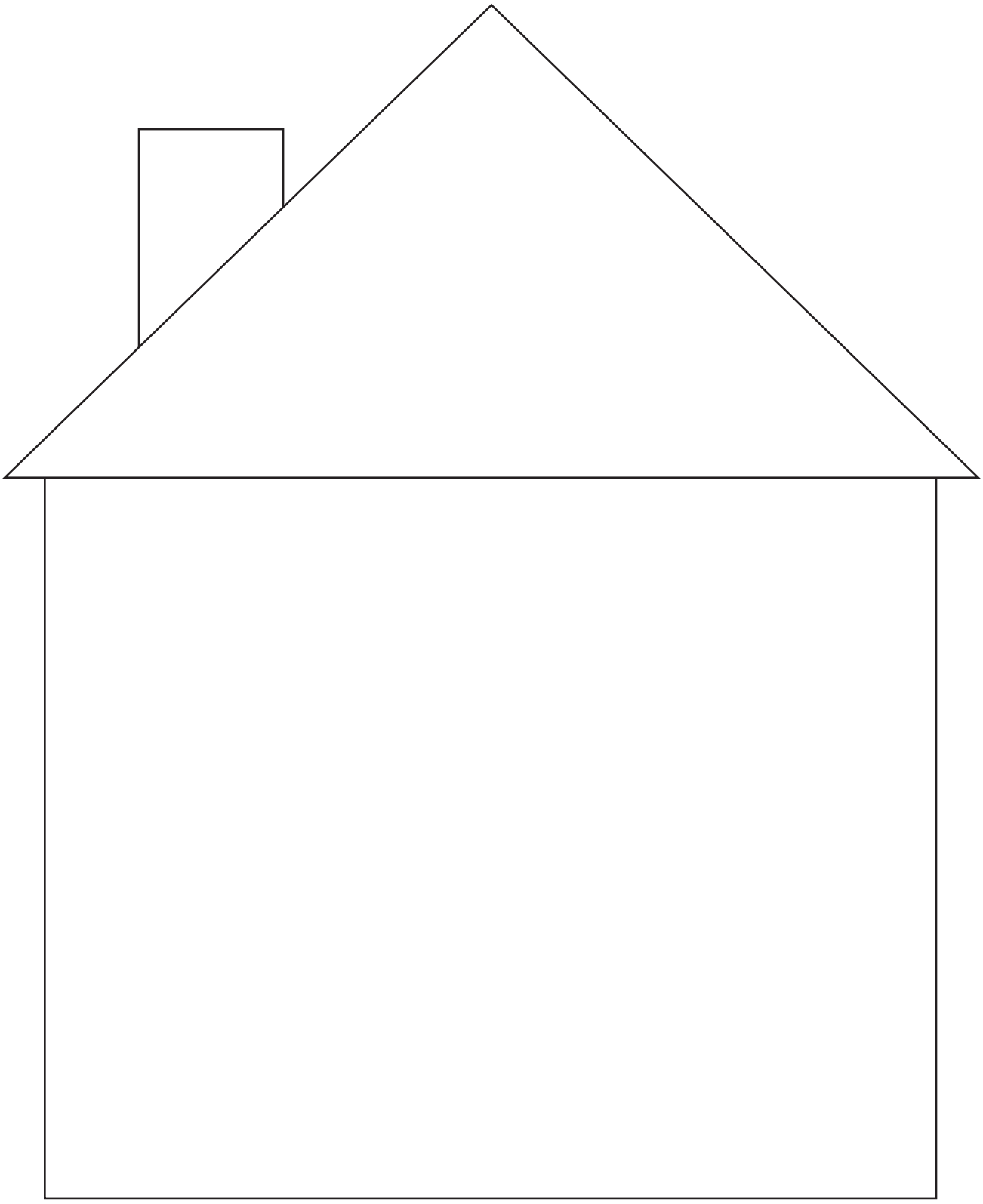
Boy Die Cuts



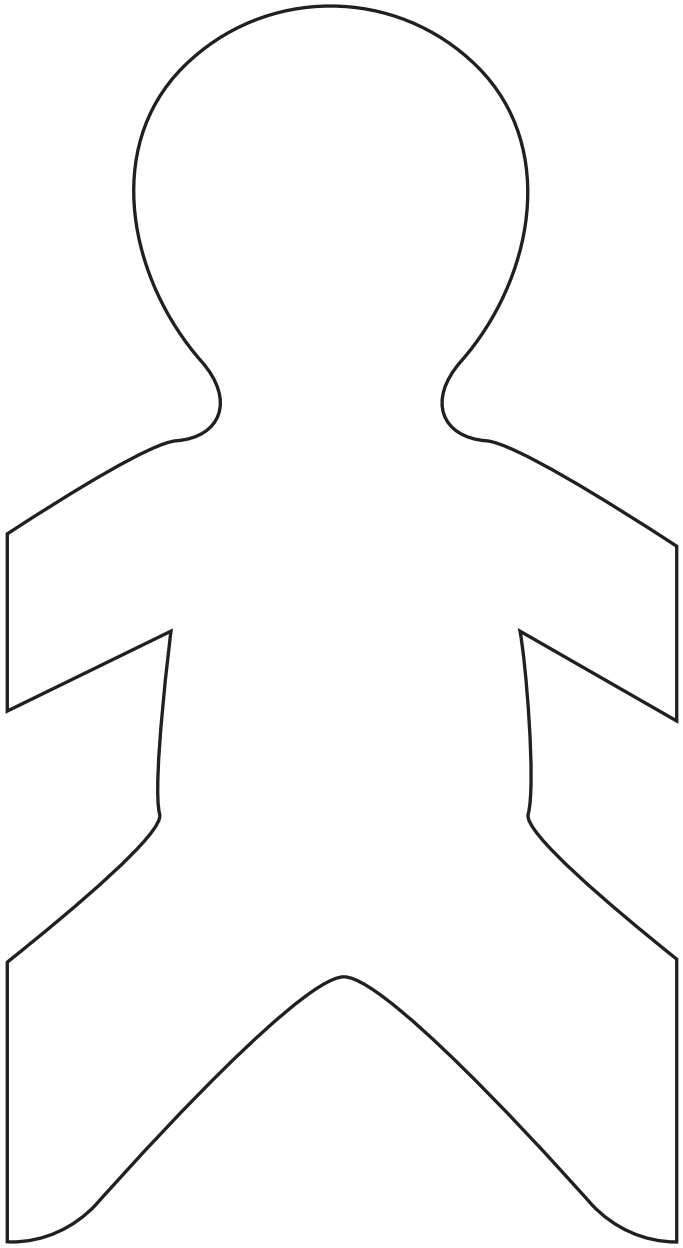
Girl Die Cuts



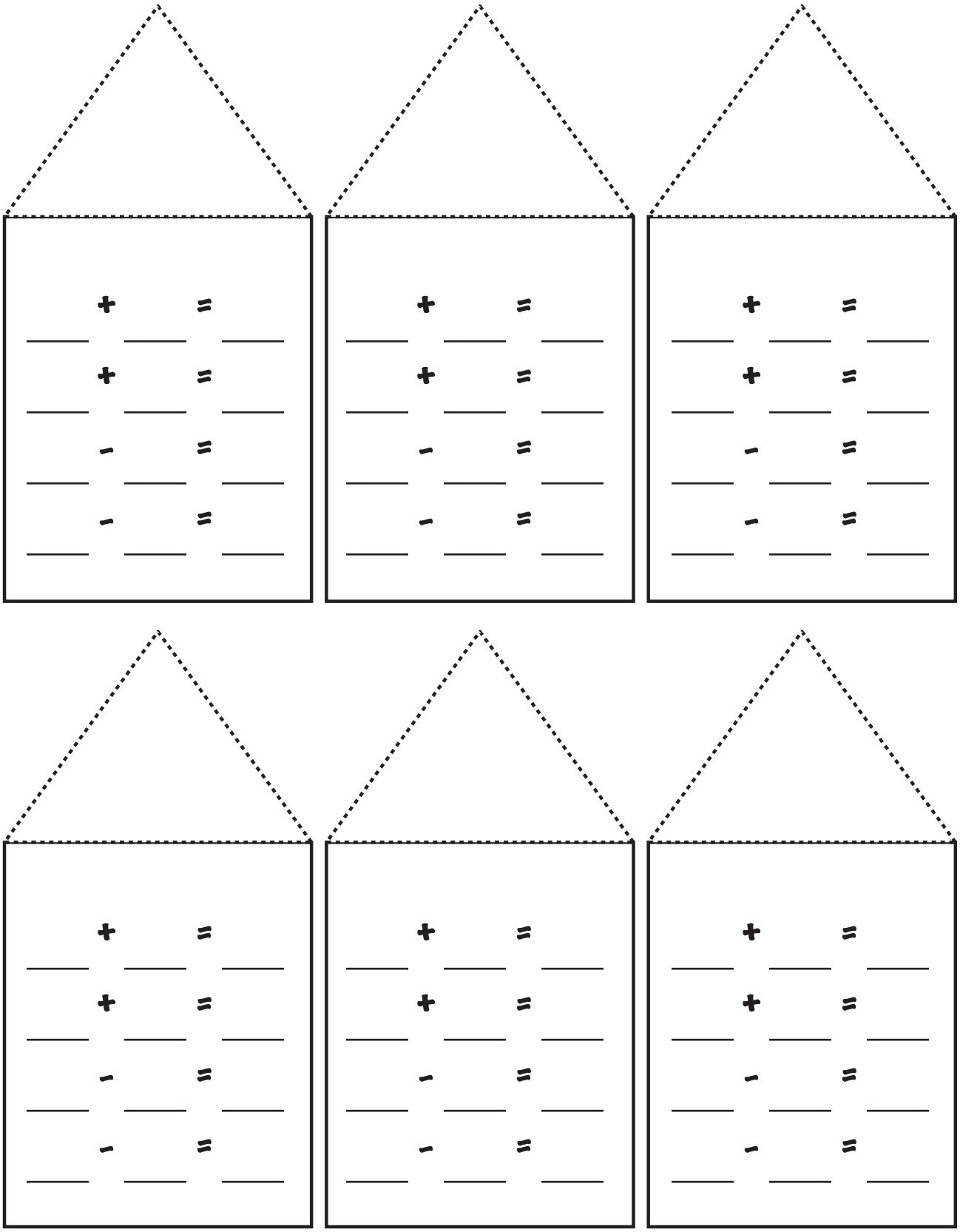
House of....



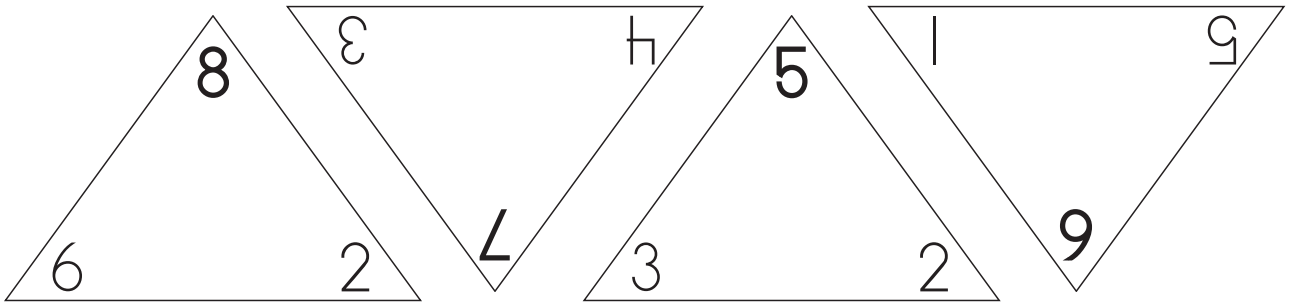
Family Chain Pattern

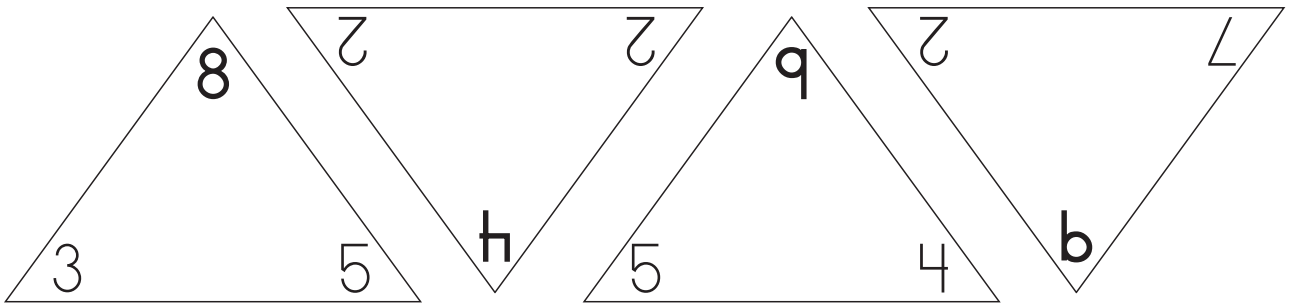


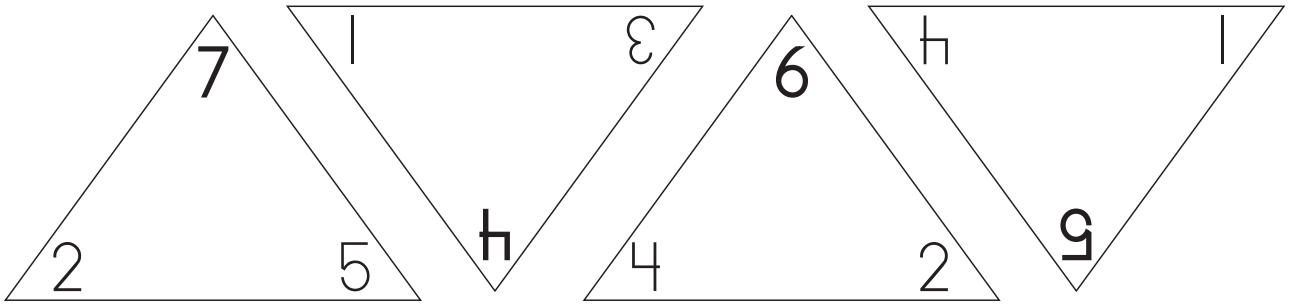
Fact Family Triangles

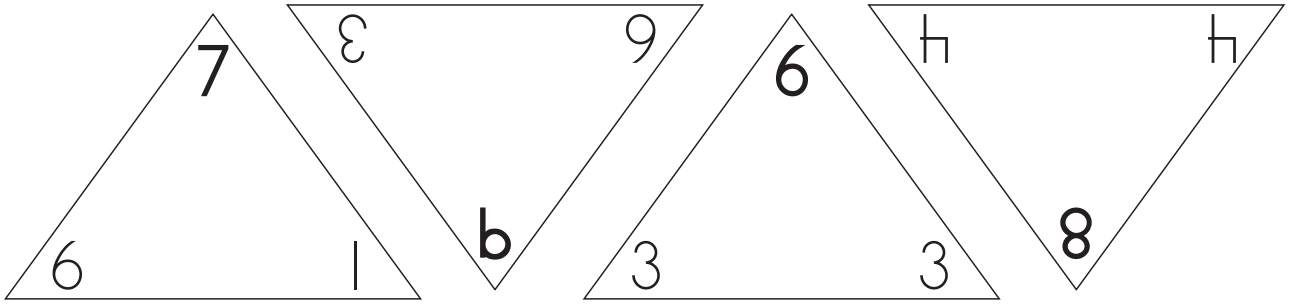


Fact Family Roof Pieces

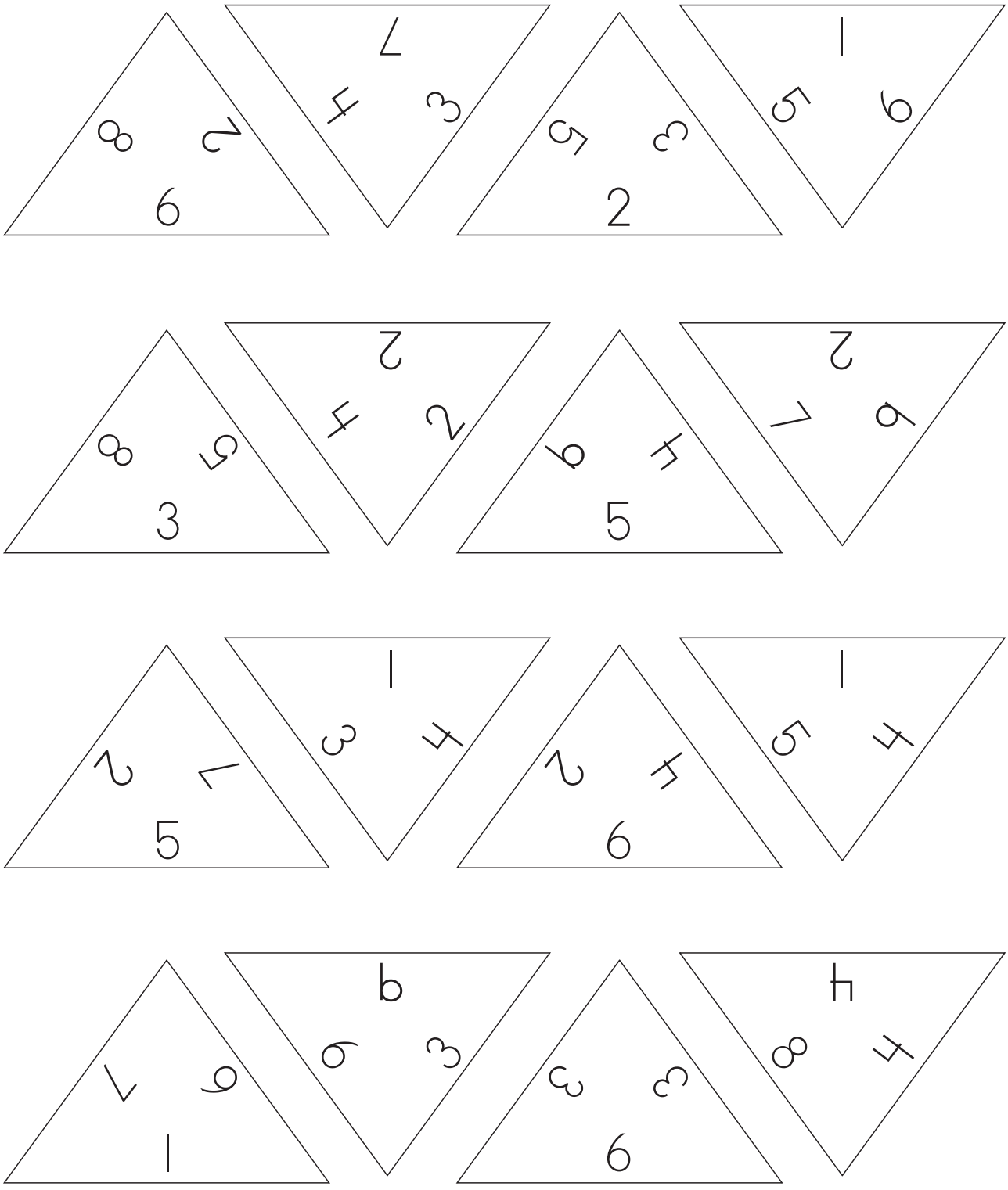




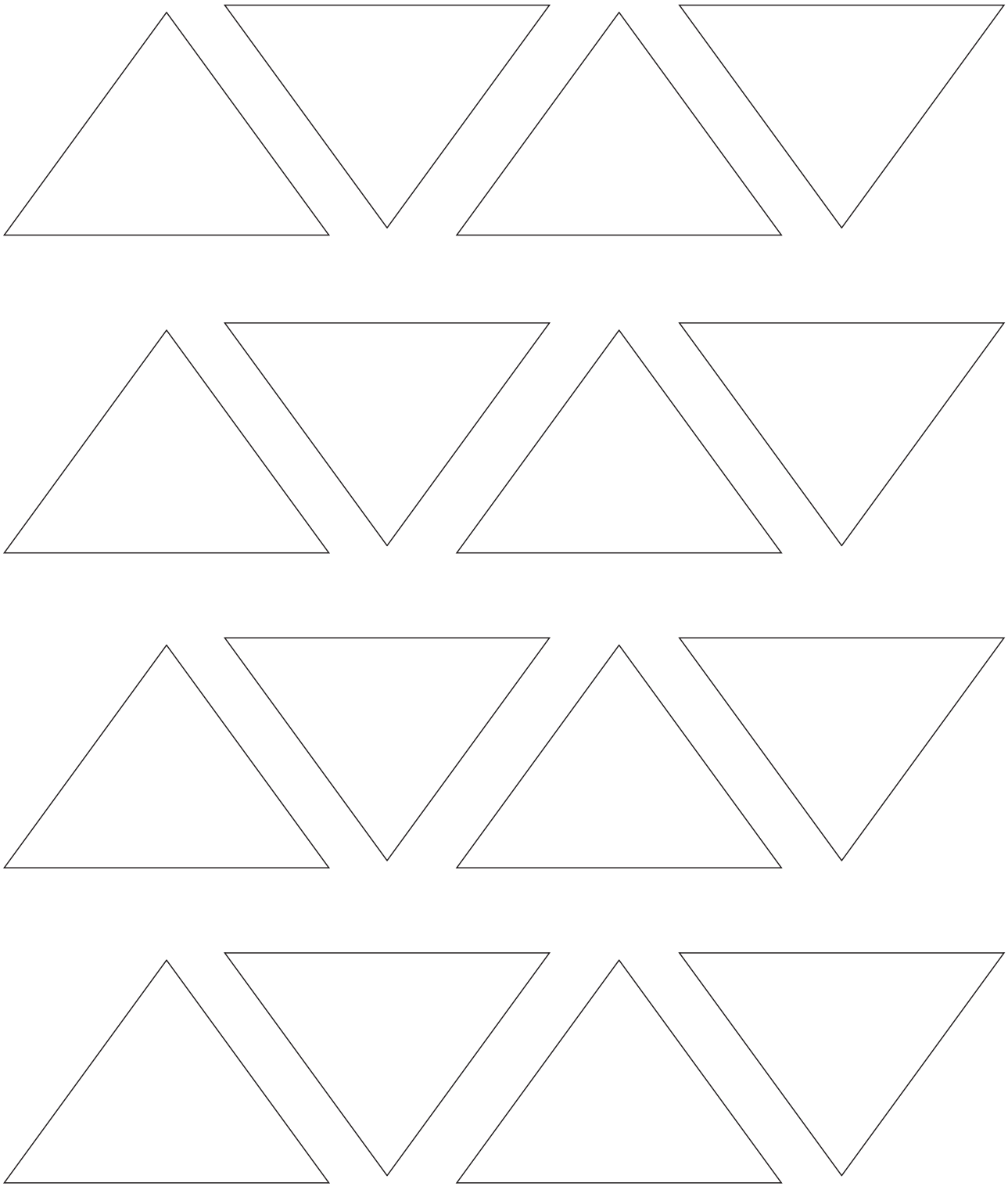




Fact Family Roof Pieces II



Fact Family Roof Pieces (Blank)



Content III-2

Activities

Water

Water is Special

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

Objective 2:
Investigate water and interactions with water.

