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

Participant Handbook

ELEMENTARY CORE ACADEMY • ELEMENTARY CORE ACADEMY •

2ND GRADE

2007

UTAH STATE OFFICE OF EDUCATION

ELEMENTARY CORE ACADEMY

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Organizations:

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

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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

District Funds:

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

School Funds:

Trust land, ESEA Title II, and other school funds
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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Second Grade
Core Curriculum

K-2 Core Curriculum

Introduction

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

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

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

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

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

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

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

Organization of the K-2 Core:

- Intended Learning Outcomes
- Standard
- Objective
- Indicator

Organization of the K-2 Core

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

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

Guidelines Used in Developing the K-2 Core

The Core is:

Consistent With the Nature of Learning

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

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

Coherent

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

Developmentally Appropriate

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

Reflective of Successful Teaching Practices

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

Comprehensive

The Kindergarten, First, and Second Grade Core does not cover all topics that have traditionally been in the Kindergarten, First, and Second Grade curriculum; however, it provides a basic foundation of knowledge and skills in all content areas. By emphasizing depth

rather than breadth, the Core seeks to empower students rather than intimidate them with a collection of isolated and eminently forgettable facts. Teachers are free to add related concepts and skills, but they are expected to teach all the standards and objectives specified in the Core for their grade level.

Feasible

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

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

Useful and Relevant

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

Reliant Upon Effective Assessment Practices

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

Engaging

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

The Second Grade Core Curriculum

Second 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 second grade, students are immersed in a literature-rich environment, filled with classical and contemporary fiction and nonfiction selections, which relate to all areas of learning and interest. Students listen and speak effectively in classroom discussions. They continue to work on fluency and expression and use a combination of strategies for reading and comprehension.

Second graders extend their study of number and spatial sense to include three-digit numbers students understand place value and number relationships in addition and subtraction and they model simple concepts of multiplication and division. They measure quantities with appropriate units. They classify shapes and see relationships among them by paying attention to their geometric attributes. They collect and analyze data and verify the answers.

In second grade, students learn about their relationship to the classroom, school, family, and community. Students develop the skills of questioning, gathering information, constructing explanations, and drawing conclusions. They learn basic body control while developing 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 thoughts and ideas creatively, while challenging their imagination, fostering reflective thinking, and developing disciplined effort and problem-solving skills.

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

K-2 Intended Learning Outcomes

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

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

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

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

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

1. **Demonstrate a positive learning attitude.**
   a. Display a sense of curiosity.
   b. Practice personal responsibility for learning.
   c. Demonstrate persistence in completing tasks.
   d. Apply prior knowledge and processes to construct new knowledge.
   e. Voluntarily use a variety of resources to investigate topics of interest.
2. **Develop social skills and ethical responsibility.**
   a. Respect similarities and differences in others.
   b. Treat others with kindness and fairness.
   c. Follow classroom and school rules.
   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.

Second Grade Language Arts Core Curriculum

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

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

Objective 1: Develop language through listening and speaking. Identify specific purpose(s) for listening (e.g., to gain information, to be entertained).

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

b. Speak clearly and audibly with expression in communicating ideas.

c. Speak in complete sentences with appropriate subject-verb agreement.

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., drama, sharing of books and personal writings, choral readings, informational reports, retelling experiences, and stories in sequence) in presenting with various forms of media (e.g., pictures, posters, charts, ads, newspapers).

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

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

a. Recognize that print carries different messages.

b. Identify messages in common environmental print (e.g., signs, boxes, wrappers).

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

a. Discriminate between letters, words, and sentences in text.

b. Match oral words to printed words while reading.

c. Identify punctuation in text (i.e., periods, question marks, and exclamation points).

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

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

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

Objective 1: Demonstrate phonological awareness.

a. Count the number of syllables in words.

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

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

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

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

Objective 3: Orally blend word parts (blending).

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

b. Blend onset and rime to make words (e.g., /p/…/an/, pan).

c. Blend individual phonemes to make words (e.g., /s/ /a/ /t/, sat).

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

a. Segment words into syllables (e.g., table, /ta/…/ble/).

b. Segment words into onset and rime (e.g., pan, /p/…/an/).

c. Segment words into individual phonemes (e.g., sat, /s/…/a/…/t/).