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

Content Connections:
Content II-3; Create visual art

Content Standard III

Objective 2

Connections

Background Information

This activity employs the use of anticipation guides as a teaching strategy. To prepare an anticipation guide teachers prepare a list of statements, about the topic, for students to discuss before reading or beginning the investigation. Some of the statements need to be true and some need to be false. This strategy can be used to activate background knowledge before reading or doing an activity, as well as to simulate interest, compare before and after decisions, reverse misconceptions, and assess students' understanding of new knowledge and/or skills.

Research Basis

Head M.H. , Readence J.E. (1986). Anticipation guides: meaning through prediction. In E.K. Dishner, T.W. Bean, J.E. Readence and D.W. Moore, (Eds.) *Reading in the Content Areas*.

Anticipation guides are used before and after reading in a context area or conducting an investigation. Inquiry connections using this technique include the application of new knowledge, citing evidence for decisions, and allowing students to debunk their own misconceptions and assess their own language.

Akerson, V.L., Hanusein, D.L. (2005) A collaborative endeavor to teach the nature of scientific inquiry, there's more to science than meets the "I". *Exemplary Science: Best Practices in Professional Development*. 1-10.

The authors found that when teachers were taught how to adapt curricula to emphasize inquiry and the nature of science, they were able to confront and change their own ideas of how science should be taught. They were better able to develop strategies for teaching science as inquiry while emphasizing the nature of science to their own students.

Invitation to Learn

Materials

- ❑ *I am Water*
- ❑ Chart paper

1. Anticipation Guide – This is an activity that allows you to asses what your students already know about water. Read the following statements to the children. Have them show thumbs up if they think the statement is correct; show thumbs down if the statement is incorrect. Record the number of students that agree with the statements and how many disagree. Do this for each statement. In order for the statement to be true all parts of the statement need to be true.

   Water is important for animals.

   Rocks need water.

   All living things need water.

   Water is for cooking.

   People do not need fresh water for drinking or cooking.
2. Read the book *I Am Water* by Jean Marzollo.
3. Review the statements. On chart paper, interactively write about why the statements are true or false.

Instructional Procedures

Materials

- ❑ *Water Alpha Box*
- ❑ *Water Alpha*
- ❑ Spaghetti noodles
- ❑ Kool-Aid
- ❑ Macaroni
- ❑ Dry cheese packet
- ❑ Jell-O
- ❑ Dinner plate
- ❑ Clear drinking cup
- ❑ *Water is Special*

1. Divide your class into groups and give each group a *Water Alpha Box* graphic organizer. Have each group fill in each box with at least one water word that corresponds with the letter on the graphic organizer.
2. Place the *Water Alpha Box* poster at the front of the room. Have each group share words from their list to complete the class graphic organizer.
3. Keep the *Water Alpha Box* displayed for the remainder of the water unit.
4. Show the students a plate with uncooked macaroni noodles sprinkled with cheese, Jell-O powder and uncooked spaghetti noodles. In a clear drinking glass, empty a packet of Kool-Aid powder. Point to the spaghetti and ask, "What is this? (Spaghetti). "Would you like to eat it?" "What does the spaghetti need to make it edible/something you would want to eat?" (to be cooked).
5. Point to each of the other items and ask the same questions.
6. On a dry erase or white board write: Spaghetti, Jell-O, Macaroni and Cheese, Kool-Aid

7. Ask, "What does a person need to cook spaghetti? Write the word "water" under "spaghetti" on the board. Ask the same question for the remaining foods and write water under each word. Tell the students that water is important when preparing food. Discuss other things that water is important for. (For example, cleaning, drinking, having fun)
8. Teach the song *Water is Special*. (Sing to the tune, *London Bridges Falling Down*)
9. Put the children in groups and have them create a new verse to the song. Let the children refer to the *Water Alpha Box* if they need ideas.
10. Share the new verses to the song.

Assessment Suggestions

- Have the students draw or write one way we use water for each of the following; drinking, cleaning and having fun.
- Have the students play water charades. Assess whether the students can correctly think of a water word from one of following categories to act out: cleaning, cooking or having fun. If they need assistance have them use the words from the *Water Alpha Box* graphic organizer.
- Invite students to create a poster, advertising the importance of water.

Curriculum Extensions/Adaptations/ Integration

- Have the students illustrate the verses of the song *Water is Special*. Put one line from the song on each page and have the students illustrate each page, creating a class big book of the song, *Water is Special*.
- Have the students read and act out the song for Readers' Theater.
- Give the students paint brushes, paper and dry tempera paint. Ask them to paint a picture. Point out that they need water in order to paint. Add water and have them paint.
- Have the students create their own anticipation guides about water and its uses. The students can then quiz each other.

Family Connections

- Have the students keep track of how water is used to prepare their dinner.
- Have the students take home the anticipation guides they created in class and use them to teach their families what they've learned about why water is special.
- Have the students create a bingo card using pictures of how we use water in our homes. While at home have them color a bingo square each time they use water in one the ways on their bingo card. When they get bingo, they can return their card to school for a reward.

Additional Resources

Books

I am Water, by Jean Marzollo; ISBN 0-590-26587-3

A Drop of Water, by Walter Wick*; ISBN 0-590-22197-3*

Water, Water Everywhere, by Joan Wade Cole and Karen K. Welch*; ISBN 0-8332-1126-9*

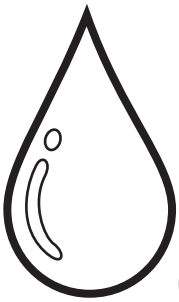
Water Dance, by Thomas Locker; ISBN *0-15-201284-2*

Web sites

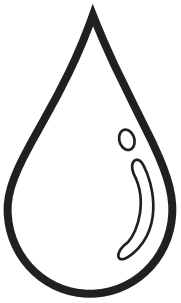
http://www.ga.water.usgs.gov/edu/helptopics.html

http://www.water.usgs.gov/outreach/OutReach.html

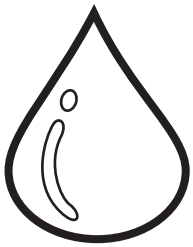
Water Alpha-Box	A	B
C	D	E
F	G	H
I	J	K
L	M	N
O	P	Q
R	S	T
U	V	W
X	Y	Z



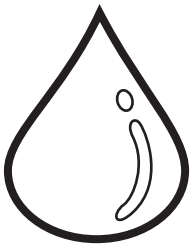
Water Is Special



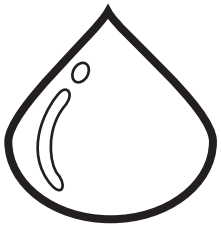
(sing to the tune of London Bridges Falling Down)



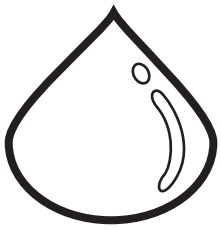
Water is in drippy drops,
Water is in soapy mops,
WATER IS SPECIAL.

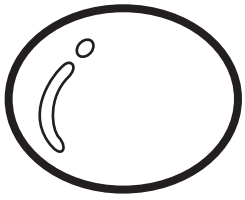


Water fills in swimming pools,
Water fills fishes schools,
WATER IS SPECIAL.

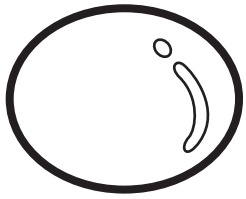


Water makes spaghetti floppy,
Water makes puddles sloppy,
WATER IS SPECIAL.





Water keeps us all alive,
It's necessary to survive,
WATER IS SPECIAL.



I am a Scientist

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 Connections:
Language Arts: VIII-6; Produce personal writings

Content Standard III

Objective 2

Connections

Background Information

The Science process occurs naturally, spontaneously in our minds. By logically breaking down the steps in our thinking, we can use science process to find out how to answer our questions about how the world works. The science process is not just useful in science, but in any situation that requires critical thinking. The science process skills include observing qualities, measuring quantities, sorting/classifying, inferring, predicting, experimenting, and communicating. The following lesson will teach the students how to use the scientific method in conjunction with the science process skills. When the students are asking questions and forming hypothesis they will be using the skill of predicting. They will be experimenting and communicating during the experimenting step. When they write and draw observations, they are observing qualities, measuring quantities, and sorting/classifying. When forming conclusions the students are inferring. Finally, when the students share and discuss they are communicating.

Research Basis

Bricker, P. (November 2002). Reinvigorating science journals, *Science and Children*. 24-29.

In this article the author was invited to participate in a grant project focused on integrating science and literacy. Several grades were observed during the project, and the author found that it is important to use literacy when teaching the scientific process and that journaling plays an important role.

Livingston, C. (November/December 2005). Journals of discovery, *Science and Children*. 52-55.

While using Discovery Journals is her classroom, the author found that student learning is enhanced and the amount of knowledge that

is retained over time is increased. By using integrated Discovery Journals, the author was able to see valuable insights into her teaching, reflect how engaged students were in learning a particular topic, and determine how successful or unsuccessful she was in portraying a particular science concept.

Invitation to Learn

Materials

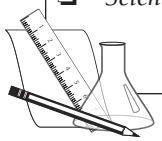
- ❑ *What is a Scientist*
- ❑ Bolded words

1. Ask the students who can be a scientist? Can only boys or girls be a scientist?"
2. Read the book "*What is a Scientist"* by Barbara Lehn and discuss each of the pictures.
3. Tell the students that you are going to make a class book similar to the one you just read. With a partner, the students will illustrate a picture that represents a page from the book.
4. Pass out paper to each of the partnerships that have the bolded words from each page of the book written at the top.
5. When students have completed the task, have them share with the class. After binding the book, have it available for the students to read.

Instructional Procedures

Materials

- ❑ *Scientific Method*
- ❑ *Scientific Method poster*



1. Tell the students that they are going to be Hydrologists (scientists that study water).
2. Explain to the students that, as you read in *What is a Scientist?,* there is a process that all scientists use to gather information and learn new things. This is called the Scientific Method. First, they need to ask a question. Next, they need to form a hypothesis (A hypothesis making a guess about what you think will happen. It may or may not end up being correct). Then they need to test their hypothesis by performing an experiment. They will observe the experiment and write and draw what they see. Last they will form a conclusion and then share and discuss their results with others (A conclusion is when we come to a final idea about what happened).
3. Give the students their *Scientific Method* graphic organizer and tell them that they will be using their journals through each step of the process while conducting water experiments.

4. Display the poster size *Scientific Method* graphic organizer. Explain the format of the *Scientific Method* graphic organizer. Each step of the process has an icon and words that explain what to do and explain what they need to write or draw. The students will use the boxes next to the icon to write or draw in (the teacher will use the poster size *Scientific Method* graphic organizer throughout the first experiment while the students use theirs).
5. Conduct the first experiment as a class to guide them through the process (this can be done with any kind of science experiment).

Experiment # 1 Water Break Down

Materials

- ❏ *Scientific Method*
- ❏ Wax paper
- ❏ Eyedroppers
- ❏ Toothpicks
- ❏ Water
- ❏ Liquid dish soap

Question: How does water break apart?

a) Have the students write this question on their *Scientific Method* graphic organizer next to the *question mark icon*.
b) Have the students discuss with a partner how they think this happens. Have them record their hypothesis next to the *light bulb icon*.
c) Give each child a square of waxed paper, an eyedropper, a toothpick and a small cup of water. Have the students drip several drops of water on the waxed paper. Use the toothpick and poke the drops of water.
d) Have the students record what happened by writing or drawing what they did next to the *beaker icon*.
e) Give the students a drop of liquid soap. Have them dip their toothpick into the soap and poke their water drops.
f) Use pictures or words to record their observation next to the *glasses and clipboard icon.*
g) Have the students come to their own conclusions and record it next to the *person thinking icon.*
h) Have the students get in groups to share and discuss what they observed and the conclusion they came to.
i) Write and additional information next to the *people talking icon.*

6. Explain to the students that they will be able to practice the Scientific Method by performing additional experiments. They will be working in groups and will use their graphic organizer the same way you just did as a class.

Materials

- ❑ *Scientific Method*
- ❑ Water bottles
- ❑ Mineral oil
- ❑ Food coloring
- ❑ Water

7. At each water station, post the question that needs to be answered by performing the experiment.
8. Divide the students into groups, explain the experiments and conduct the experiments.

Experiment #2 - Go With the Flow

Question: What will happen if I mix oil and water?

1) Fill 4-6 empty water bottles ¼ with mineral oil.
2) Add three drops of food coloring.
3) Fill the rest of the bottles with water.
4) Spin the bottles slowly, quickly and then shake them.
5) Record information on graphic organizers
6) Discuss and share as a group.

Materials

- ❑ *Scientific Method*
- ❑ Large container
- ❑ Small container
- ❑ Food coloring
- ❑ String

Experiment #3 - On the Move

Question: Why is my soup hotter at the top of my bowl when I take it out of the microwave?

1) Fill a large, clear, plastic container with cold water.
2) Fill a smaller clear, plastic container with hot water.
3) Add two drops of food coloring to the hot water.
4) Tie a string to the neck of the smaller container and lower the smaller container of hot water into the large container.
5) Watch as the hot water is dispersed into the cold water.
6) Record information on graphic organizer.
7) Discuss and share as a group.

Materials

- ❑ *Scientific Method*
- ❑ Coffee filters
- ❑ Washable marker
- ❑ Eyedroppers

Experiment #4 - A Rainbow of Colors

Question: Can water make colors change?

1) Give each student a coffee filter, water dropper, and a black watercolor marking pen.
2) Have the students make a black dot in the middle of the coffee filter.
3) Using the water dropper, drip one drop of water on the black dot.
4) Record information on graphic organizers.
5) Discuss and share as a group.

Materials

- ❑ *Scientific Method*
- ❑ Clear cup
- ❑ Comic strip

Experiment #5 - Crazy Comics

Question: Can water make pictures move?

1) Give each child a clear glass of water.
2) Put a comic strip behind the glass of water.
3) Make observation
4) Put the comic strip under the glass of water.
5) Make observation.
6) Record information on graphic organizers.
7) Discuss and share as a group.

Assessment Suggestions

- Use the *Scientific Method* graphic organizers for assessment.
- Have the students play concentration, matching the science process steps phrases and icons.
- Observe the students as they are completing the experiments.
- Create interview questions to see is they students can demonstrate or verbalize doing each step of the science process.

Curriculum Extensions/Adaptations/ Integration

- Using coffee filters, give the students a variety of watercolor markers and have them create designs on the coffee filters. Have them drop water on the colors. Create an art project with the coffee filters.
- Have the questions pre-typed onto the *Scientific Method* graphic organizer.
- Compile all the *Scientific Method* graphic organizers into a science journal.
- Allow students to draw pictures instead of writing on the *Scientific Method* graphic organizer.

Family Connections

- Give the students a copy of the *Scientific Method* graphic organizer. Have them conduct one of the experiments at home with their family and show them how to use the organizer.
- Invite parents to come to school and help with the experiments.

Additional Resources

Books

What is a Scientist, by Barbara Lehn; *ISBN 978- 0761312987*

Let's Try It Out in the Water, by Seymour Simon and Nicole Fauteux; *ISBN 0-439-40914-4*

Splish, Splash, Science, by Rebecca Olien; *ISBN 0-590-1595-2*

The Snowy Day, by Ezra Jack Keats; *ISBN 0-670-86733-0*

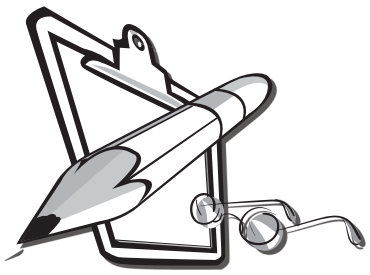
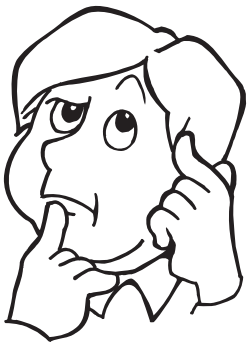
Web sites

http://www.epa.gov.IOGWDW/kids/exper./html

http://www.brainpopjr.com

Scientific Method

1.  Question	
2.  Hypothesis	
3.  Experiment	

4.  **Write & Draw Observations**	
5.  **Conclusions**	
6.  **Share & Discuss**	

Water Breakdown

How does water break apart?

Go with the Flow

What will happen if I mix oil and water?

On the Move

Why is my soup hotter in my bowl when I take it out of the microwave?

A Rainbow of Colors

Can water make colors change?

Crazy Comics

Can Water make pictures move?

Math I-2

Activities

Whole Number Relations

Bear Time

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

Objective 2:
Identify simple relationships among whole numbers up to 100.

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

Content Connections:
Content II-2; Strengthen community and cultural relationships

Math Standard I

Objective 2

Connections

Background Information

Before starting these activities, students need to be able to count to 100 and understand vocabulary terms such as greater than, less than, equal to, more, and less. Previous exposure to a hundreds chart would be helpful.

An important component in any good lesson is student engagement. To encourage this, the cooperative learning strategy, Think-Pair-Share, has been incorporated. Think-Pair-Share begins with the teacher posing a question or task and each student thinking about or working on it individually. Then the students turn to a partner and share their thinking. Their answers then can be shared with the whole group or a dyad can be formed to discuss further. Thoughtful and intentional pairing will provide avenues for effective differentiation.

Research Basis

Tomlinson, C. (September 2000). Reconcilable differences? Standards-based teaching and differentiation. *Educational Leadership*. 58(1)6-11.

Differentiated instruction involves teachers planning instruction based on student characteristics. This can be the student's readiness, interest, and/or learning profile. Differentiation also involves modifying the content, the process, or the product. By modifying instruction in these ways, students will all be exposed to the curriculum, but in ways that better meet their individual needs.

Lyman Jr., F. & McTighe, J. (April 1988). Cueing thinking in the classroom: The promise of theory-embedded tools. *Educational Leadership*. 45(7)18-24.

Using the cooperative learning technique, Think-Pair-Share, allows students the opportunity to have time to think in a less competitive environment. It also lets the teacher cue student thinking through appropriate questioning and can improve student achievement and attitude.

Invitation to Learn

Materials

- ❑ *Number Crew: Dancing Bear Video*

Begin by watching, *Number Crew: Dancing Bear*. During viewing, have students Think-Pair-Share during the discussion sections in the film about what room the number crew should visit.

Instructional Procedures

Materials

- ❑ *Hiding Animals*
- ❑ Hundreds board pocket chart
- ❑ *Bear Squeeze*

Hidden Animals

1. Before beginning, hide the animals, from *Hiding Animals,* behind certain numbers on the hundreds chart. You will need to decide before each round which animal you are going to help guide them to find.
2. Have students join you on the rug and explain that they are going to help find the animals hiding on the hundreds chart.
3. Call on a student to pick a number. Based on what animal you want them to find, move the *Bear Squeeze* accordingly.
4. Keep calling on students to pick a number, moving the bears to help them narrow down what number the animal is hiding behind.
5. As the students get closer to narrowing down the number have them Think-Pair-Share what the possible solutions are.
6. Keep playing until the animal has been found.
7. Repeat until all animals have been found.

Materials

- ❑ *More or Less*
- ❑ *Hundreds Board*
- ❑ Scissors
- ❑ Glue
- ❑ Tape
- ❑ *Bear Squeeze*
- ❑ Teddy bear counters

Bear Squeeze

1. Read the story, *More or Less,* stopping throughout to have students figure out the possible number solutions based from the questions that Eddie asks. (You may want to list the numbers on the whiteboard and mark them off to help students keep track.)
2. Give each student a cardstock copy of the *Hundreds Board.*
3. Have them cut off the extra paper at the top, bottom, and right side of the chart.
4. Next, have students glue the *Hundreds Board* so that the number 10 and 11 match up and 20 and 21 and so on. It will form a cylinder.
5. Have students cut on the solid lines under each row of numbers, starting at one.

6. Put up the number line on the board and have students join you on the rug.
7. Explain to students that you are thinking of a number on the number line, a mystery number, and their job is to find it by asking questions similar to the ones Eddie asked in the book.
8. Call on a student to ask a question about the number.
9. Use the *Bear Squeeze* bears to show if the number is more or less than the number the student asked about.
10. As students get closer to the number, list on the board the possible solutions left and cross off as you play.
11. Continue playing until students have found the mystery number.
12. Repeat the game as long as there is student interest.
13. Pair up students to play Bear Squeeze in partners.
14. In their math journals, have students record their mystery number and have them track with tally marks how many questions it takes for the number to be found. Then using teddy bear counters and their paper number line have students ask their partner questions until they have found the mystery number.
15. Have students take turns and play each role at least twice.
16. When finished playing, have students write in their journals about what they have learned from playing *Bear Squeeze*.

Assessment Suggestions

- Informal observations can be made during the discussion of the *Dancing Bear* video.
- Divide the class into groups of three or four students and have them solve mystery numbers following clues that are given. An example set of clues could be: More than 30; less than 40; more than 32; less than 37; the digits add to 8. Give each group a different set of clues and have them work together to solve the mystery number.
- Observe while students play the *Bear Squeeze* in partners and make note of individual student understanding or misconceptions.
- Evaluate their math journal entry, from the *Bear Squeeze*, to check for understanding and use of vocabulary like more, less, greater than, less than, equal to, etc. Refer to *Bear Squeeze Checklist* to help evaluating journals.