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

a. Substitute initial and final sound (e.g., replace first sound in mat to /s/, say sat; replace last sound in mat with /p/, say map).

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

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

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

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

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

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

a. Identify and pronounce all vowel diphthongs (e.g., oi, oy, aw, au) and consonant digraphs (e.g., ch, sh, th, wh) accurately in words.

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

c. Identify and pronounce r-controlled vowel patterns in words (e.g., ar, or, er).

d. Identify and blend letter sounds to pronounce words.

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

a. Identify and read grade level contractions and compound words.

b. Identify sound patterns and apply knowledge to decode words (e.g., blends, digraphs, vowel patterns, r-controlled vowels).

c. Demonstrate an understanding of representing the same sound with different patterns by decoding these patterns accurately in isolation and in text (e.g., ee, ea, ei, e).

d. Use knowledge of root words and prefixes (e.g., re, un, mis) and suffixes (e.g., s, es, ed, ing, est, ly) to decode words.

e. Use letter and syllable patterns to pronounce multisyllabic words.

Objective 3: Spell words correctly.

a. Use knowledge of word families, patterns, and common letter combinations to spell new words.

b. Spell words with short and long vowel sounds, r-controlled words, words with consonant blends, consonant and vowel digraphs.

c. Spell an increasing number of grade level high-frequency and irregular words correctly (e.g., believe, answer).

d. Learn the spellings of irregular and difficult words (e.g., because, animals, before, answer, weight).

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

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

a. Use knowledge about spelling to predict the spelling of new words.

b. Visualize words while writing.

c. Associate the spelling of new words with that of known words and word patterns.

d. 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 80 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 200 second 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 meaning of a variety of grade level words (e.g., words from literature, social studies, science, math).

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

Objective 2: Use multiple resources to learn new words by relating them to known words and/or concepts.

a. Use multiple resources to determine the meanings of unknown words (e.g., simple dictionaries, glossaries).

b. Relate unfamiliar words and concepts to prior knowledge to increase vocabulary (e.g., liquid: milk, water, punch).

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

a. Identify meanings of words using prefixes and suffixes (e.g., do/undo, write/rewrite, happy/happiness, help/helper/helpful).

b. Use context to determine meanings of unknown key words (e.g., The store clerk glared at the children as they looked at the toys.).

c. Use context to determine meanings of synonyms, antonyms, homonyms (e.g., sun/son) and multiple-meaning words (e.g., ring).

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

Objective 1: Identify purposes of text.

a. Identify purpose for reading.

b. Identify 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. Form mental pictures to aid understanding of text.

d. Make and confirm predictions while reading using title, picture clues, text, and/or prior knowledge.

e. Make inferences and draw conclusions from text.

f. Identify topic/main idea from text; note details.

g. Summarize important ideas/events; summarize supporting details in sequence.

h. Monitor and clarify understanding applying fix-up strategies while interacting with text.

i. Compile information from text.

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

a. Identify characters, setting, sequence of events, problem/resolution.

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

c. Identify information from pictures, captions, diagrams, charts, graphs, and table of contents.

d. Identify different structures in texts (e.g., compare/contrast, cause/effect).

e. Locate facts from a variety of informational texts (e.g. newspapers, magazines, books, other resources).

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

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

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

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

a. Generate ideas for writing by reading, discussing literature and informational text, and reflecting on personal experiences.

b. Select topics from generated ideas.

c. Identify audience, purpose, and form for writing.

d. Use simple graphic organizers to organize information.

Objective 2: Compose a written draft.

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

b. Use voice in writing (e.g., express feelings, opinions).

c. Select appropriate words to convey meaning.

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

a. Revise draft to add details, strengthen word choice, and reorder content.

b. Enhance fluency by using complete sentences.

c. Revise writing, considering the suggestions of others.

Objective 4: Edit written draft for conventions.

a. Edit writing for capitals in names, first word of a sentence, and the pronoun "I", correct punctuation of sentence endings, greetings and closings of letters, dates, and contractions.

b. Edit for spelling of grade-level appropriate words.

c. Edit for standard grammar (e.g., subject-verb agreement).

d. Edit for appropriate formatting features (e.g., margins, indentations, titles).