Curriculum Extensions/Adaptations/ Integration

- As a class, give clues for a specific number. (For example: "More than 30; less than 40; more than 31; less than 37; the digits add to five.) Give the class the first two clues and have them write down all the possible numbers in their journal. One by one, give the other clues. Have each student cross out numbers that are no longer possible until they find the secret number.
- To simplify the Bear Squeeze game use a number line that only goes from 0-20.
- Give half of the students a number and create a human number line. On sentence strips, write things like greater than eight, less than ten, and greater than two and less than six. Then have the students in the number line step forward if they meet the criteria on the sentence strip. Have the other half of the class try and figure out what the sentence strip stated by analyzing what numbers stepped forward.

Family Connections

- Send home the *Mystery Number-Clue Sheet* to have students write their own clues for a mystery number to present to the class.
- Send home the *Bear Squeeze* bears and a paper number line and have students play at home with family members.

Additional Resources

Books

More or Less, by Stuart J. Murphy; ISBN 0-06-053167-3

100 Days of Cool, by Stuart J. Murphy; ISBN 978-0-06-000123-0

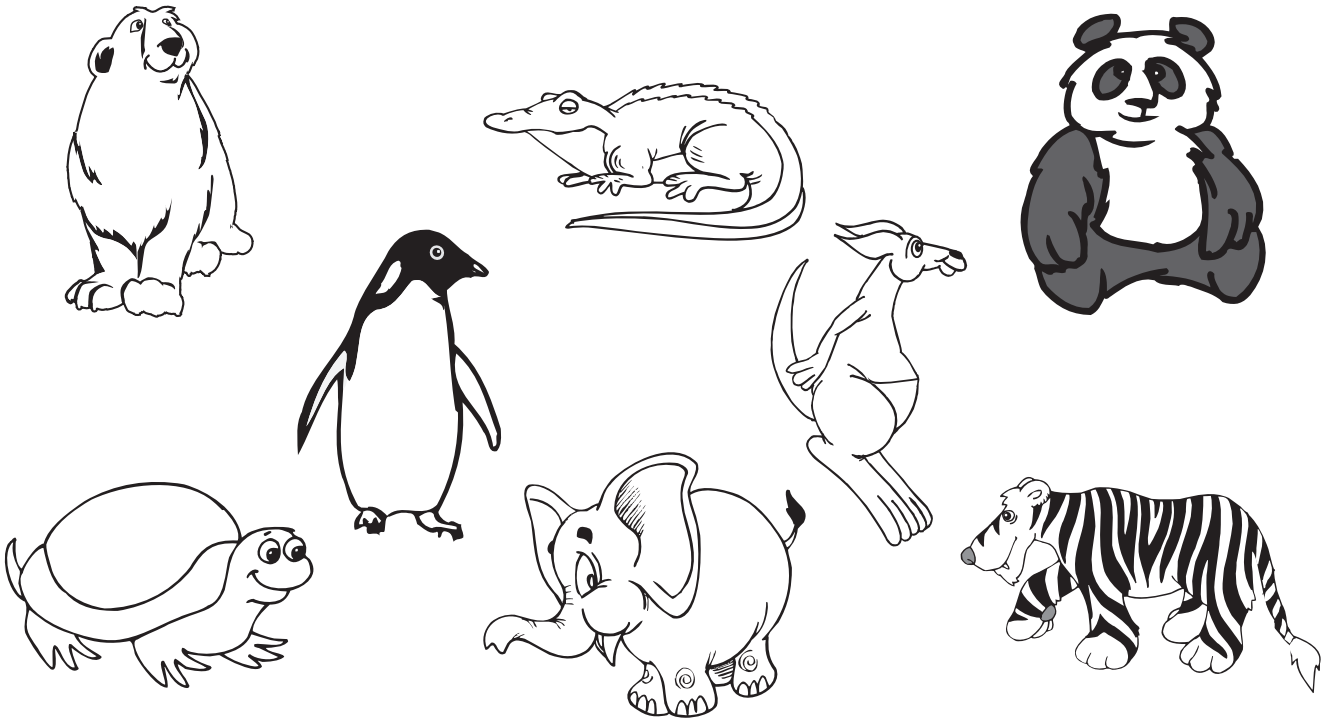
Media

Number Crew: Dancing Bear, http://www.uen.org/dms (emedia is available following login)

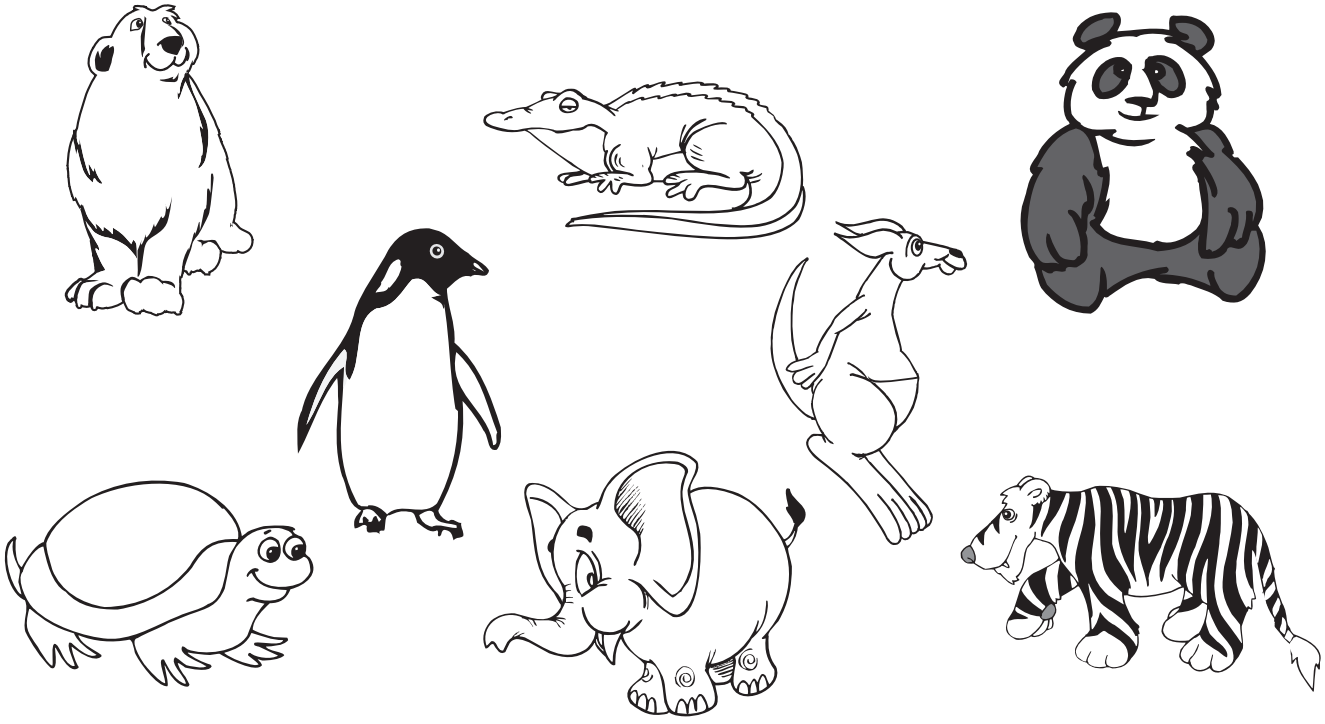
Web sites

http://media.emgames.com/emgames/demosite/demolevel1.html

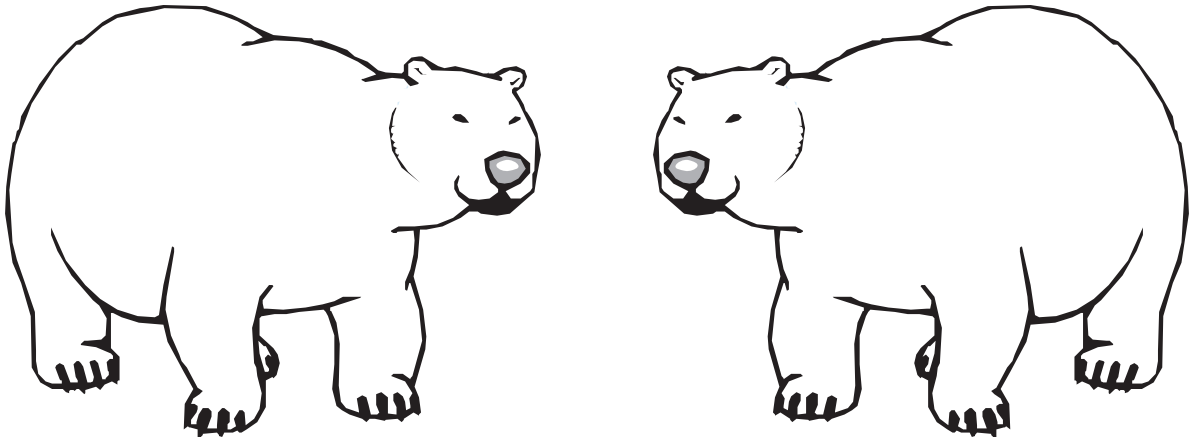
Hiding Animals



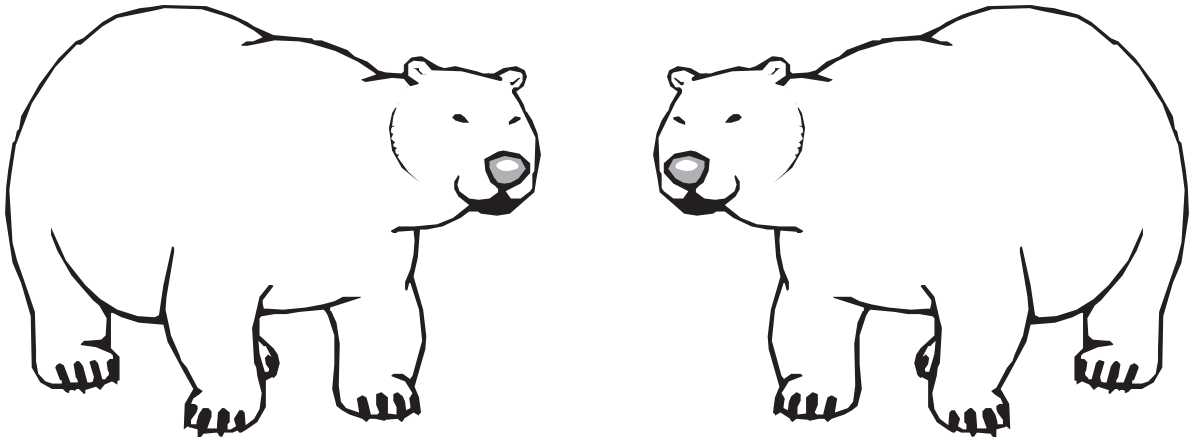
Hiding Animals



Bear Squeeze



Bear Squeeze



Hundreds Board

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

Bear Squeeze Checklist

	YES	NO
Appropriate vocabulary terms such as more, less, greater than, less than, equal to have been used.		
Secret number was recorded in journal.		
Tally marks were used to track how many questions their partner asked to find their secret number.		
Student remarks demonstrate understanding of concept.		

Name _____

Mystery Number—Clue Sheet

Instructions: Please come up with five clues that fellow classmates can use to find your mystery number.

1st Clue:

My mystery number is more than _____.

2nd Clue:

My mystery number is less than _____.

3rd Clue:

My mystery number is more than _____.

4th Clue:

My mystery number is less than _____.

5th clue:

The sum of my digits add to _____.

My Mystery Number is: _____

Tic-Tac-Toe

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 up to 100.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

Content II-2; Discuss/practice aspects of community

Connections

Background Information

The following activities have been designed to be utilized as center activities. The activities could be used as whole group or small group activities, but the number of materials will need to be adjusted. These center activities have also been designed to meet the needs of the diverse learning populations found in today's classroom. By differentiating the process of how the content is learned and considering the various learning profiles of students using these center activities, student knowledge and understanding will be increased. Before beginning activities, you may want to pre-teach some of the activities and exposure to vocabulary like greater than, less than, and equal to, as well as an understanding that greater than and more than are equivalent terms.

Research Basis

Rillero, P. & Allison, J. (1997). Creative childhood experiences in mathematics and science: projects, activity series and centers for early childhood. ERIC Source (ED 411 145). Retrieved December 27, 2007, from http://www.eric.ed.gov

This article discusses the use of activity centers in early childhood classrooms. It defines activity centers as areas for children to investigate in a self-directed manner, with greater autonomy, which promotes learning. It also encourages the use of mathematical manipulatives as a foundation for more abstract thinking in the activity centers.

Ediger, M. (1999). Organizing for instruction in mathematics. Journal of Instructional Psychology. 26(2)85-91.

Setting up a mathematics classroom that incorporates whole group instruction, concrete to abstract activities, learning centers, and differentiation can be a tremendous challenge. This article provides ideas of how to help do this successfully; as well as, how to increase student achievement through this type of organization.

Invitation to Learn

Materials

- ❑ *Tic-Tac-Toe*

Ask the students if they have ever played "Tic-Tac-Toe"? Show students the *Tic-Tac-Toe* sheet and talk about how you get a "Tic-Tac-Toe". Explain that today they are going be completing a "Tic-Tac-Toe" as they do their math centers and use the *Tic-Tac-Toe* sheet to help show which center is which.

Instructional Procedures

In the Can

Materials

- ❑ Film canisters
- ❑ Small objects
- ❑ *In the Can*

1. To play In the Can, the student selects two film canisters. Inside the film canisters, there will be small sets of items with five items or more inside. Buttons, counters, pennies, and beans are just a few examples of what could be inside.
2. The student opens one canister at a time and counts the number of objects inside.
3. On the *In the Can* sheet, the student draws the number of objects inside the first canister and puts the objects back in.
4. The student then opens the second canister and counts the number of objects inside and records it on the handout.
5. Then in the boxes below the cans, the student labels which canister had the greater/lesser amount.
6. Repeat one more time with two different canisters.

Cover that Number

Materials

- ❑ *Cover that Number*
- ❑ *Number Cards A, B, & C*

1. Each pair of students needs two *Cover that Number* game boards and a set of *Number Cards.*
2. The students take turns pulling a *Number Card.* They then read the number and place it on the game board accordingly. If they are unable to place the card, the card gets returned back to the bottom of the pile and they lose their turn.
3. The first student to cover the board first is the winner.

War

Materials

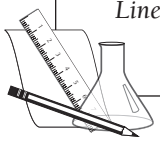
- ❑ *Ten Frame Cards*

1. To play War, each pair of students needs a set of *Ten Frame Cards.*
2. They then divide the cards evenly between both players.

3. At the same time, they say "1, 2, 3, flip" and flip over their top card. The player with the card that has more dots, wins the cards.
4. Students keep playing until all the cards are gone.
5. When finished, they count their cards and the player with the most cards wins.
6. Students can play again, but this time the card with less would win.

Materials

- ❑ *Step-by-Step Number Line*
- ❑ *Find It on the Number Line*



Find It on the Number Line

1. To play Find It on the Number Line students need to work in pairs. Then as pairs, students decide who is going to be the reader and who will be the doer. The doer will be using the *Step-by-Step Number Line* to find the answer.
2. The reader grabs a set of *Find It on the Number Line* activity cards.
3. The reader reads one activity card at a time to the doer.
4. The doer steps on a number on the *Step-by-Step Number Line* that answers the activity card.
5. Once the reader has gone through the activity cards once, then the doer and the reader switch roles.

Materials

- ❑ Math journal
- ❑ Pencil
- ❑ Teddy bear counters
- ❑ Number line 1-100

Bear Squeeze

1. Working in partners, Student A writes down a mystery number in their math journal.
2. Student B makes a guess at what number their partner has written in their math journal.
3. Student A moves the teddy bear counter on the number line to show if the number is more or less than what Student B said. (e.g. If a student A's mystery number is 35 and student B guesses, "is it more 23," then student A would move the bear to 23 and say, "no, it is greater than 23.")
4. Student B keeps asking questions until they have found the mystery number and Student A keeps track of how many questions were asked by their partner by using tally marks in their journal.
5. Once Student B has found the mystery number, they switch roles and play again.

More or Less

Materials

- ❏ Dominoes
- ❏ *More/Less Spinner*
- ❏ Pencil
- ❏ Paperclip

1. To play More or Less, students need to be in pairs.
2. As a pair, they lay out 16 dominoes in a 4 x 4 arrangement.
3. Before each turn, one player must spin the spinner to decide if the domino that is more/less will be the winner.
4. Then each player takes a domino.
5. Whichever player has the domino that is more/less depending on what the spinner selected, wins the pair of dominoes.
6. Repeat until all dominoes are gone.
7. The player with the most dominoes wins or the more/less spinner could be used to decide the winner.

Make Sets

Materials

- ❏ *Make Sets More/Less/Same Cards*
- ❏ *Make Sets Activity Cards*
- ❏ Counters/beads/Cheerios

1. Student chooses one of the eight *Make Sets Activity Cards*.
2. Then he/she makes a set of objects to show a set that has more, less, or the same as the set of objects on the activity card chosen.
3. The student then use the *Make Sets More/Less/Same* labels to designate which set is which.
4. Repeat with 3 more of the activity cards.

Race to the Top

Materials

- ❏ *Race to the Top*
- ❏ *Number Cards A, B, & C*
- ❏ Baggie
- ❏ Place markers

1. Working in pairs, each player takes a game board, place marker, and baggie of *Number Cards*.
2. Each player takes a *Number Card*.
3. Then the two players compare their numbers and whoever has the larger number gets to move up one space on the *Race to the Top* game board.
4. Place *Number Cards* in a discard pile and grab two new cards.
5. Continue playing until one player makes it to the flag at the top of the mountain.

Line Up Five

Materials

- ❏ *Line Up Five*
- ❏ *Number Cards A*

1. In partners, each pair needs two *Line Up Five* game boards and a set of *Number Cards A*.
2. The first player takes a *Number Card* and places it on their game board sequentially according to the number they pulled.

3. Then it is the second player's turn to do the same thing on their game board.
4. The numbers need to be in order and cannot be moved once placed.
5. As the game continues, if they are unable to place the card then they return the card to the pile and lose their turn.
6. The game ends when one player fills one line of five across.

Assessment Suggestions

- Collect the *In the Can* handout to check for understanding of vocabulary such as greater than, less than, and equal to.
- Monitor the *Make Sets* to see if students are able to make sets that are more, less, and the same as the *Activity Cards.*
- Have students write their own activity card for the *Step-by-Step Number Line* activity.

Curriculum Extensions/Adaptations/ Integration

- For the game *In the Can*, you could have them write the number word for the canister they choose rather than the can number.
- To differentiate for higher ability students, number cards from 1-200 could be used in the activities Race to the Top and Line Up Five.
- To make *Line Up Five* more difficult, you could use *Number Cards B & C* and use the blank grid to do numbers from 37-72 and 73-100.
- There is a list of other activities that can be done with the ten frame cards that can be found on the Granite School District website, listed below.
- For struggling learners, these activities could be practiced in teacher-led small group lessons before being exposed to them at centers.

Family Connections

- Send home *Line Up Five* and *Number Cards A* with students to do with family members at home.
- Send home *Race to the Top* game boards and *Number Cards A, B, & C* and have them play with someone at home.

Additional Resources

Books

Number Lines: How Far to the Car?, by John Burstein; ISBN 0-8368-3815-7

100 Days of Cool, by Stuart J. Murphy; ISBN 978-0-06-000123-0

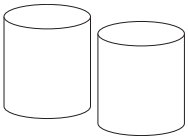
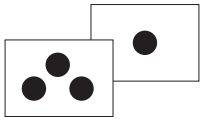
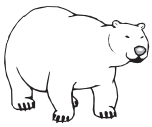
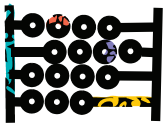
Web sites

http://www.rainforestmaths.com

http://www.graniteschools.org/C7/C19/MathK-12/Core%20Support%20Documents/TenFrames.pdf

Name _____

Tic-Tac-Toe

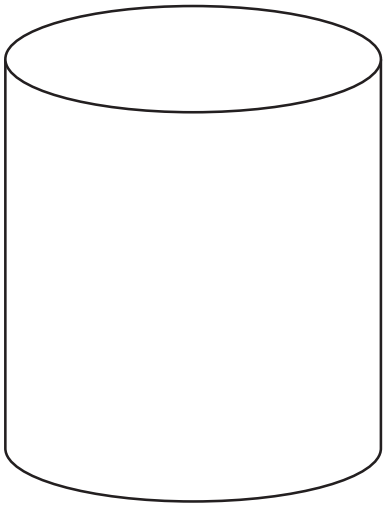
In the Can 	**Cover That Number** 	**War** 
Find It on the Number Line 	**Bear Squeeze** 	**More or Less** 
Make Sets 	**Race to the Top** 	**Line Up Five** 

Name _____

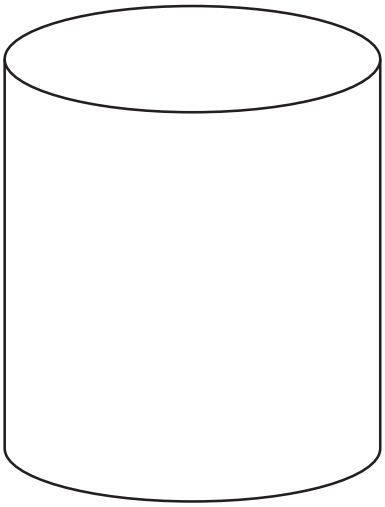
In the Can

Choose two containers. Draw the objects in each container and write the can number. Write greater than, less than, or equal two under each set of cans.