Objective 5: Use fluent and legible handwriting to communicate.

a. Write demonstrating mastery of all upper- and lower-case manuscript letters and numerals using proper form, proportions, and spacing.

b. Increase fluency in forming manuscript letters and numerals.

c. Produce legible documents with manuscript handwriting.

Objective 6: Write in different modes and genres.

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

b. Produce traditional and imaginative stories, narrative and formula poetry as an individual/shared writing activity.

c. Produce informational text (e.g., ABC books, how-to books, observations).

d. Produce writing to persuade (e.g., express opinions).

e. Produce functional texts (e.g., lists, labels, signs).

f. Share writing with others using illustrations, graphs, and/or charts to add meaning.

g. Publish four to six individual products.

Second Grade Mathematics Core Curriculum

By the end of grade two, students understand place value and number relationships in addition and subtraction and they model simple concepts of multiplication and division. They measure quantities with appropriate units. They classify shapes and see relationships among them by paying attention to their geometric attributes. They collect and analyze data and verify the answers.

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

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

Objective 1: Identify and represent the relationships among numbers, quantities, and place value in whole numbers up to 1000.

a. Represent whole numbers in groups of hundreds, tens, and ones using base ten models and write the numeral representing the set in standard and expanded form.

b. Identify the place and the value of a given digit in a three-digit numeral.

c. Represent the composition and decomposition of numbers in a variety of ways.

d. Compare and order numbers using the terms, greater than, less than, or equal to, and the symbols, >, <, and =, using various strategies, including the number line.

e. Identify and describe even and odd whole numbers.

Objective 2: Use unit fractions to identify parts of the whole and parts of a set.

a. Divide geometric shapes into two, three, or four equal parts and identify the parts as halves, thirds, or fourths.

b. Divide sets of objects into two, three, or four parts of equal number of objects and identify the parts as halves, thirds, or fourths.

c. Represent the unit fractions 1/2, 1/3, and 1/4 with objects, pictures, words (e.g., ___out of ___ equal parts), and symbols.

Objective 3: Estimate, model, illustrate, describe, and solve problems involving two- and three-digit addition and subtraction.

a. Demonstrate quick recall of addition facts (up to 10 + 10) and related subtraction facts.

b. Model addition and subtraction of two- and three-digit whole numbers (sums and minuends to 1000) in a variety of ways.

c. Write a story problem that relates to a given addition or subtraction equation, and write a number sentence to solve a story problem that is related to the environment.

d. Demonstrate fluency with two- and three-digit addition and subtraction problems, using efficient, accurate, and generalizable strategies that include standard algorithms and mental arithmetic, and describe why the procedures work.

e. Use the mathematical relationship between addition and subtraction and properties of addition to model and solve problems.

Objective 4: Model, illustrate, and pictorially record solutions to simple multiplication and division problems.

a. Represent multiplication with equal groups using concrete objects and skip counting by twos, fives, and tens.

b. Represent division as fair shares using concrete objects or pictures.

Mathematical language and symbols students should use:
number line, add, sum, subtract, difference, greater than, less than, equal to, >, <, =, even, odd, halves, thirds, fourths, 1/2, 1/3, 1/4.

Exploratory Concepts and Skills

- Investigate addition of common fractions (e.g., 1/2 + 1/2 = 1, 1/4 + 1/4 = 1/2).
- Investigate comparing fractions in terms of greater than, less than, and equal to.
- Understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally.

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

Standard II: Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

Objective 1: Recognize, describe, create, and extend growing patterns.

a. Determine the next term in linear patterns (e.g., 2, 4, 6…; the number of hands on one person, two people, three people).

b. Construct models and skip count by twos, threes, fives, and tens and relate to repeated addition.

Objective 2: Model, represent, and interpret number relationships using mathematical symbols.

a. Recognize that "≠" indicates a relationship in which the two sides of the inequality are expressions of different numbers.

b. Recognize that symbols such as x, r, or ¯ in an addition or subtraction equation represent a number that will make the statement true.

c. Use the commutative and associative properties of addition to simplify calculations.