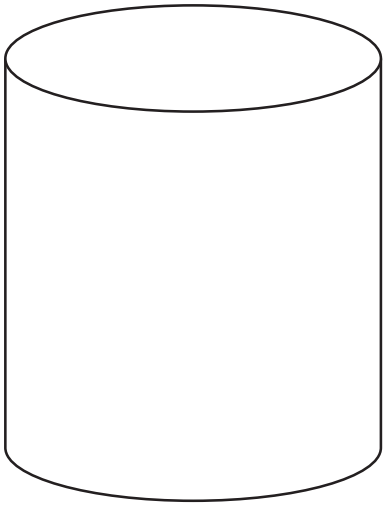
Can Number



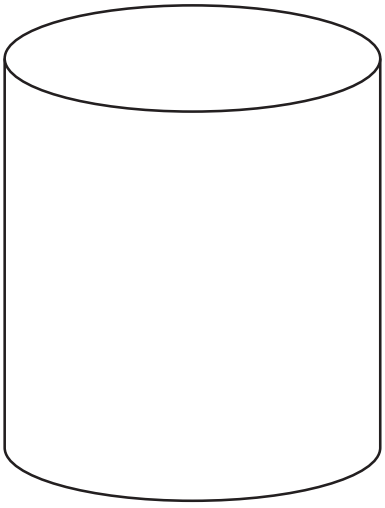
Can Number



Can Number



Can Number



Word Bank	Greater Than	Less Than	Equal To

Cover That Number

Less than 7	Less than 17
Less than 46	Less than 72
Greater than 12	Greater than 22
Greater than 49	Greater than 88

Cover That Number

Less than 7	Less than 17
Less than 46	Less than 72
Greater than 12	Greater than 22
Greater than 49	Greater than 88

Number Cards A

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

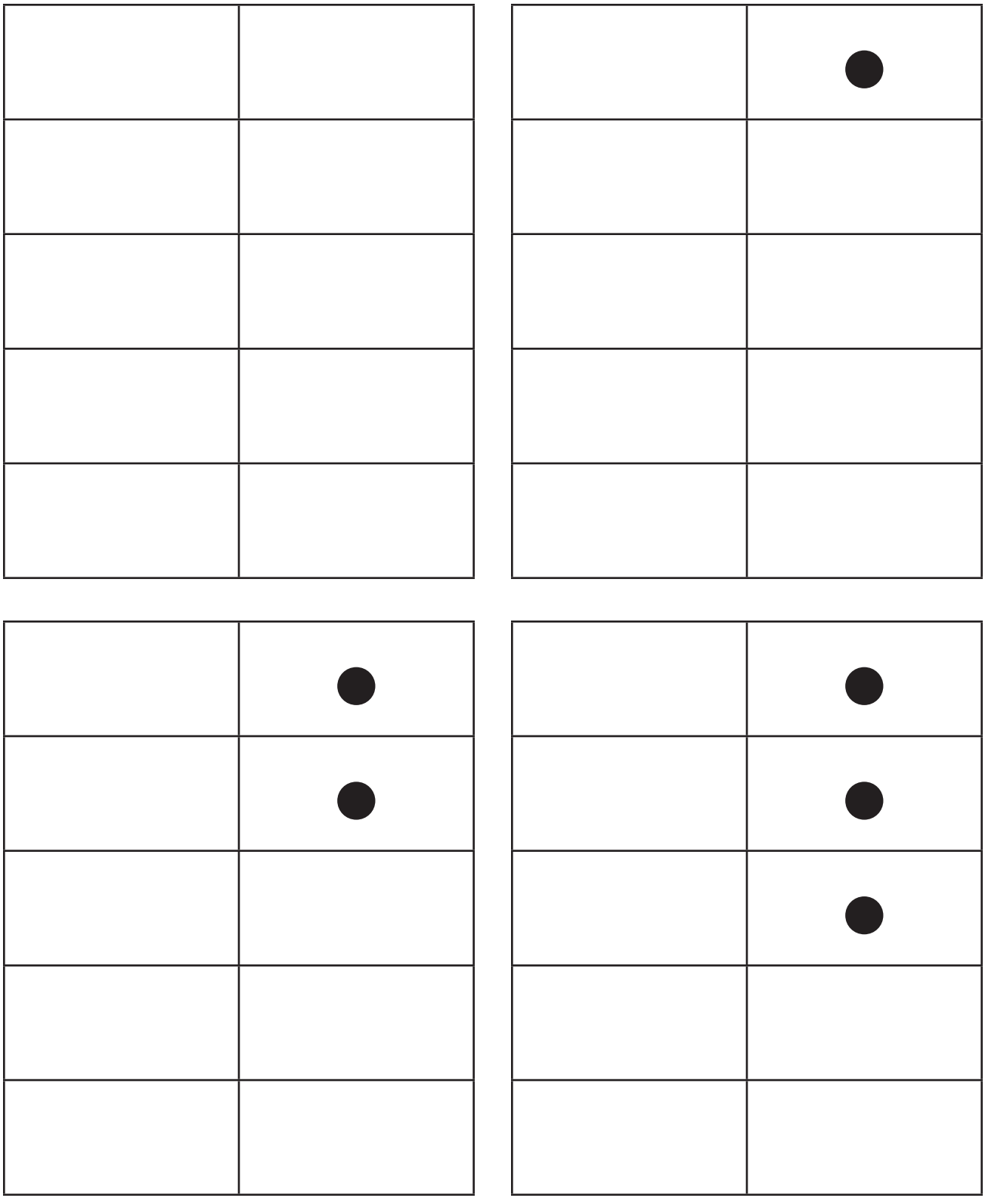
Number Cards B

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

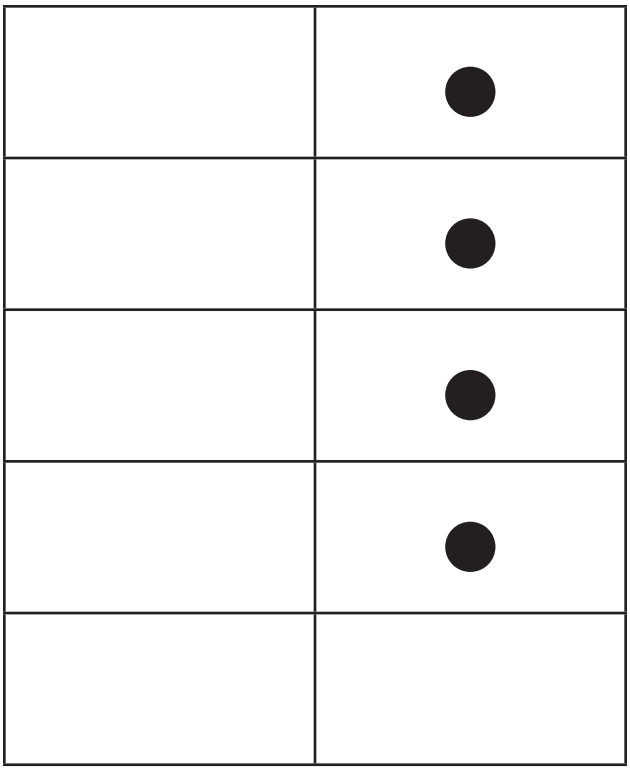
Number Cards C

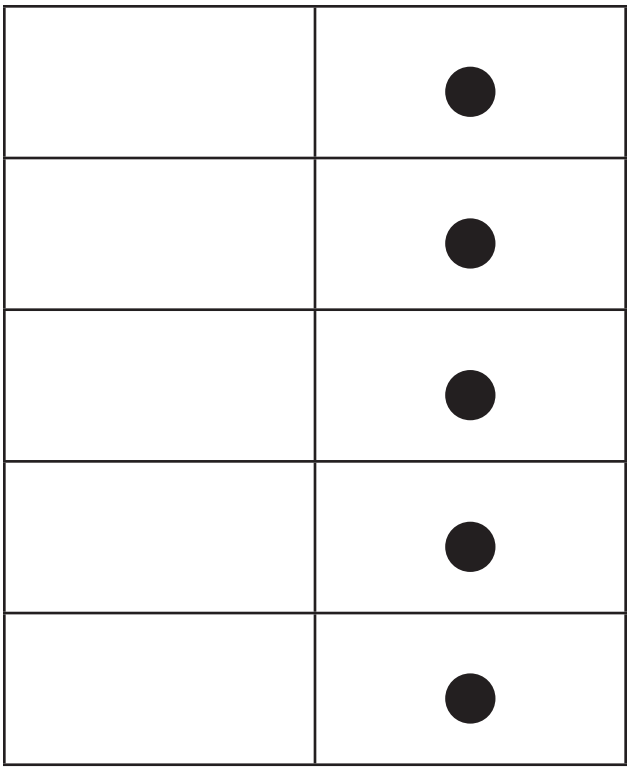
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100		