Mathematical language and symbols students should use:
patterns, +, -, =, ≠

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: Describe, classify, and create geometric figures.

a. Describe and classify plane and solid geometric figures (i.e., circle, triangle, rectangle, square, trapezoid, rhombus, parallelogram, pentagon, hexagon, cube, sphere, cone) according to the number of sides and angles or faces, edges, and vertices.

b. Compose and decompose shapes and figures by substituting arrangements of smaller shapes for larger shapes or substituting larger shapes for arrangements of smaller shapes.

c. Compose and decompose shapes and figures and describe the part-whole relationships, similarities, and differences.

Objective 2: Identify and use units of measure, iterate (repeat) that unit, and compare the number of iterations to the item being measured.

a. Identify and use measurement units to measure, to the nearest unit, length (i.e., inch, centimeter), weight in pounds, and capacity in cups.

b. Estimate and measure length by iterating a nonstandard or standard unit of measure.

c. Use different units to measure the length of the same object and recognize that the smaller the unit, the more iterations needed to cover a given length.

d. Determine the value of a set of up to five coins that total $1.00 or less (e.g., three dimes, one nickel, and one penny equals 36¢).

e. Tell time to the quarter-hour and sequence a series of daily events by time (e.g., breakfast at 7:00 a.m., school begins at 9:00 a.m, school ends at 3:00 p.m.).

Objective 3: Collect, record, organize, display, and interpret numerical data.

a. Collect and record data systematically, using a strategy for keeping track of what has been counted.

b. Organize and represent the same data in more than one way.

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

c. Organize, display, and label information, including keys, using pictographs, tallies, bar graphs, and organized tables.

d. Describe data represented on charts and graphs and answer simple questions related to data representations.

Mathematical language and symbols students should use:
inch, centimeter, pound, cup, circle, triangle, rectangle, square, trapezoid, rhombus, parallelogram, pentagon, hexagon, cube, sphere, cone, vertices, angle, face, edge, weight, length, capacity

Exploratory Concepts and Skills
- Use verbal instructions to move within the environment.
- Determine simple equivalencies of measurements.
- Conduct simple probability experiments.

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

Standard I: Students will develop a sense of self.

Objective 1: Describe and adopt behaviors for health and safety.

a. Explain the importance of balance in a diet.

b. Distinguish communicable from noncommunicable diseases (e.g., chicken pox, common cold, flu; asthma, cancer, diabetes).

c. Relate behaviors that can help prevent disease (e.g., hand washing, good nutrition, fitness, universal precautions).

d. Identify the harmful effects of tobacco on self and others (e.g., death, heart and lung disease, shortness of breath).

e. Adopt basic safety habits (e.g., wear a seatbelt, practice bicycle safety, find adult help in an emergency).

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

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

b. Perform fundamental locomotor and nonlocomotor skills in movement sequences and game applications (e.g., walk-hop-skip, run-stretch-skate, run-hop-lay up).

c. Perform manipulative skills exhibiting a majority of correct technique components (e.g., soccer kick: eyes on ball, step with foot opposite to kicking foot, contact ball with inside of foot, follow through).

d. Identify components of physical fitness (i.e., strength, endurance, flexibility) and corresponding activities.

e. Create and perform unique dance movements and sequences that expand physical skills while demonstrating personal and spatial awareness.

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

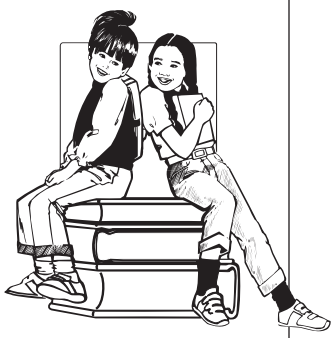
a. Express personal experiences and imagination through dance, storytelling, music, and visual art.

b. Create, with improving accuracy, works of art depicting depth (e.g., close objects large, distant objects small) using secondary and tertiary colors.

c. Develop ability to sing in tune with relaxed strength and clarity.

d. Develop consistency in rhythmic accuracy of body percussion and instrument playing.

* 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. Describe characteristics of healthy relationships (e.g., caring, responsibility, trust, respect).

b. Identify benefits of cooperating and sharing.

c. Explain how families and communities change over time.

d. Recognize how choices and consequences affect self, peers, and family.

e. Identify behaviors that might create conflict situations and ways to resolve them.

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

a. Explain why families, schools, and communities have rules.

b. Compare rural, suburban, and urban communities.

c. Relate goods and services to resources within the community.

d. Participate in activities that promote public good (e.g., respect cultural and ethnic differences, identify community needs) and recite the Pledge of Allegiance.

e. Recognize the positive and negative impact of media.

Objective 3: Express relationships in a variety of ways.

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

b. Develop an acting ability to relate to characters' thoughts and feelings (e.g., needs, hopes, frustrations, fears) in stories and plays.

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

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

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

Objective 1: Investigate relationships between plants and animals and how living things change during their lives.

a. Observe and describe relationships between plants and animals.

b. Describe the life cycle of local plants and animals using diagrams and pictures.

c. Create pictures and stories about real animals and compare them to make-believe stories about animals.

Objective 2: Observe and describe weather.

a. Observe and describe patterns of change in weather.

b. Measure, record, graph, and report changes in local weather.

c. Describe how weather affects people and animals.

d. Draw pictures and create dances and sounds that represent weather features (e.g., clouds, storms, snowfall).

Objective 3: Investigate the properties and uses of rocks.

a. Describe rocks in terms of the parts that make up the rocks.

b. Sort rocks based upon color, hardness, texture, layering, and particle size.

c. Identify how the properties of rocks determine how people use them.

d. Create artworks using rocks and rock products.

Objective 4: Demonstrate how symbols and models are used to represent features of the environment.

a. Identify and use information on a map or globe (i.e., map key or legend, compass rose, physical features, continents, oceans).

b. Use an atlas and globe to locate information.

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

Facilitated

Activities

New Math Core Curriculum
Elementary CORE Academy 2007

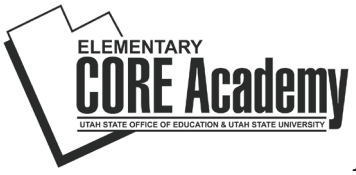
Since the 2003 adoption of Utah's Elementary Mathematics Core Curriculum, ideas such as coherence, focus, high expectations, computational fluency, representation, and important mathematics have become regular elements in discussions about improving school mathematics. As the next step in devising resources to support the development of a coherent curriculum, the National Council of Teachers of Mathematics (NCTM) released *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence.*

With NCTM's release of the Curriculum Focal Points and discussion regarding high expectations, it became important for Utah to revise the Elementary Mathematics Core Curriculum. The placement of concepts within the Curriculum Focal Points guided the placement of concepts within Utah's Core.

The Core has also 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 and with other subject areas appropriate to grade level. In addition, there is an upward articulation of mathematical concepts and skills. This spiraling is intended to prepare students to understand and use more complex mathematical concepts and skills as they advance through the learning process.

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 experiences with concepts that students can explore and understand in depth to build the foundation for future mathematical learning experiences.

The Elementary Mathematics Core describes what students should know and be able to do at the end of each of the K-6 grade levels. It was developed and revised by a community of Utah mathematics teachers, mathematicians, university mathematics educators, and State Office of Education specialists. It was critiqued by an advisory committee representing a wide variety of people from the community, as well as an external review committee. The Core reflects the current philosophy of mathematics education that is expressed in national documents developed by the National Council of Teachers of Mathematics, the American Association for the Advancement of Science, and the National Research Council. This Mathematics Core has the endorsement of the Utah Council of Teachers of Mathematics. The Core reflects high standards of achievement in mathematics for all students.



E-D-P Model
Elementary CORE Academy 2007

Each day good educators observe and interact with students to determine what course of action should be taken to achieve the best educational results for each learner. These observations, in many instances, are made with limited formal data. The E-D-P Model assists educators in the collection and use of information justifying implementation of practices. Many educators struggle with the ability to articulate and align teaching actions with student learning needs. The E-D-P Model is a method of aiding this articulation.

When assessing, it is important to know that correct answers do not necessarily mean students understand a concept. Conversely, incorrect responses may not indicate that a student hasn't learned a concept. It is important for educators to look for hidden understandings and possible misconceptions. Ongoing assessments, observations, and interviews may be necessary. When using this process, instructors should select assignments/tasks where students have opportunities to explain their understanding. Developing a tool to aid teachers in the collection of information and to assist them in determining student understanding has been the driving force in creating the E-D-P Model.