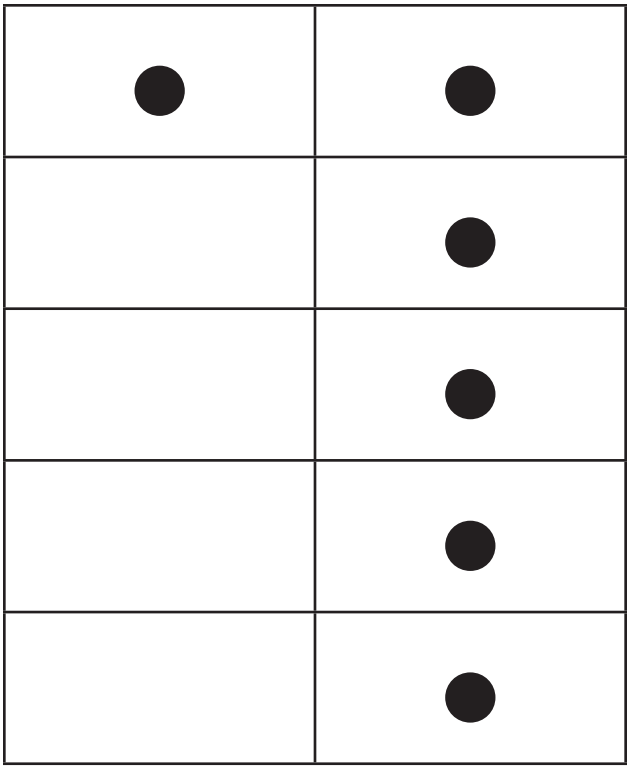
Ten Frame Cards

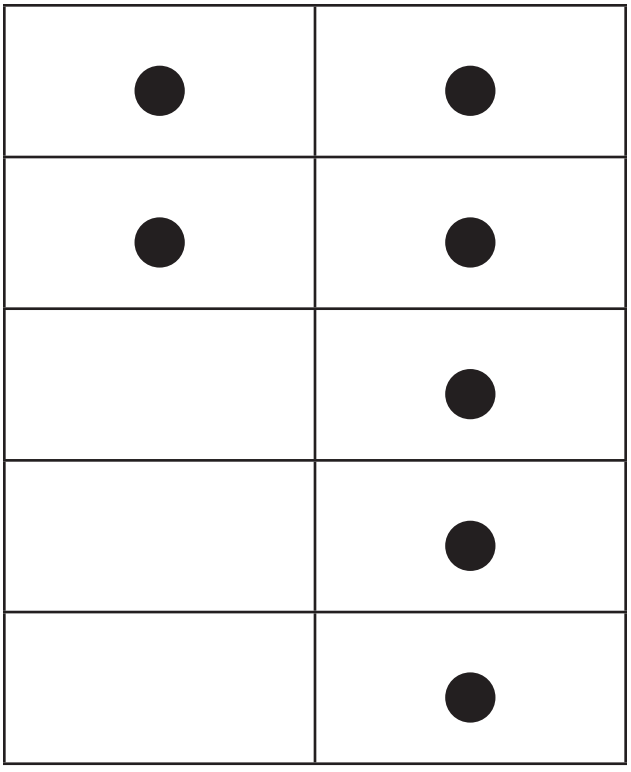


Ten Frame Cards

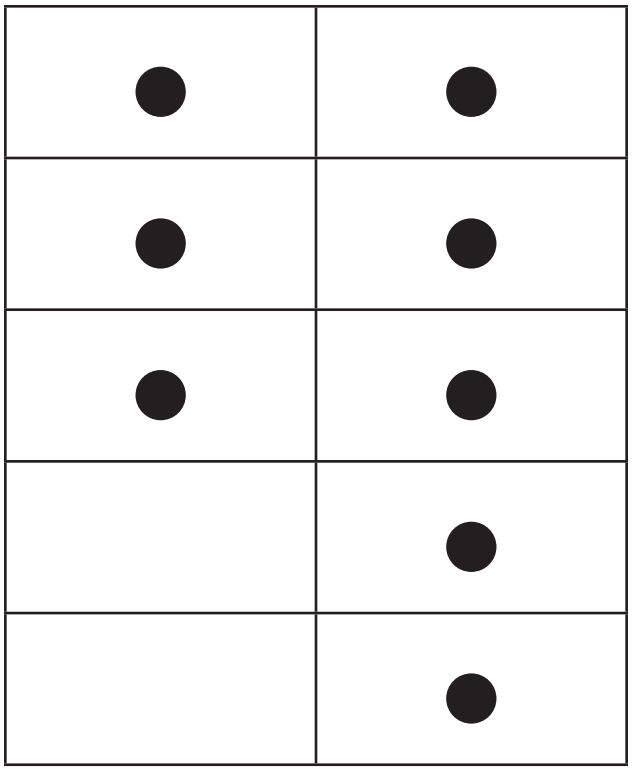


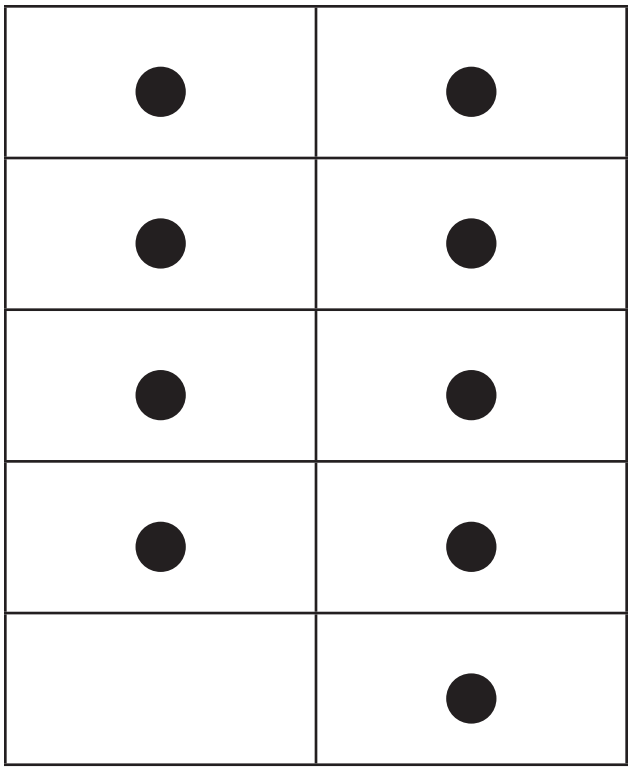


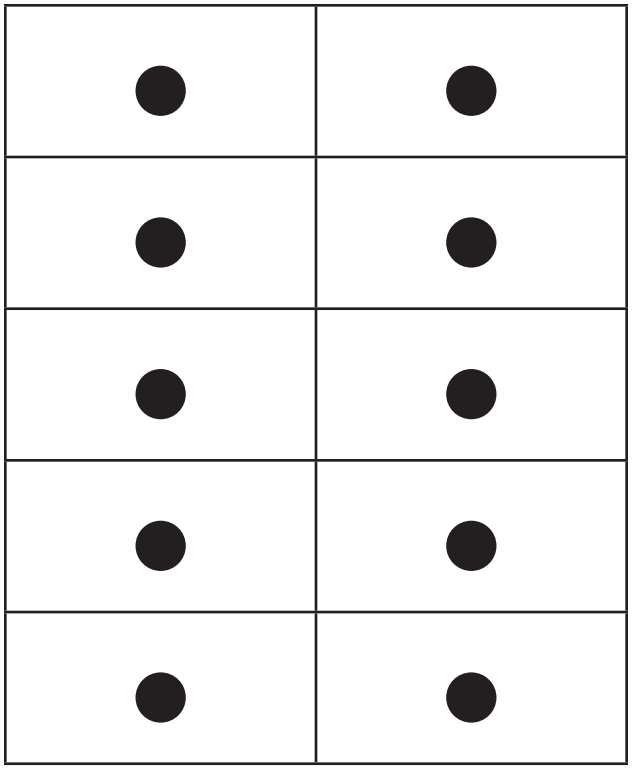




Ten Frame Cards







Find It on the Number Line

Greater than 6
Less than 11
Greater than 15

Find It on the Number Line

One more than 13
Same as 6 + 5
Equal to 7 + 3

Find It on the Number Line

One less than 7
One more than 8
One less than 19

Find It on the Number Line

10 more than 2
5 more than 3
10 more than 9

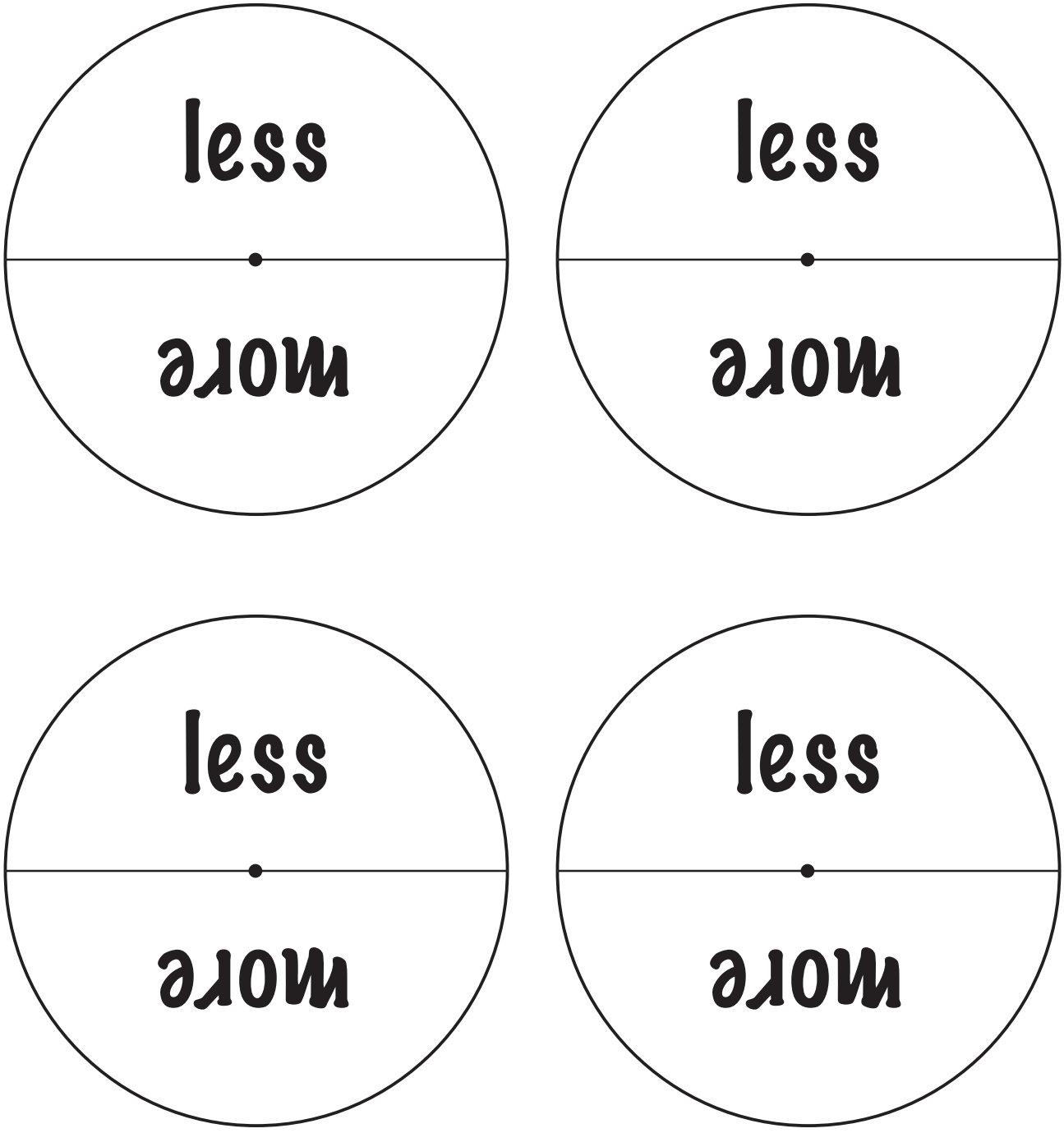
Find It on the Number Line

5 less than 12
10 less than 17
4 more than 7

Find It on the Number Line

Skip count by 2s
Skip count by 5s
Equal to 8 + 7

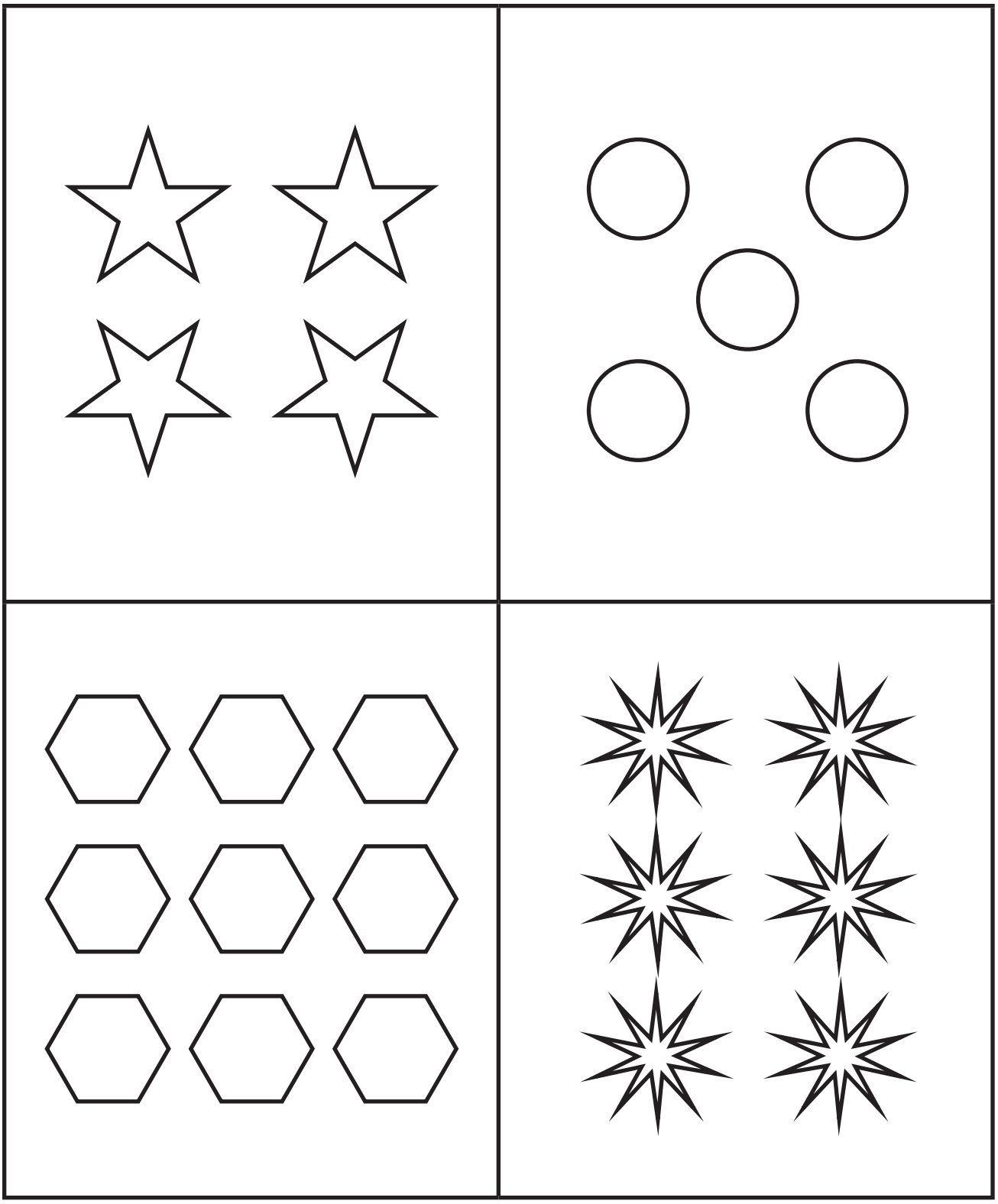
More or Less Spinner



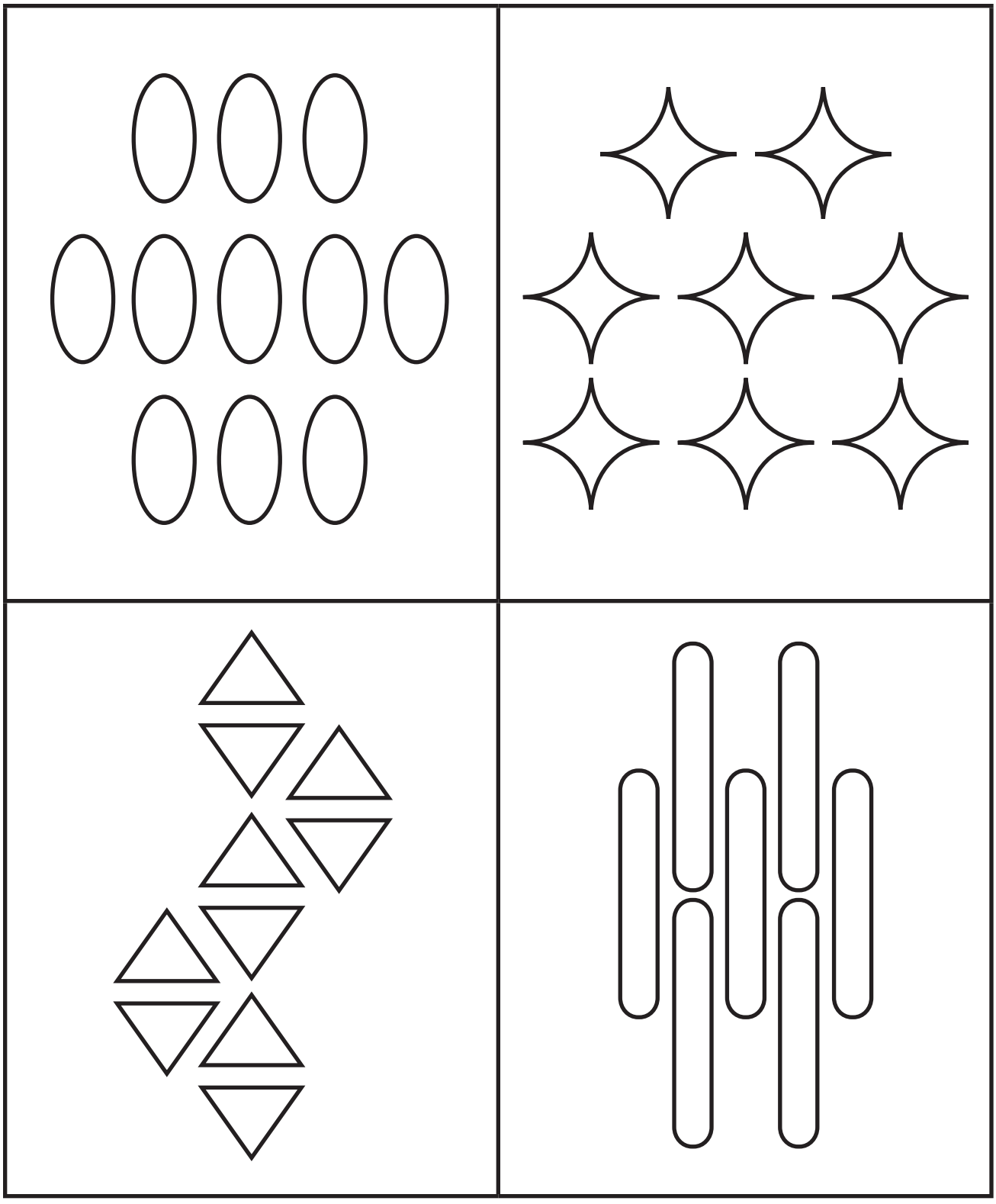
Make Sets More/Less/Same

more	less	same
more	less	same
more	less	same
more	less	same

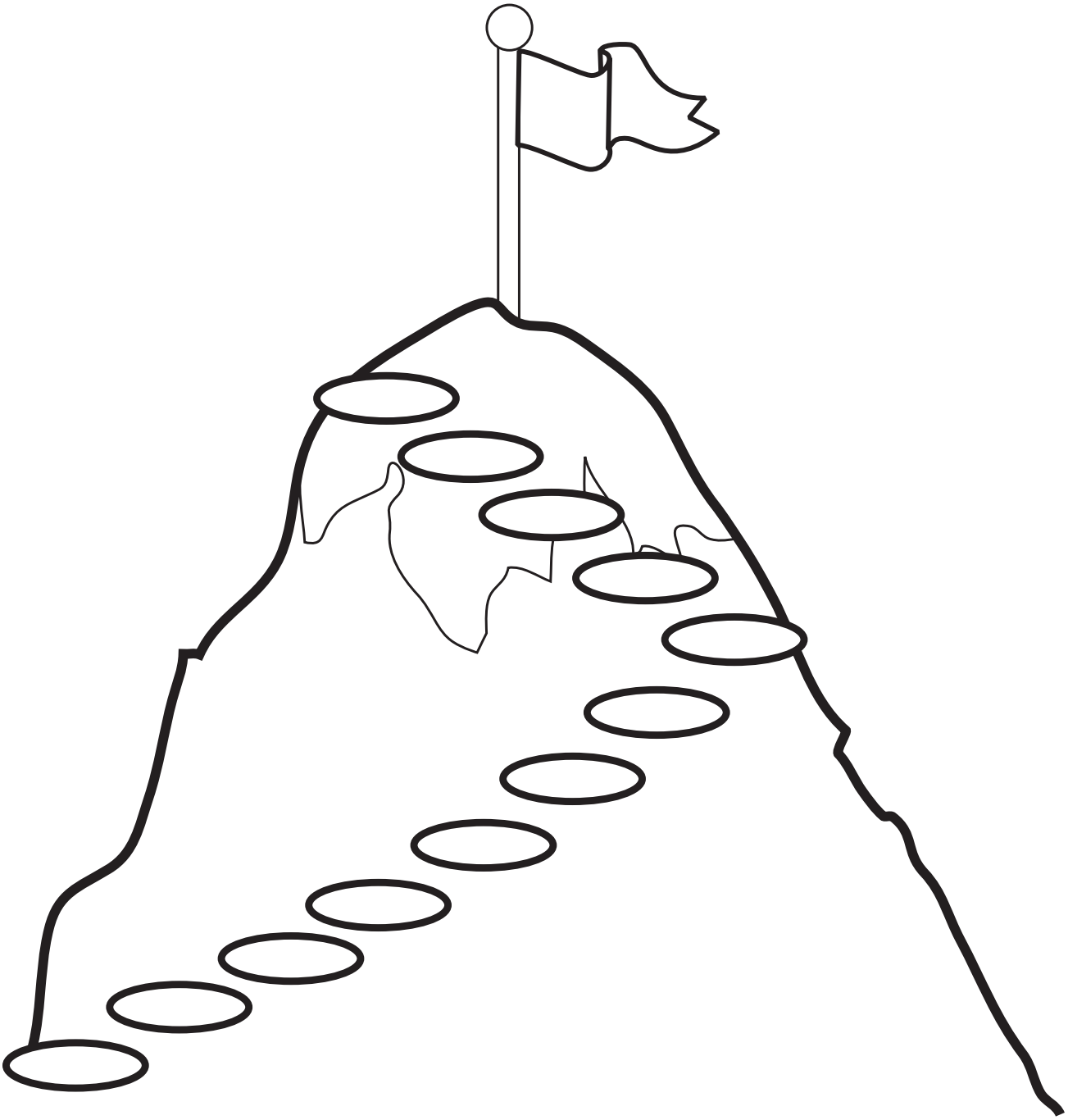
Make Sets Activity Cards



Make Sets Activity Cards



Race to the Top



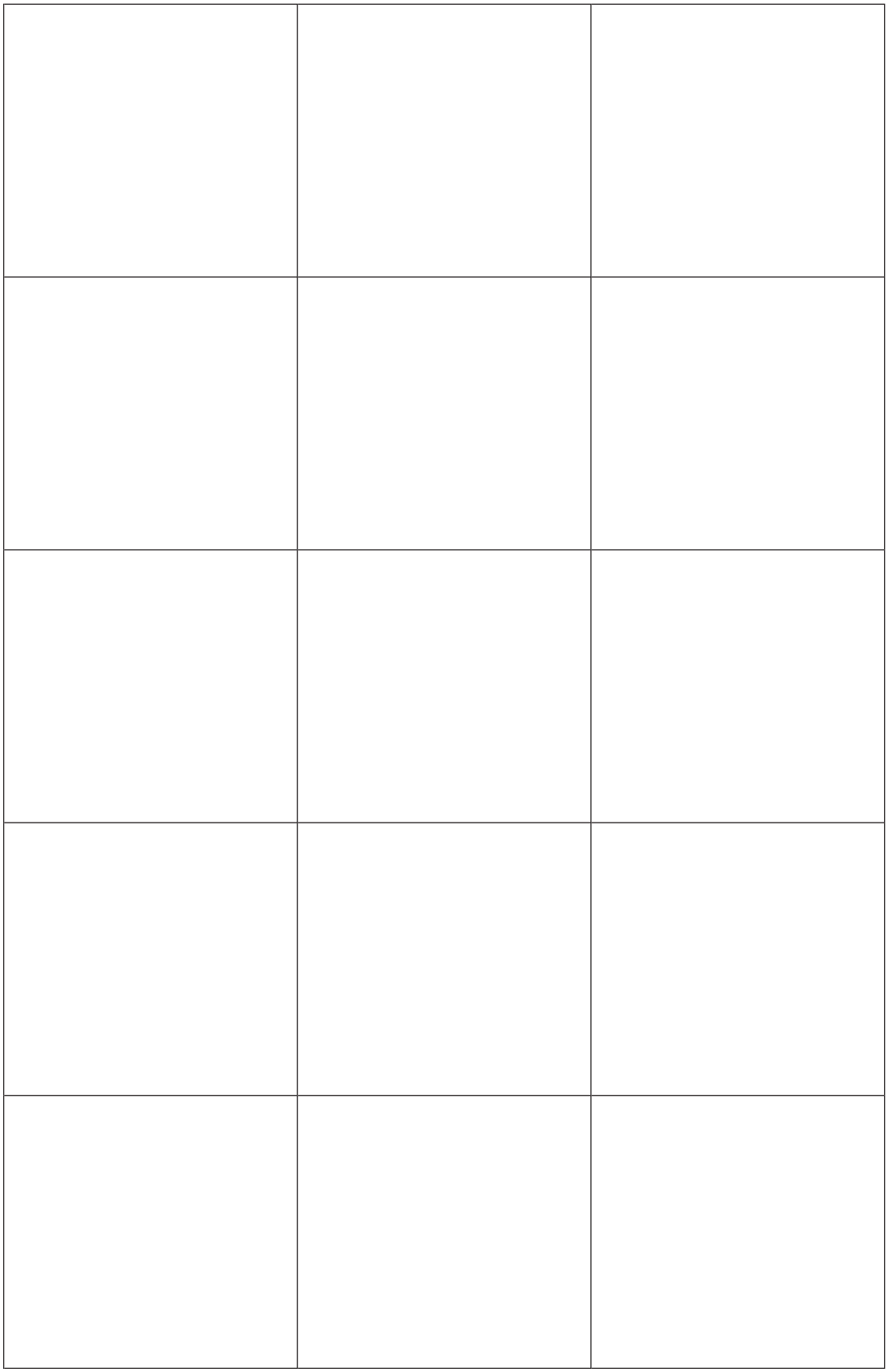
Line Up Five

8	18	28

Line Up Five

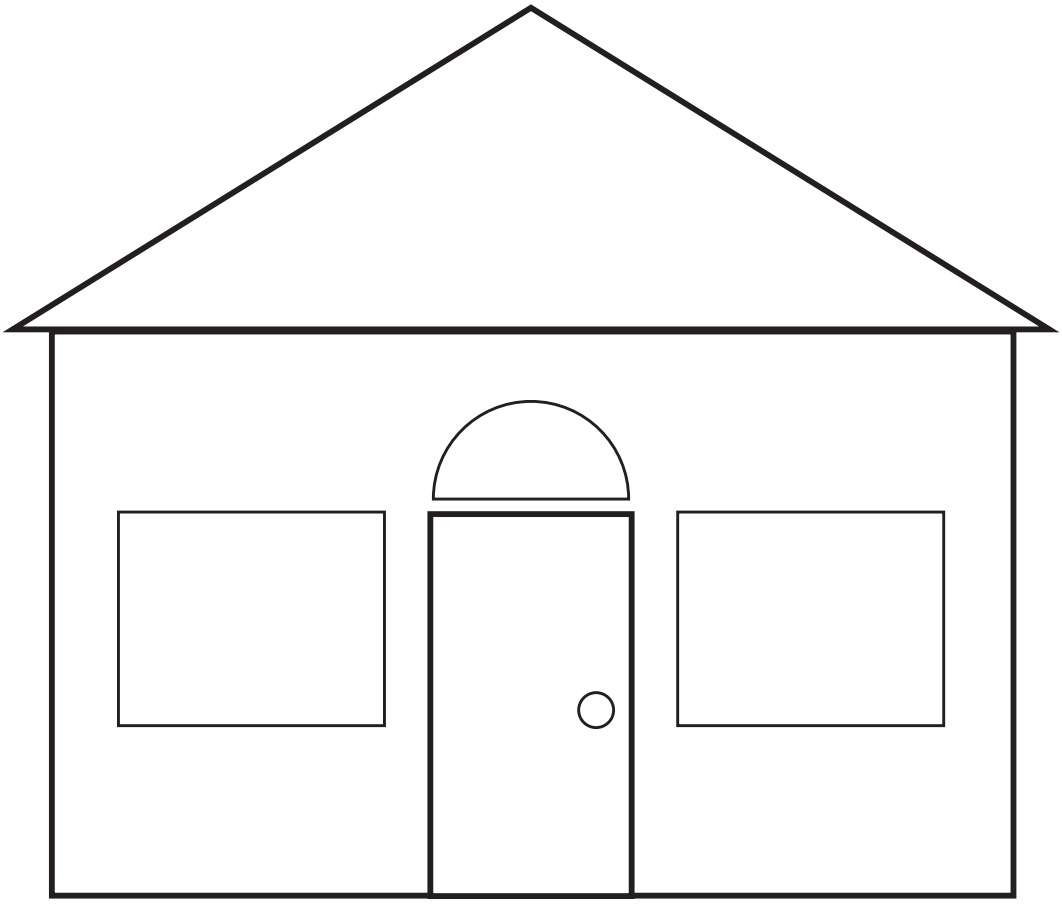
12	22	32

Line Up Five



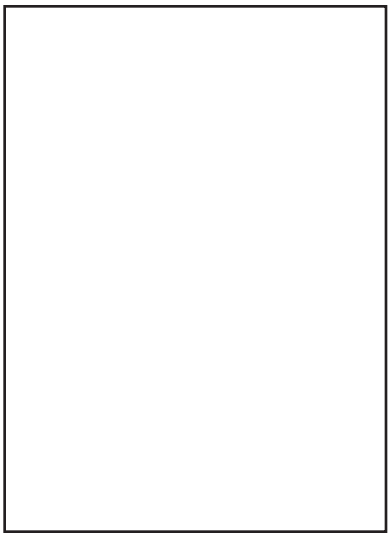
Appendix

Getting to Know You Glyph

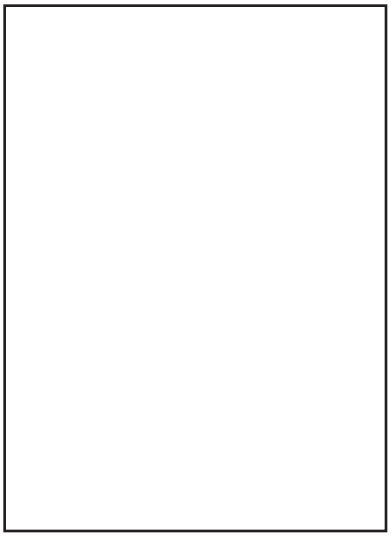


Blink

My teacher showed us this BLINK card



I could play this card on top of my teacher's card because...