Our discussion begins with a description of the E-D-P Model. This model is based on a medical metaphor of **E**valuation-**D**iagnosis-**P**rescription (E-D-P). It is important to understand the difference between three main types of assessment: diagnostic (usually occurring prior to instruction), formative (concurrently occurs with instruction), and summative (occurs at the conclusion of an instructional period). The E-D-P Model targets diagnostic and formative assessments. By conducting ongoing assessments and using this formative information, educators can effectively impact student learning and plan instruction to meet individual learning needs (McNamee & Chen, 2005).

Evaluation

In classrooms across the country one may observe teachers interacting with students in a variety of ways. The **E**valuation portion of the E-D-P Model provides teachers with a way to identify student learning as it relates to the standard and objective of instruction. As a teacher sees a particular student response she is able to identify understandings and misunderstandings.

EXAMPLE: Marcia responded with the answer of 12 when she was asked to add 14 and 8. Using Marcia's work, an instructor sees that Marcia needs instruction on renaming. Other conclusions for the same response may also be apparent. The **E**valuation phase can then transition to the **D**iagnosis.

Diagnosis

As the student response is investigated the instructor may need to ask questions or inquire regarding the reasoning used to formulate the response. This is similar to a physician, where if a pain in the abdomen is described, the doctor poses questions to the patient or performs a physical exam to determine the source of pain. Educators can employ a similar method as they determine the cause of the incorrect responses given by a student. The diagnosis may consume large amounts of time or be rapidly identified based on student work.

Prescription

Once a learning need is **D**iagnosed/identified, renaming in the case of our example, the teacher can then determine what **P**rescriptive action should be taken. In the medical profession, the instructor or doctor has multiple medicines or treatments that can be prescribed. These multiple medicines affect individuals in different ways based on body chemistry and make up. This is also true with education in relation to learning styles. In education, teachers should have multiple activities, learning situations, or practice methods that can be prescribed to help students understand. In our example the teacher could prescribe numerous interventions to help our student understand the renaming concept. (e.g., place value practice, peer discussion groups focused on a single problem, one-on-one discussion about place value, manipulative extensions, etc.)

As teachers formalize the work that is done in a classroom they will be able to define the learning that occurs in a classroom and what learning should take place in the future. There can be a fine line between instruction and assessment when educators use quality formative assessment tasks to guide instruction and learning (Leahy, et al., 2005). The E-D-P Model encourages teachers to evaluate student work, diagnose learning needs, and determine the best prescription for continued growth in knowledge. Some teachers complete these three stages daily in classrooms around the nation without defining the process. This model provides educators a method to formalize current practice and aid them in the implementation process.

Citations

Leahy, S., Lyon, C., Thompson, M., Wiliam, D. (November 2005). Classroom Assessment: Minute by Minute, Day by Day. *Educational Leadership*, 63:3, p.18-24.

McNamee, G.D., Chen, J.Q. (November 2005). Dissolving the Line Between Assessment and Teaching. *Educational Leadership, 63:3, p.72-76.*

Medical Metaphor T-Chart	
Physician	Educator
Why would a physician complete an Evaluation?	Why would an educator complete an Evaluation?
What would a physician use to make make a medical diagnosis?	What would an educator use to make a learning diagnosis?
When evaluation and diagnosis are complete what kind of prescription would be given?	When evaluation and diagnosis are complete what kind of prescription would be given?

ELEMENTARY CORE Academy

E-D-P Assessment Form

Evaluation: _____

Name _____

Date _____

Task/Objective _____

( ) Individual ( ) Partner ( ) Group

Diagnosis:		
	Strengths	Weakness
1)		
2)		
3)		
4)		
5)		
6)		

Prescription:

ELEMENTARY CORE Academy

E-D-P Assessment Form

Evaluation: _____

Name _____

Date _____

Task/Objective _____

( ) Individual ( ) Partner ( ) Group

Diagnosis:		
	Strengths	Weakness
1)		
2)		
3)		
4)		
5)		
6)		

Prescription:

ELEMENTARY CORE Academy

E-D-P Assessment Form

Evaluation: _____

Name _____

Date _____

Task/Objective _____

( ) Individual ( ) Partner ( ) Group

Diagnosis:		
	Strengths	Weakness
1)		
2)		
3)		
4)		
5)		
6)		

Prescription:

ELEMENTARY CORE Academy

E-D-P Assessment Form

Evaluation: _____

Name _____

Date _____

Task/Objective _____

( ) Individual ( ) Partner ( ) Group

Diagnosis:		
	Strengths	Weakness
1)		
2)		
3)		
4)		
5)		
6)		

Prescription:

E-D-P Assessment Form

Evaluation: _____

Students:	Diagnosis:								Prescription:				
Task:	Communication	Representation	Computation						Task #4	Comp. #6	Assignment #1		
1) Kyler	√-	√	√						X				
2) Jose	√	√+	√-								X		
3) Kyler	√+	√+	√+							X			
4) Sammy	√	√	√-								X		
5) Shelby	√-	√-	√-								X		

E-D-P Assessment Form	
Diagnosis:	Prescription:

*Copy to a label and place on student work.

E-D-P Assessment Form

Evaluation: _____

Students:	Diagnosis:								Prescription:				
Task:	Communication	Representation	Computation						Task #4	Comp. #6	Assignment #1		
1) Kyler	√-	√	√						X				
2) Jose	√	√+	√-								X		
3) Kyler	√+	√+	√+							X			
4) Sammy	√	√	√-								X		
5) Shelby	√-	√-	√-								X		

E-D-P Assessment Form	
Diagnosis:	Prescription:

*Copy to a label and place on student work.

Core Standard & Objective:	Assessment FOR Learning (Evaluate)			Assessment of Needs (Diagnosis)								
	Type of Assessment			Needs Missing Foundational Skills			Needs Basic Grade Level Core Skills			Needs Extension of Core Skills		
	Pre/Post Dates: /			Plan for Instruction (Prescription) Examples: Expicit Instruction using Graphic Organizers, Skill Specific Activities, Guided Practice, etc.								
Student Name	Limited Knowledge	Partial Knowledge	Mastery									

Mathematical Proficiency Elementary CORE Academy 2007

How do educators know when a student "Gets It?" Elementary teachers interact with students daily using a variety of individual views regarding mathematical understanding. Success in mathematics is created through a student's composite view and aptitude in five areas of mathematics. In the book, *Helping Children Learn Mathematics,* we are introduced to this composite view of mathematics learning. The term mathematical proficiency is used to describe what it means when a person successfully learns mathematics.

Mathematical proficiency includes five strands:

1) **Understanding:** Comprehending mathematical concepts, operations and relations-knowing what mathematical symbols, diagrams, and procedures mean.
2) **Computing:** Carrying out mathematical procedures, such as adding, subtracting, multiplying, and dividing numbers flexibly, accurately, efficiently, and appropriately.
3) **Applying:** Being able to formulate problems mathematically and to devise strategies for solving them using concepts and procedures appropriately.
4) **Reasoning:** Using logic to explain and justify a solution to a problem or to extend from something known to something not yet known.
5) **Engaging: Seeing mathematics as sensible, useful, and doable-if you work at it-and being willing to do the work.**

It is critical to understand that each of these strands is interwoven and interdependent. Various views of success in mathematics emphasize one aspect of mathematical proficiency with the expectation that the other areas of mathematical knowledge will follow. Success in mathematics comes through achieving mathematical proficiency, which includes each of the five strands.

We see parents, students, and educators focus on only one strand of proficiency, which results in memorized facts that do not necessarily lead to mathematical success. This narrow treatment of math does not provide the strong basis of mathematical learning that students need.

As students learn all the aspects of mathematical proficiency, learning will become stronger, more durable, more adaptable, more useful, and more relevant. It is difficult to master any one of these strands in isolation and is therefore essential to teach the strands in an interconnected method. Developing the strands together builds a student's knowledge of any one strand through connected knowledge points that are memorable.

Citation

National Research Council. (2002). Helping Children Learn Mathematics. Mathematics Learning Study Committee, J. Kilpatrick and J. Swafford, Editors. Center for Education, Division of Behavioral and Social Sciences and Education. Washington, D.C.: National Academy Press.

Building Academic Vocabulary
Elementary CORE Academy 2007

Teaching students vocabulary that will be encountered during the study of content provides a solid background for a positive interaction with that content. Building academic vocabulary is much more than simply placing words upon a word wall or providing a matching exercise with a definition and new terms.