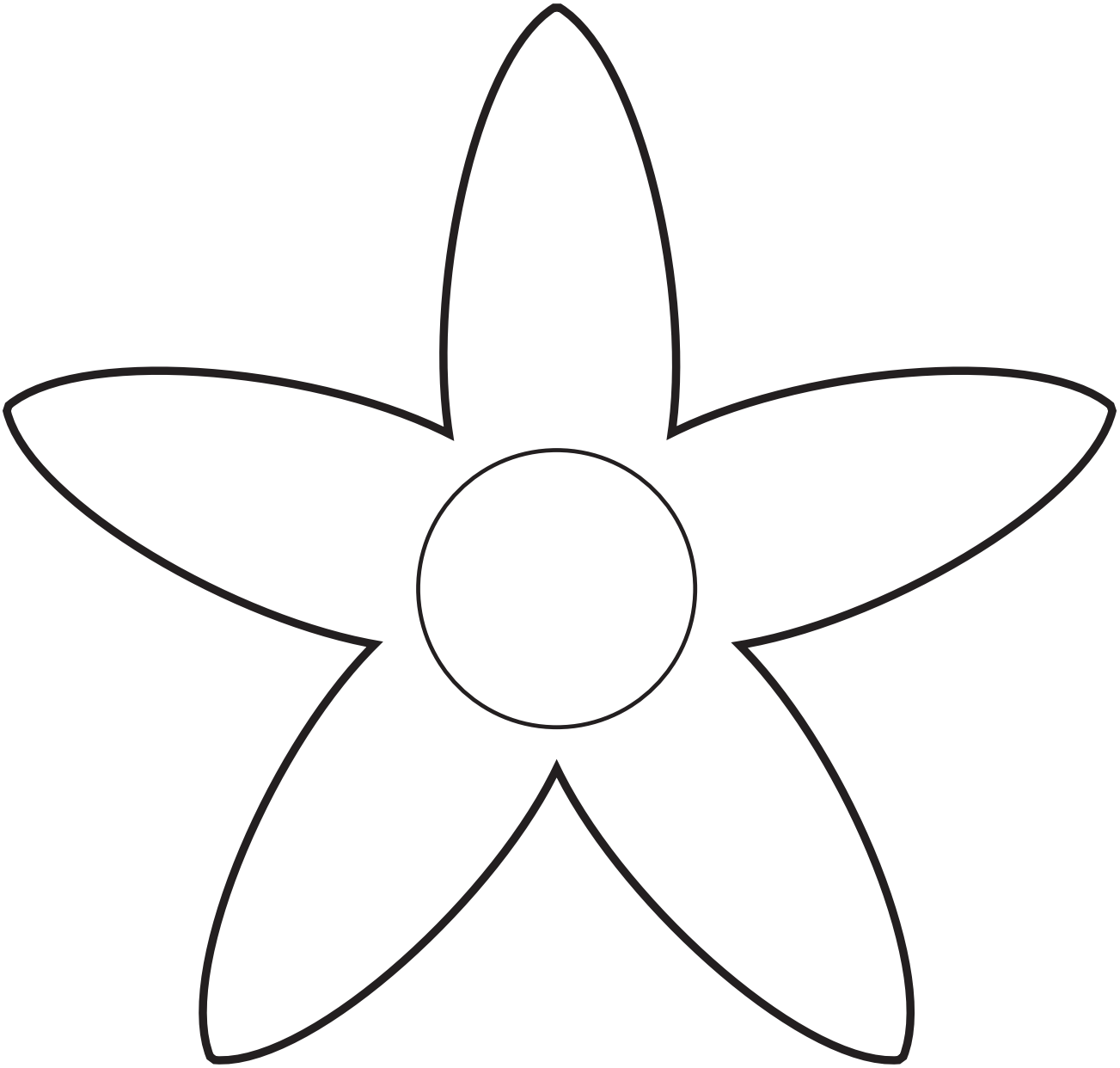


When I played BLINK I felt

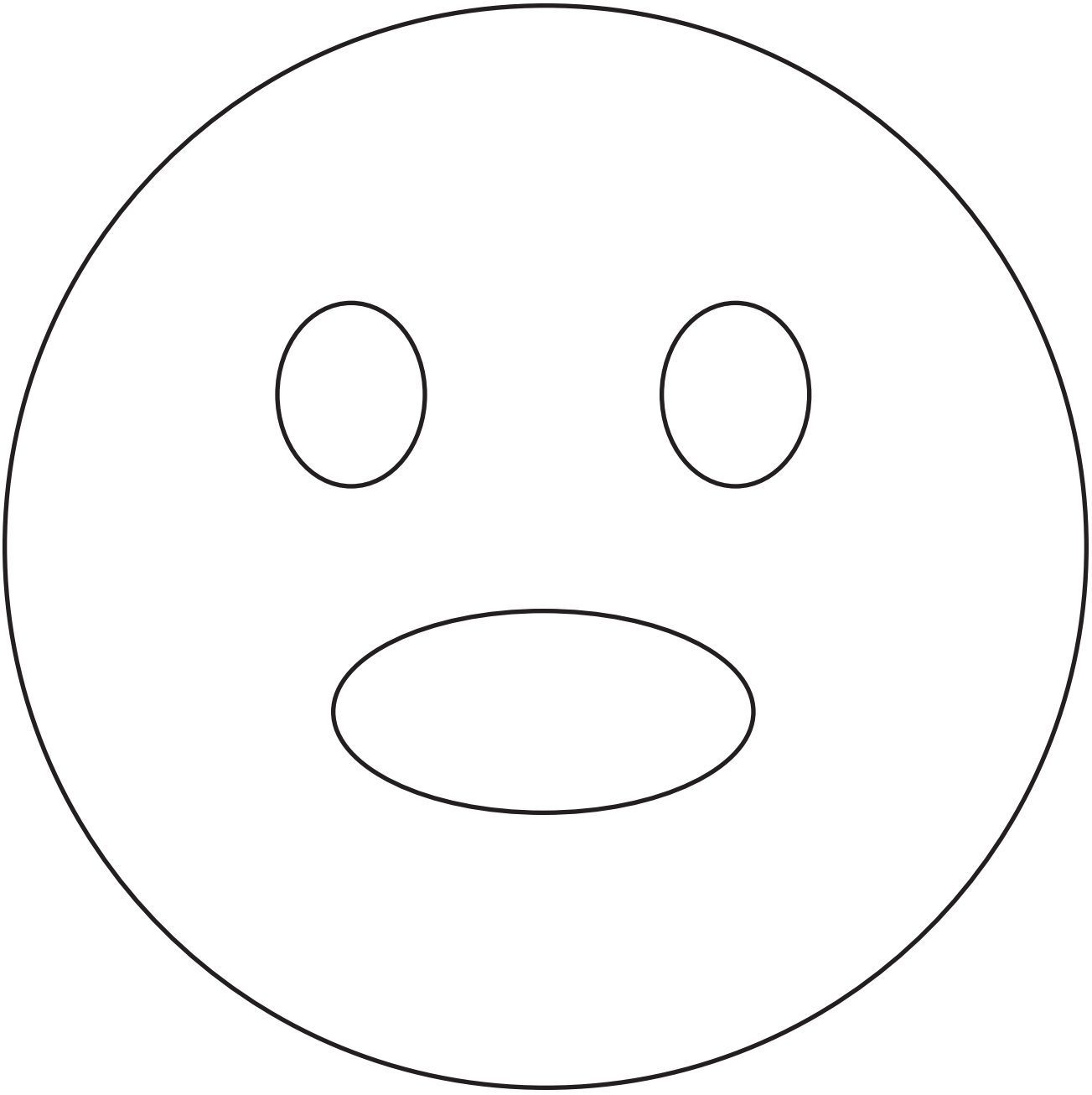
When I played BLINK I felt

Jasmine Journaling

In the center of the flower write the name of the following types of journals: Individual, Dialogue, Learning, or Team. In each of the petals write how, or why you could use that type of journal in your classroom. Locate the graphic organizer in the room and write one of the things you wrote on the petals.



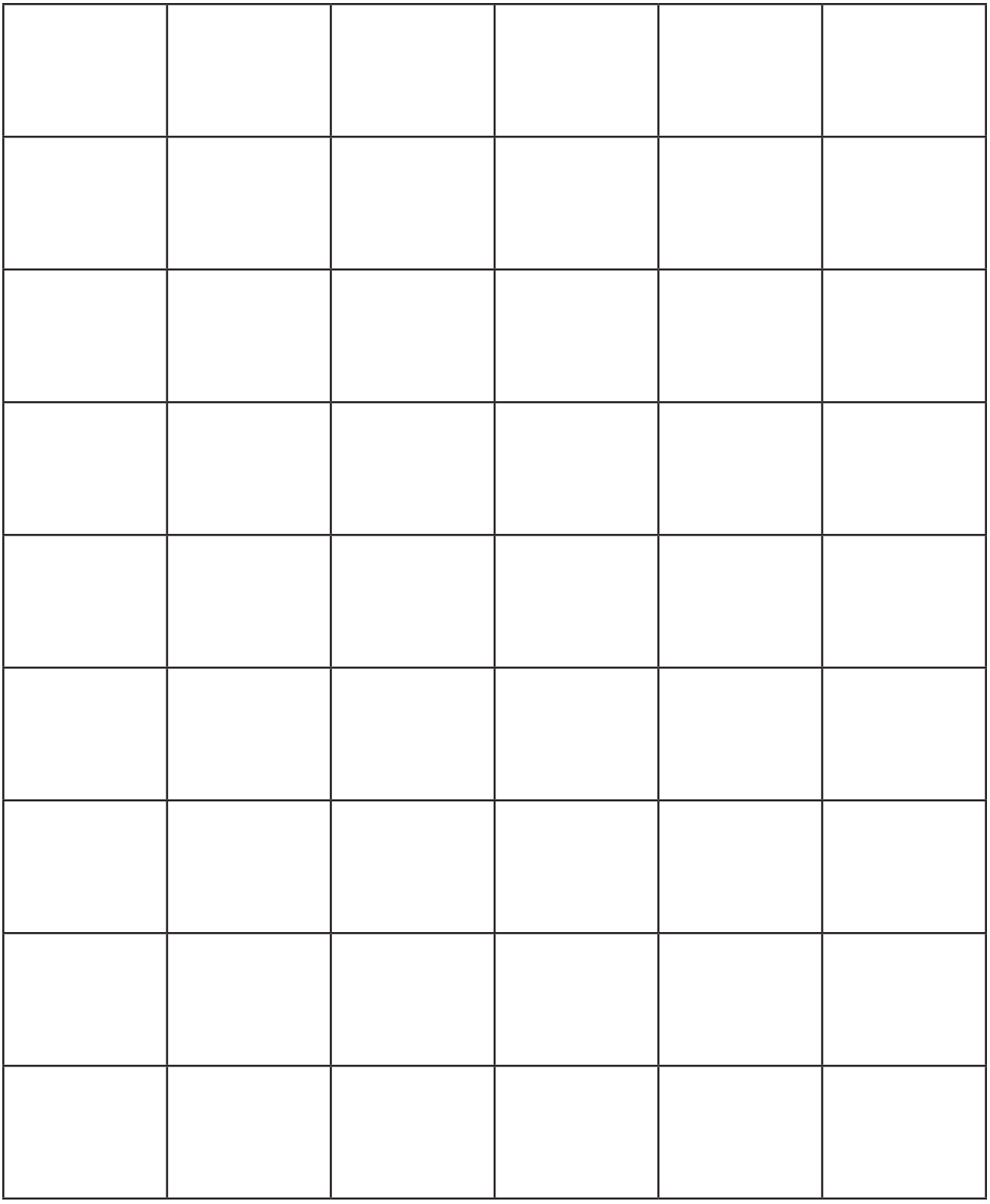
Mood Face



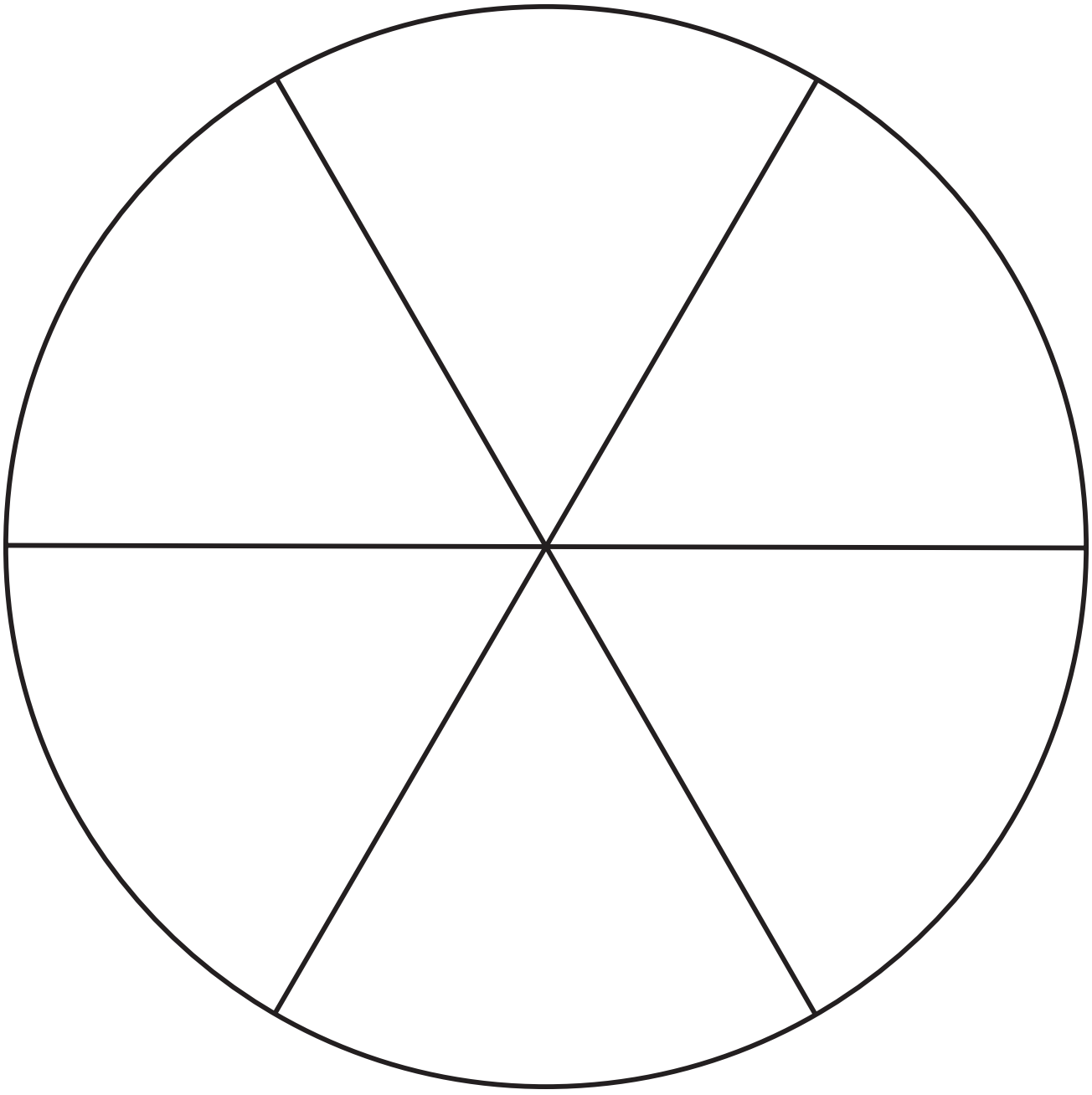
Mood BINGO

Happy	Sad	Jealous	Thankful
Shy	Mad	Glad	Excited
Angry	Lonely	FREE	Ecstatic
Frustrated	Embarrassed	Envious	Silly

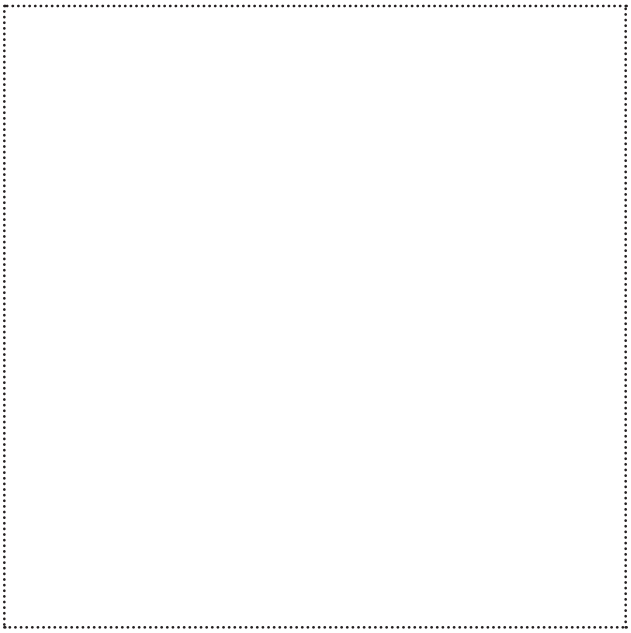
Mouse Graph

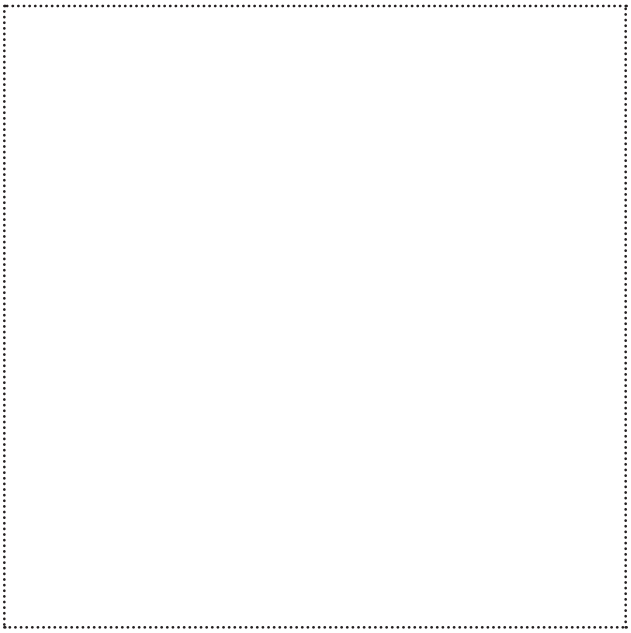


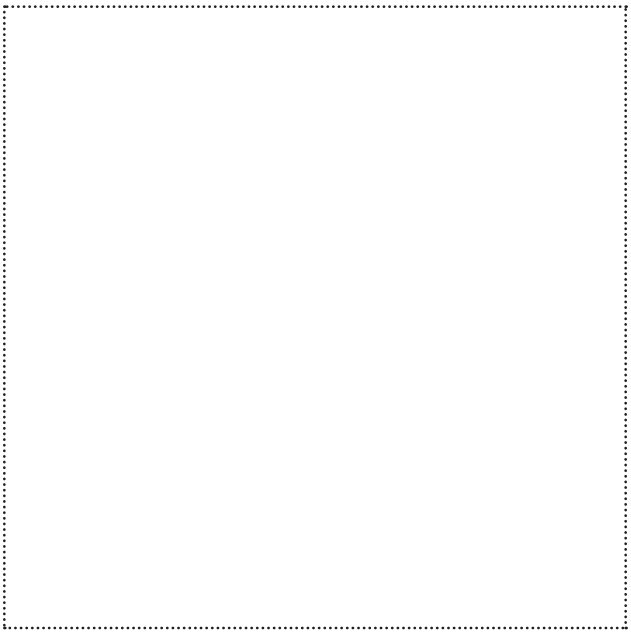
Color Wheel

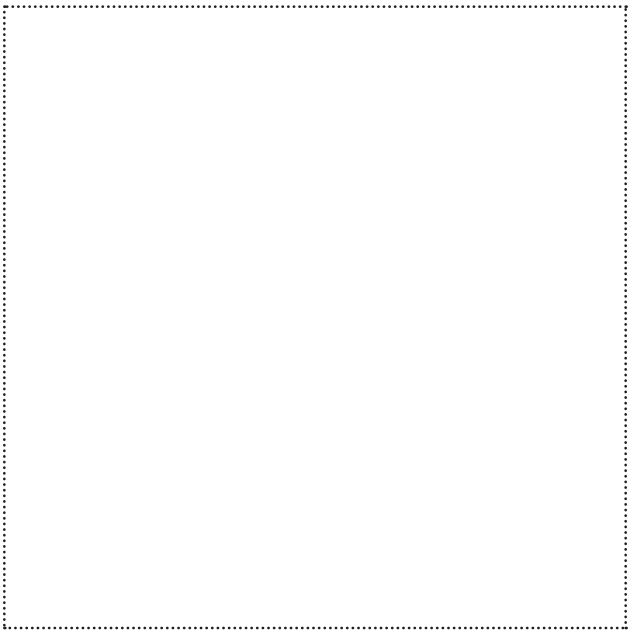


Four Square Art Page

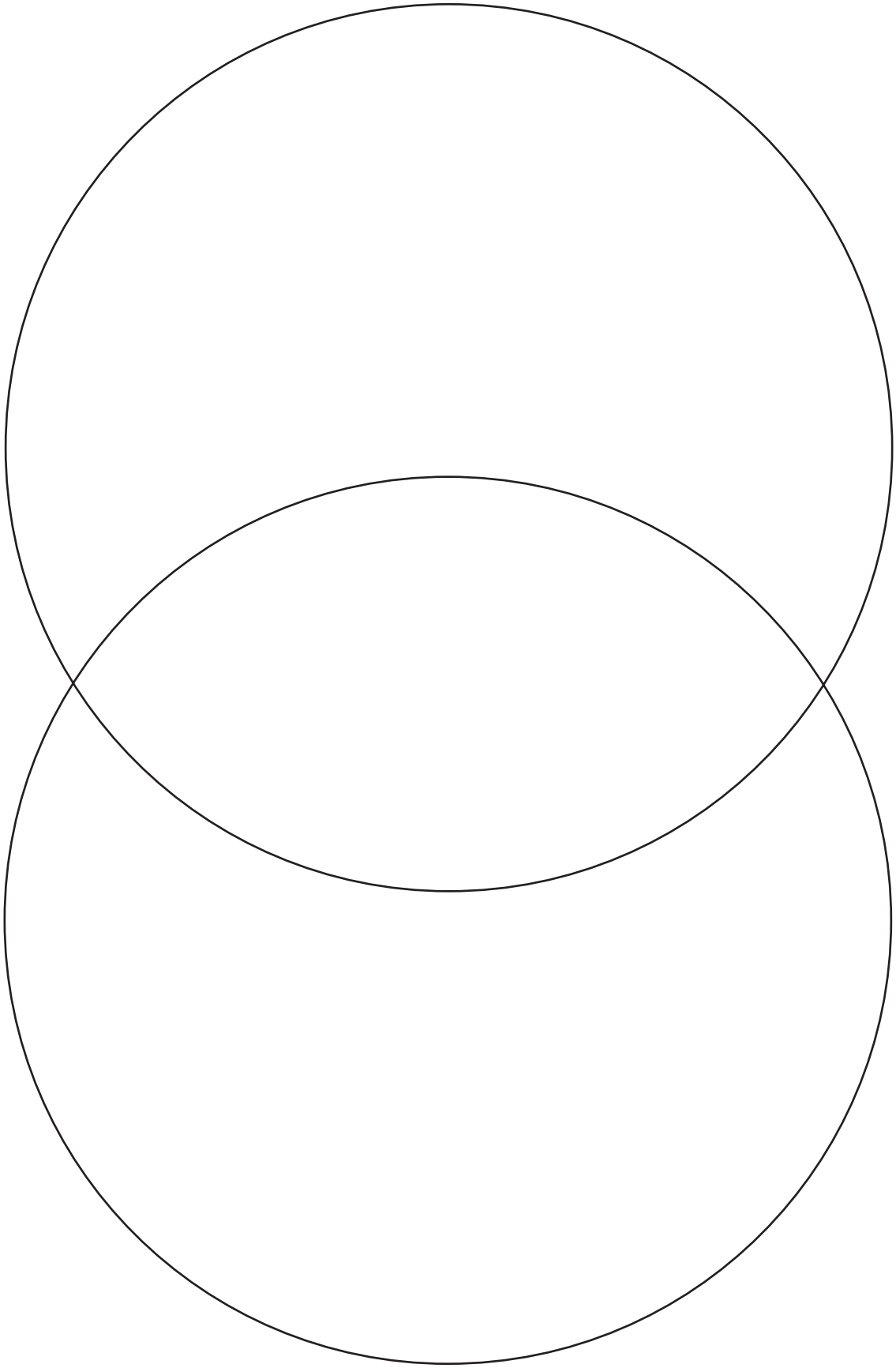








Venn Diagram



In Search of Cinderella (for boys)

☺ Reader 1: From dusk to dawn,

☞ Reader 2: From town to town,

☯ Reader 3: Without a single clue.

☺ Reader 1: I seek the tender, slender foot

☞ Reader 2: To fit this crystal shoe.

☺ Reader 1: From dusk to dawn,

☞ Reader 2: I try it on

☯ Reader 3: Each damsel that I meet.

☺ Reader 1: And I still love her so, but oh,

☺☞☯ All: I've started hating feet.

Waiting Cinderella (for girls)

Reader 1: My foot

Reader 2: It hurts!

Reader 3: I lost my crystal shoe!

Reader 1: I don't know where I left it.

Reader 2: Whatever shall I do?

Reader 3: My Prince will find

Reader 1: My fallen shoe

Reader 2: The one I left behind

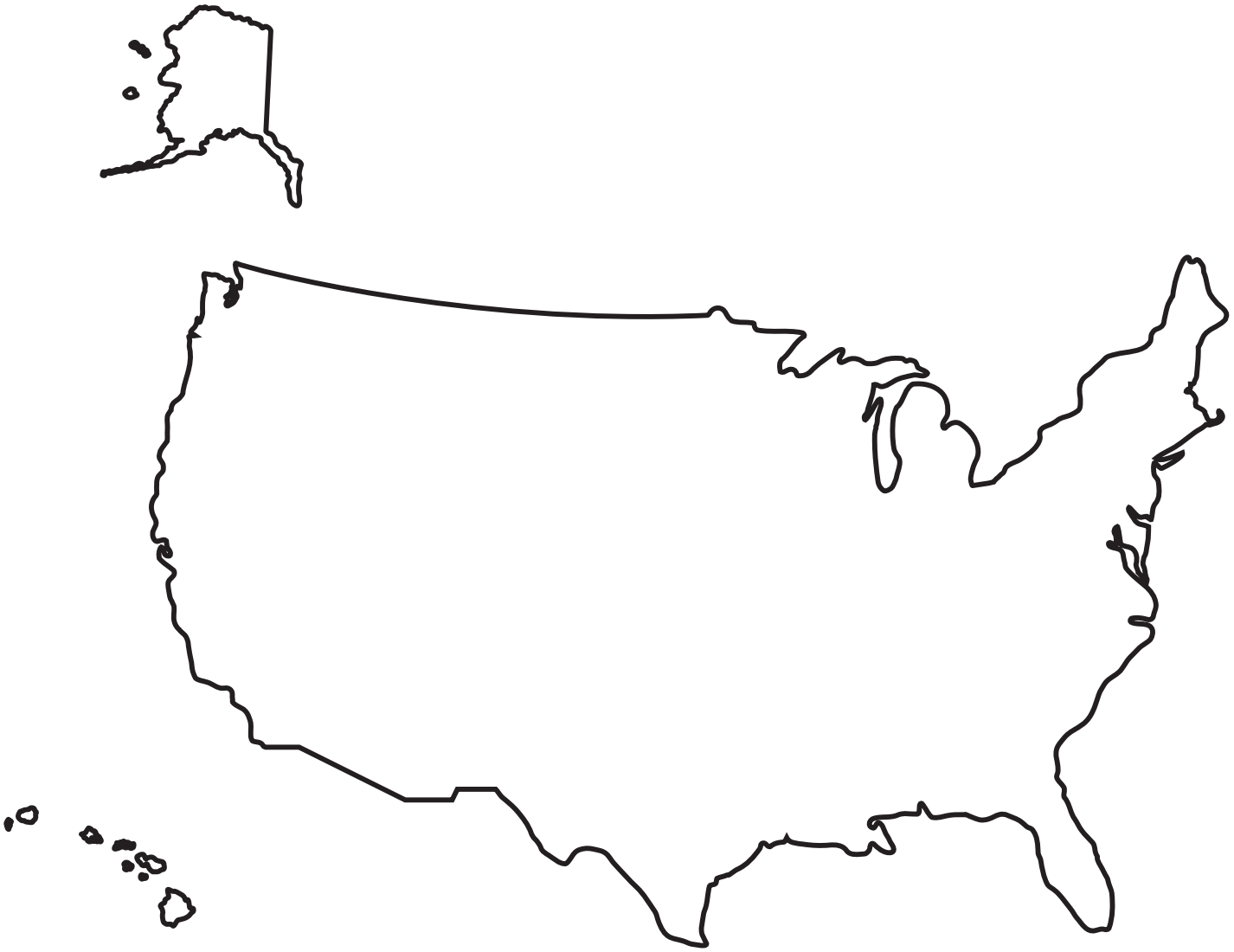
Reader 1: He's looking hard for me just now

Reader 2: I hope he isn't far.

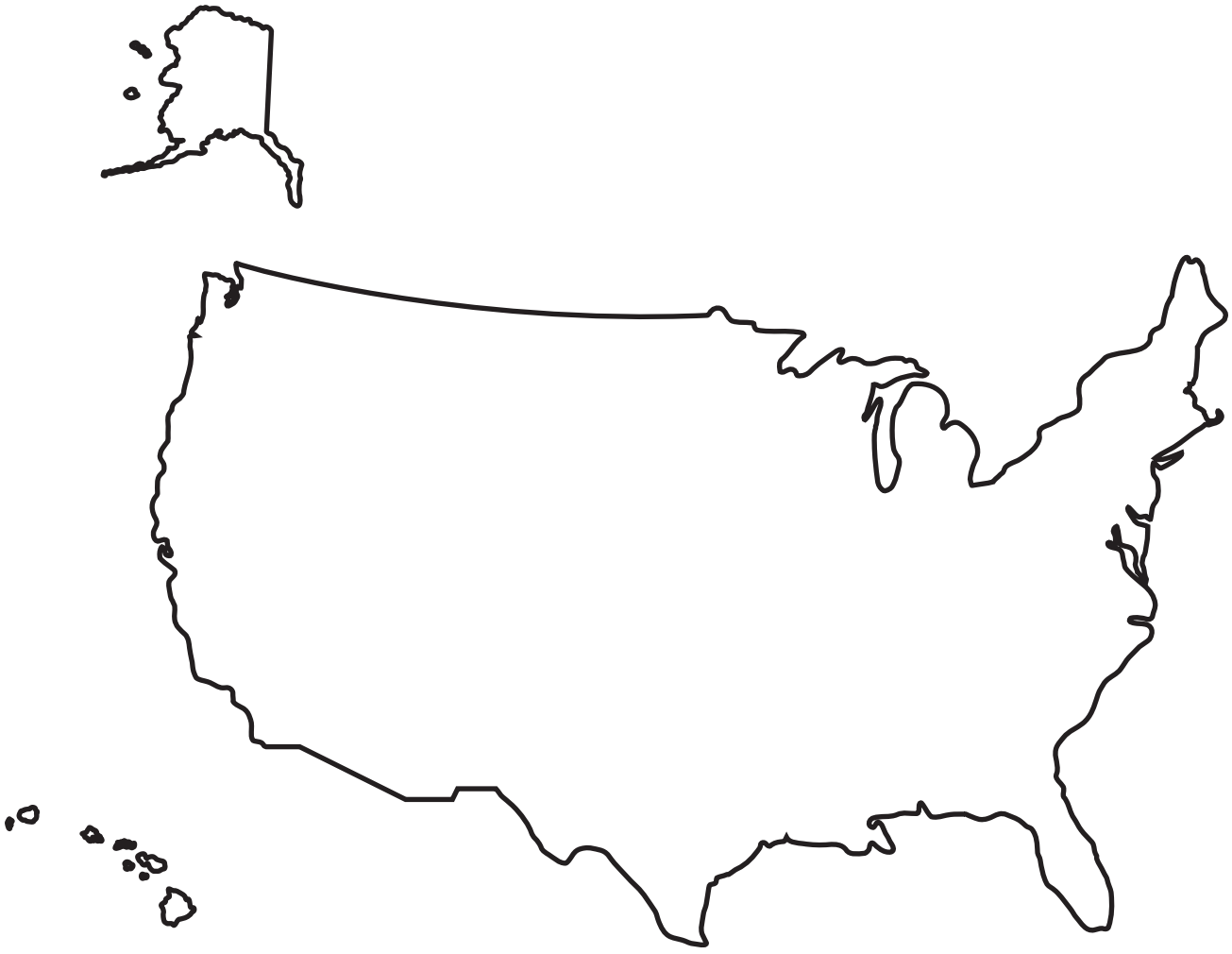
Reader 3: I know he'll find me soon. . . .

All: But how?

America: Wonderful Describing Words



In America



Written by _____

Mini Hundreds Charts

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

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

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

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

Mini Hundreds Charts

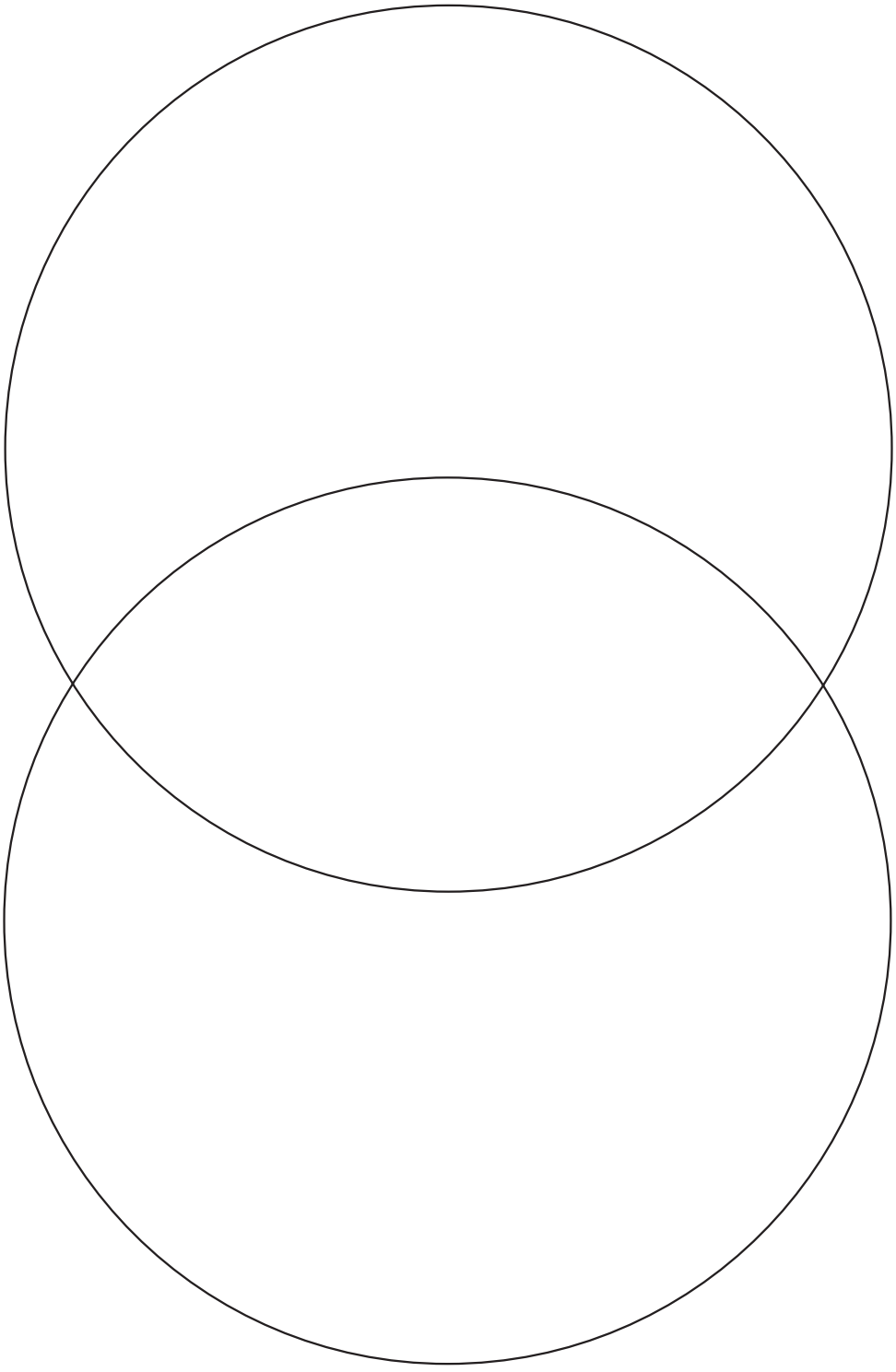
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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

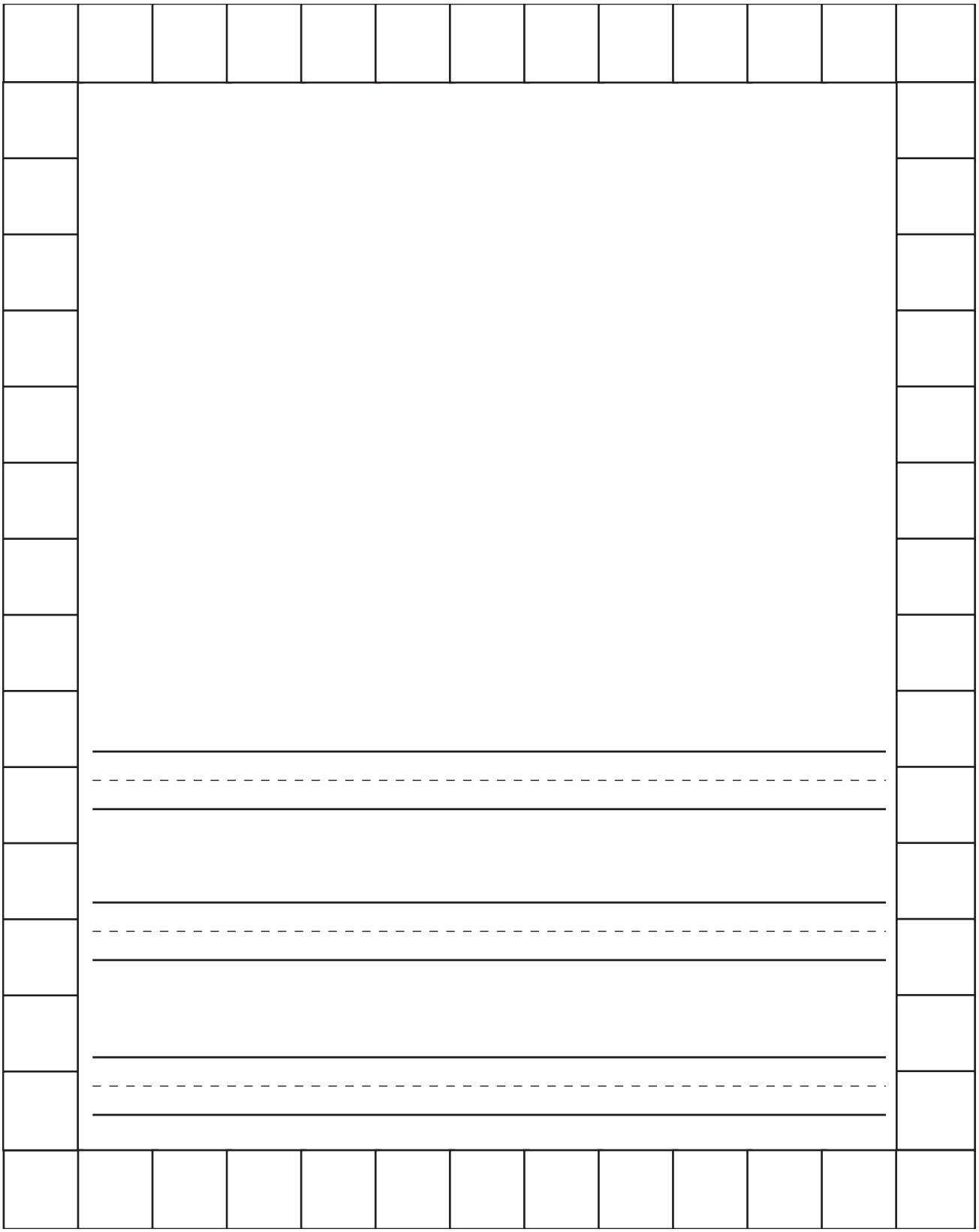
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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

Venn Diagram



Patterns at Home



Name _____

Code Letter

Pattern Trains (10 square)

1

2

3

4

5

6

7

8

Name _____

Recording Sheet

Name _____

Recording Sheet

Name _____

Pattern Paths Recording Sheet

1

2

3

4

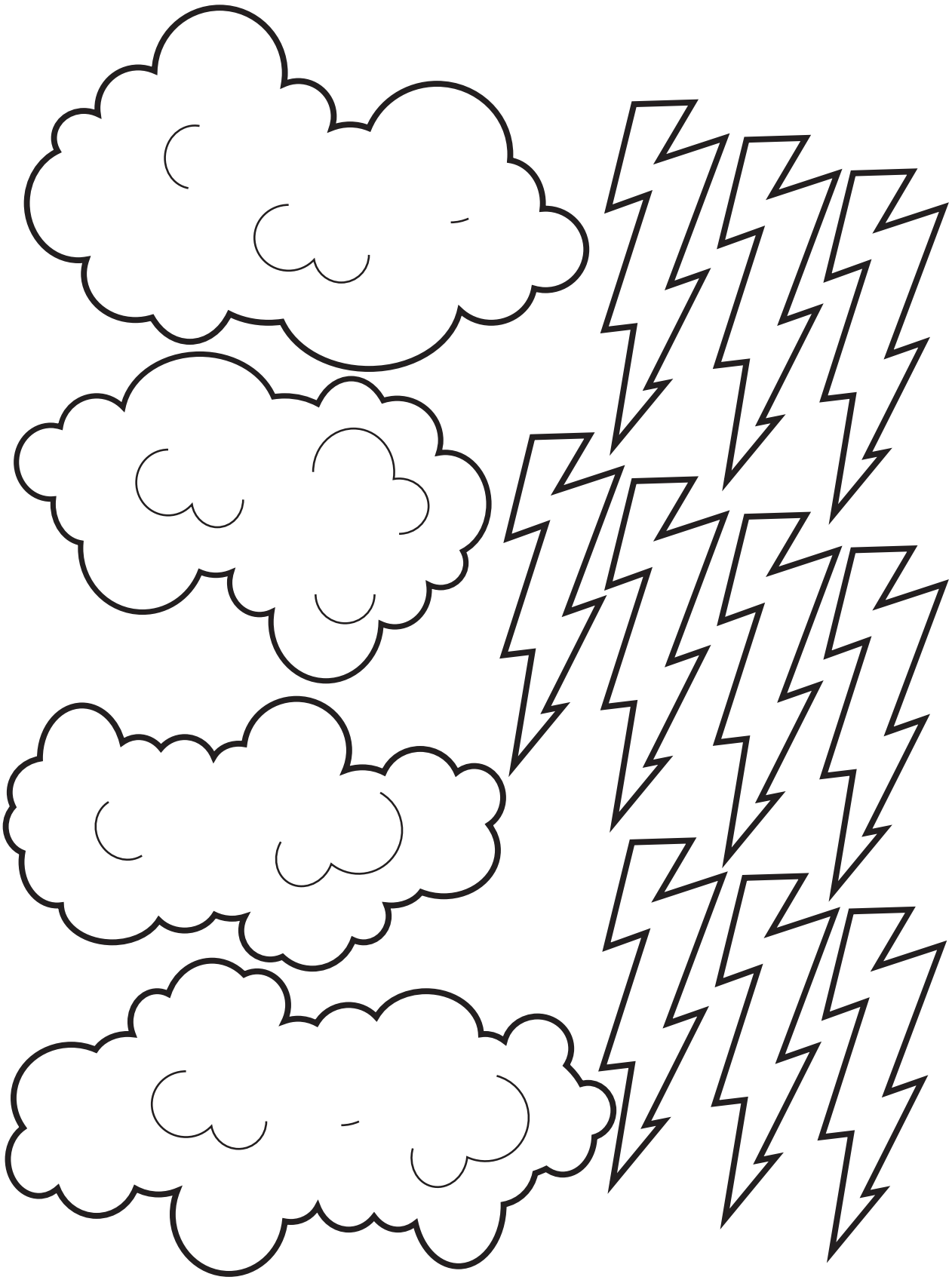
5

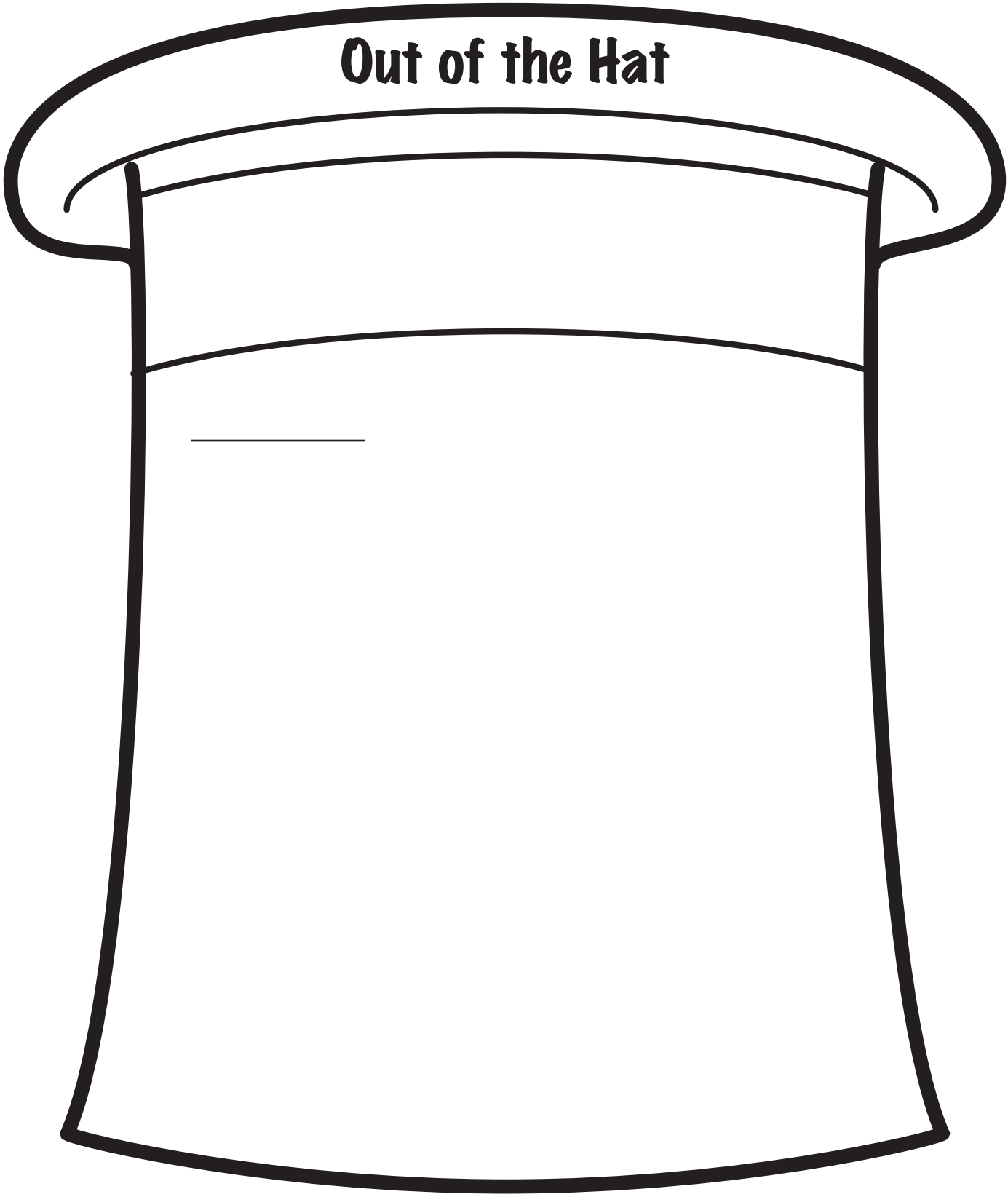
6

7

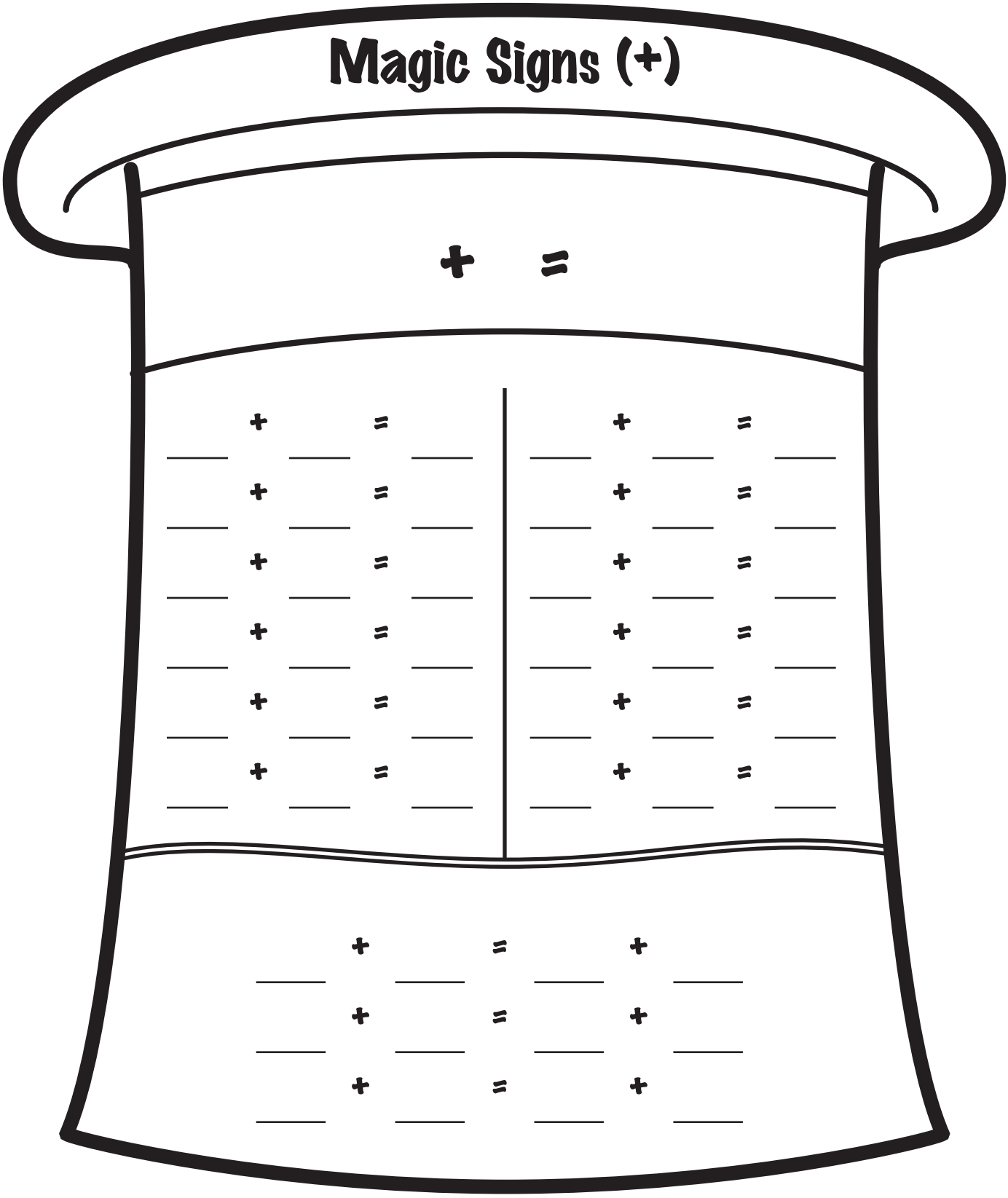
8

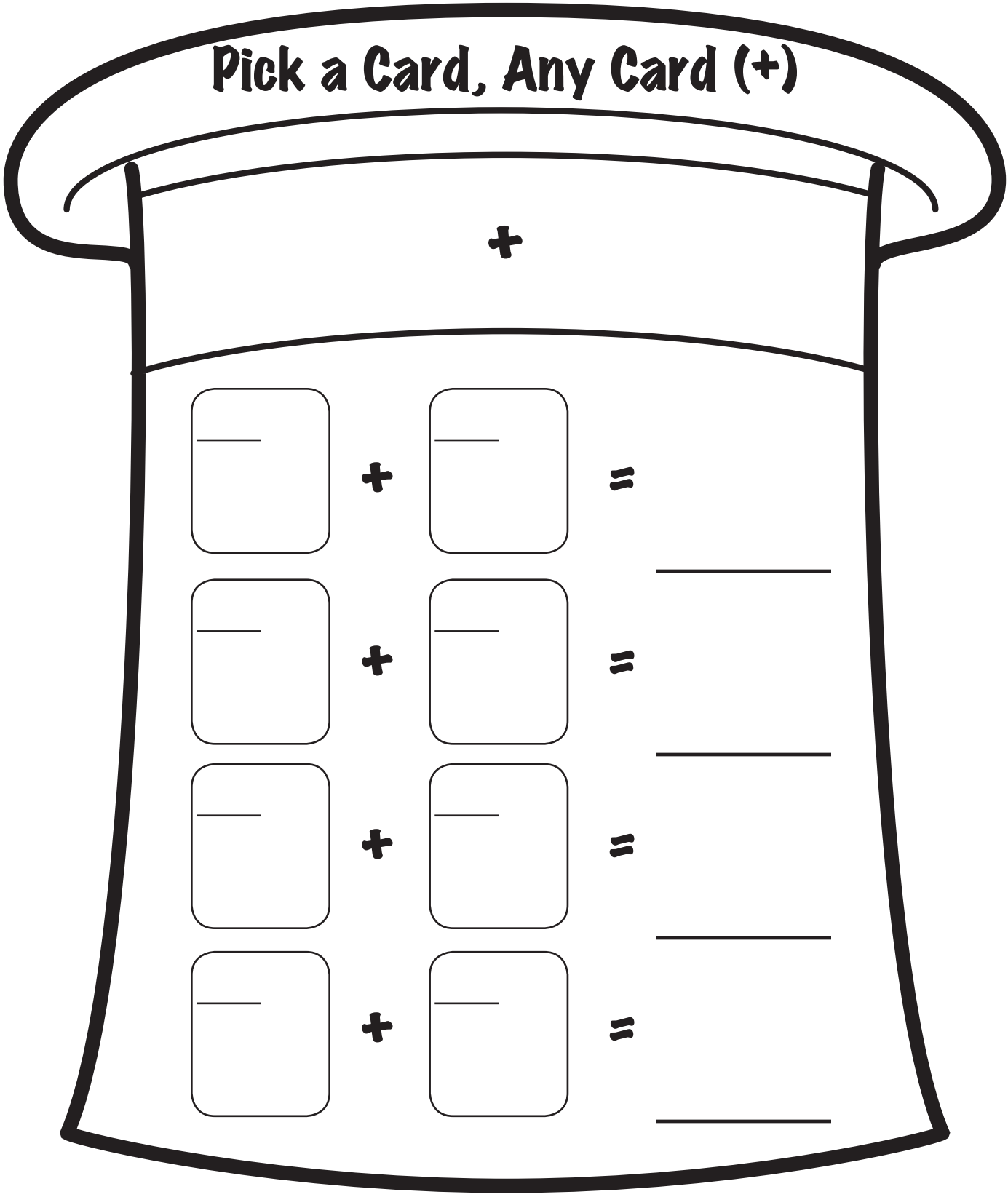
Pattern Rain Cloud Shapes




Out of the Hat

Magic Signs (+)




Pick a Card, Any Card (+)
+
+
=
+
=
+
=
+
=

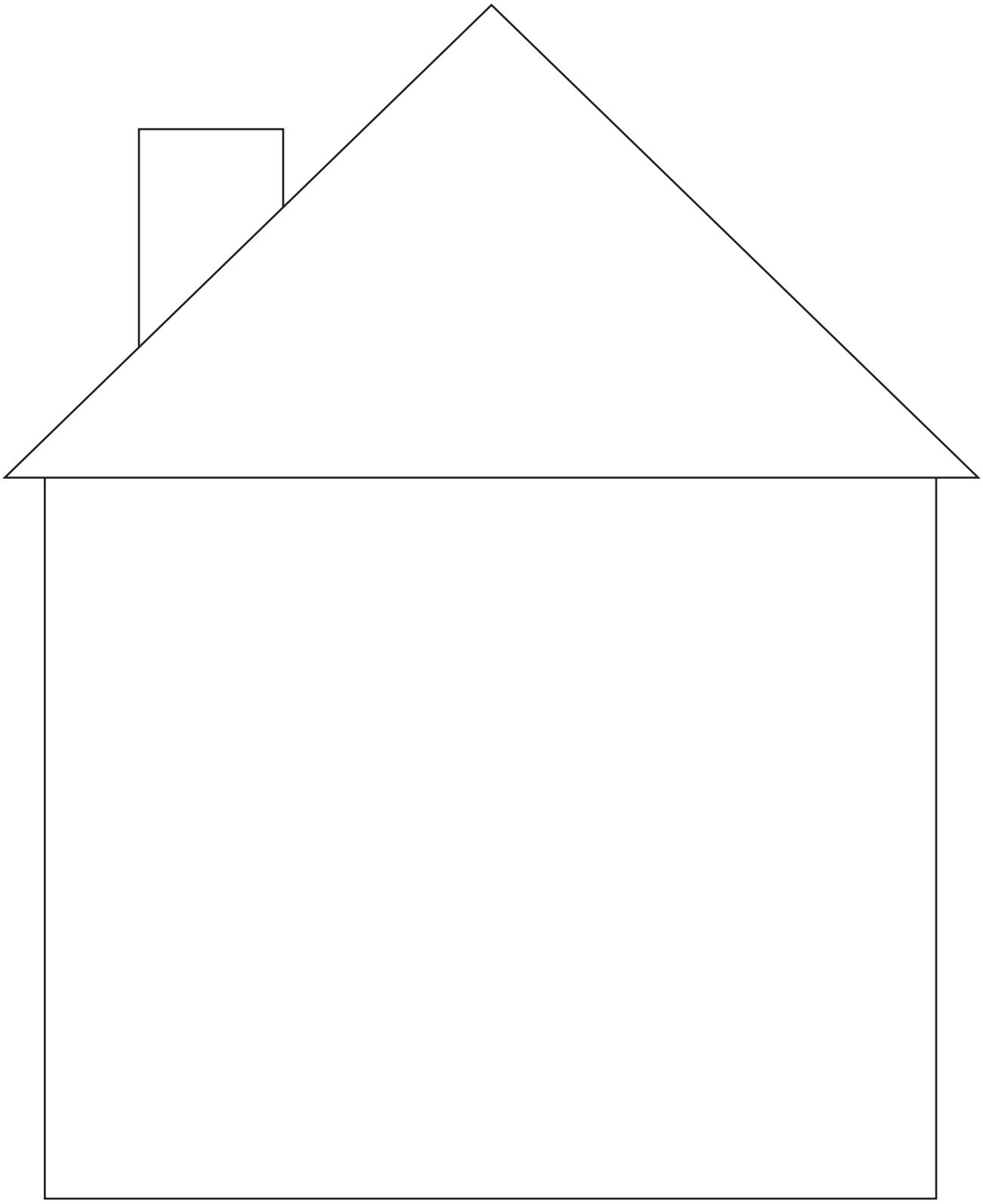
My Family

There are _____ people in my family.

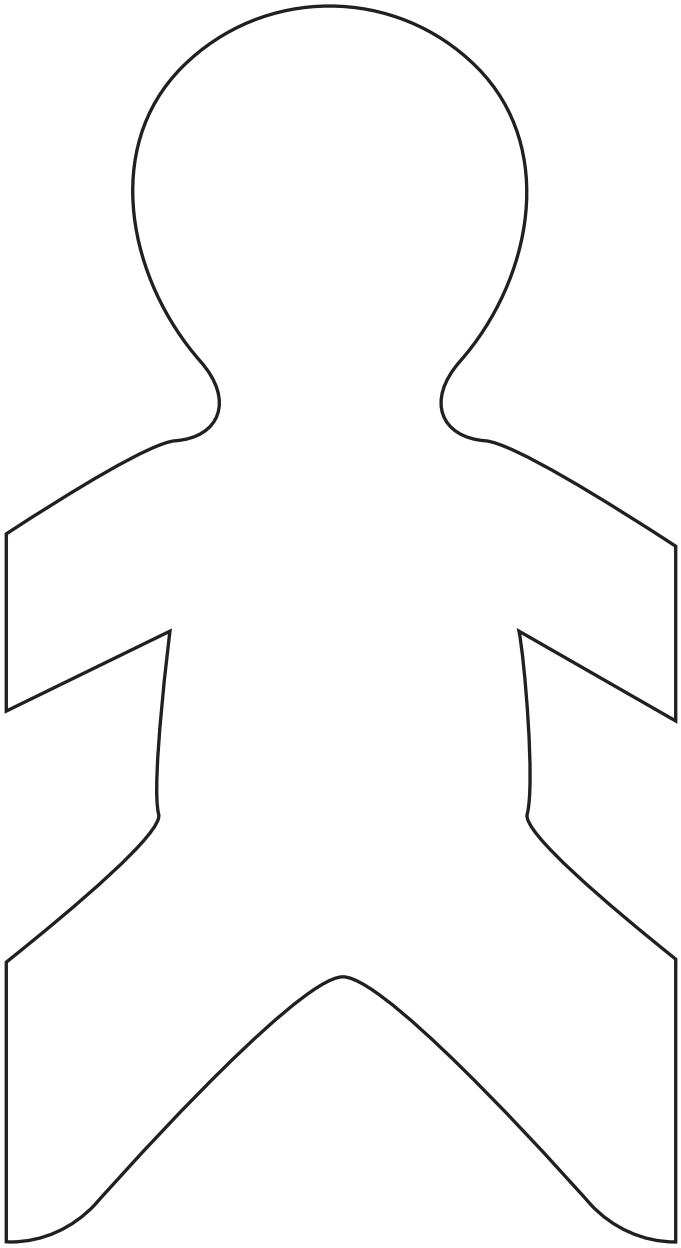
_____ boys

_____ girls

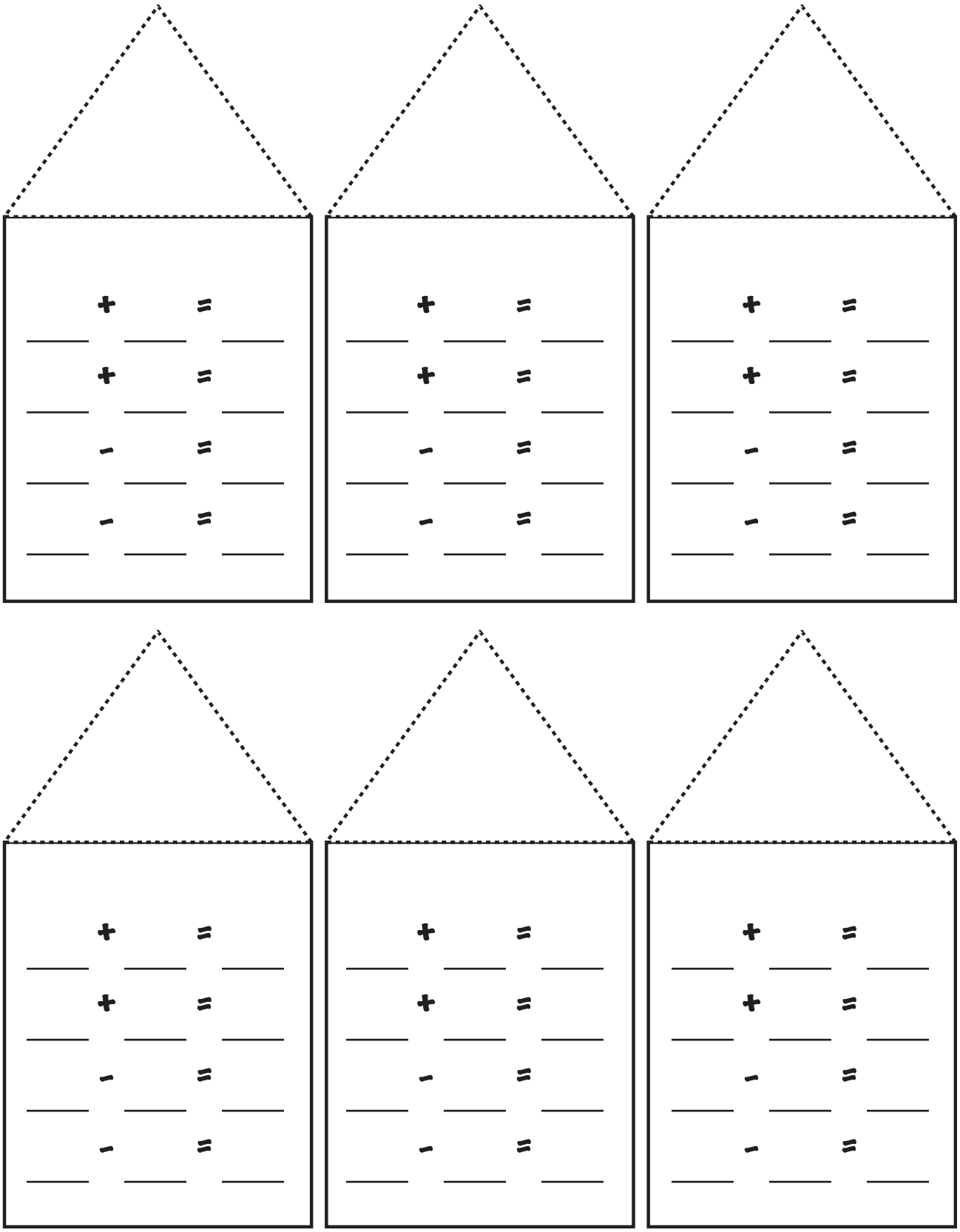
House of....



Family Chain Pattern



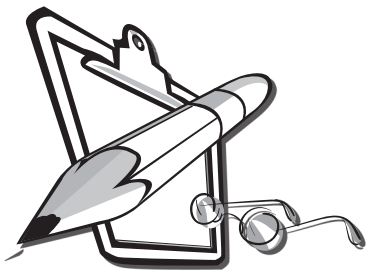
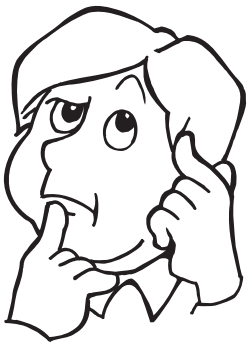
Fact Family Triangles



Water Alpha-Box	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

Scientific Method

1.  Question	
2.  Hypothesis	
3.  Experiment	

4.  **Write & Draw Observations**	
5.  **Conclusions**	
6.  **Share & Discuss**	

Hundreds Board

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
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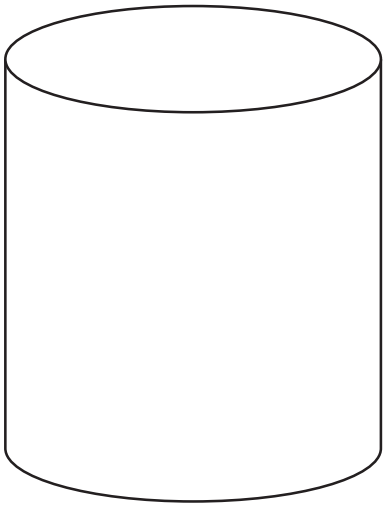
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Name _____

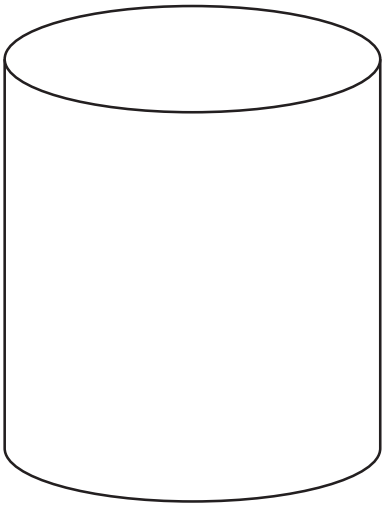
In the Can

Choose two containers. Draw the objects in each container and write the can number. Write greater than, less than, or equal two under each set of cans.

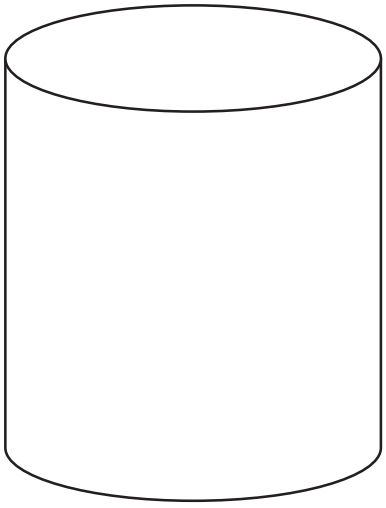
Can Number



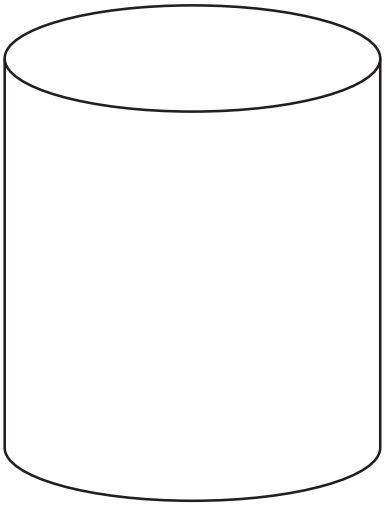
Can Number



Can Number



Can Number



Word Bank	Greater Than	Less Than	Equal To