Initially the selection of the terms to be provided to students takes effort and time. Educators should identify key words that are important to the understanding of specific content areas, and are included in the Core Curriculum. The background work of identifying the terms is critical to providing an accurate direction for the subsequent instruction. However, the key to the success of building academic vocabulary ultimately rests upon the quality of the instruction provided by the teacher. Marzano and Pickering provide the following six-step Process for teaching new terms.

The Six-Step Process for Teaching Academic Vocabulary:

1) **Provide a description, explanation, or example of the new term.**
2) **Ask students to restate the description, explanation, or example in their own words.**
3) **Ask students to construct a picture, symbol, or graphic representing the term or phrase**.
4) **Engage students periodically in activities that help them add to their knowledge of the terms in their notebooks**.
5) **Periodically ask students to discuss the terms with one another.**
6) **Involve students periodically in games that allow them to play with the terms.**

With guidance and monitoring students have the ability to generate their own description and representations of vocabulary terms provided. The ownership of this process is valuable in that students see the term as a new tool that aids their learning. An integral step in the process of learning new vocabulary is the student notebook. As students add new terms to their notebook they also refine and update descriptions, which deepens and clarifies their understanding of the content and the terms.

Creating a deeper understanding of vocabulary terms will provide students with multiple points of learning as they encounter new content. These points of learning will broaden the knowledge base and allow students to develop an awareness of the language of learning.

Citation

Marzano, R.J., Pickering, D.J., (2005). *Building Academic Vocabulary Teachers's Manual* ASCD, Alexandria, VA.

Math I-2 & III-2

Activities

Fractions & Measure

Making $ents

Standard III:

Students will understand simple geometry and measurement concepts as well as collect and draw conclusions from data.

Objective 2:

Identify and use units of measure, iterate (repeat) that unit, and compare the number of iterations to the item being measured.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills.

Content Connections:

Math II-1 Counting by fives and tens

Math Standard III

Objective 2

Connections

Background Information

Games are a way to review and practice important mathematical concepts while having fun. Games are real world problem solving. They also teach important life skills. Many students lack the opportunity to develop these skills. Many life skills like learning to get along with others, learning to win/lose gracefully, deciding who will go first (decision making), finding winning strategies (logical thinking), learning to follow the rules, and valuing fair play are what can be learned and gained from playing games.

This lesson is made up of several activities that will give students many opportunities to practice and model strategies that help them count money. It is assumed that students will know the names and values of the penny, nickel, dime, and quarter before participating in these activities.

Note: This activity may take two days.

Research Basis

Caine, R.N., & Caine, G. (1994). *Making connections: Teaching and the human brain.* Menlo Park, CA: Addison-Wesley.

Learning from classroom activities with application to real world situations are the lessons students seem to learn from and appreciate the most. Brain research shows the more senses used in instruction, the better learners will be able to remember, retrieve, and connect the information in their memories. "I hear and I forget; I see and I remember; I do and I understand." Students learn best when doing. By incorporating realistic, integrated, or interdisciplinary activities that build on established knowledge and skills and more than one sense, memory pathways become more accessible and cross-referenced for

future use. As teachers discover the most effective strategies for better student achievement, they can adapt their lessons accordingly.

Carpenter, T.P., Frank, M.L., Jacobs, V.R., Fennema, E., & Empson, S.B. (1999). ***Children's mathematics: Cognitively guided instruction,*** Heinemann, Portsmouth, NH. 28, 41.

Counting strategies follow the mastering of direct modeling strategies and allow the student to develop more into efficient procedures for calculating answers to addition and subtraction problems. Using counting strategies indicates a level of understanding of number concepts and an ability to reflect on numbers as abstract entities, particularly coins. Skip counting is one of the counting strategies that students use when counting coins and locating a sum.

Invitation to Learn

Ask students if they have ever been shopping with their parents. Have they ever peeked over the counter and looked into the cash drawer that comes open when they are ready to pay for their purchases? What do they see? Then discuss how the money is in cash drawer order.

Instructional Procedures

Materials

- ❑ *The Penny Pot*
- ❑ Plastic coins

Counting On

1. Read the story, *The Penny Pot,* as you read talk about the coins that are used each time and how much they are worth. Give the students each a mixed bag of plastic coins containing pennies, nickels, dimes, and quarters. Have the students put them into cash drawer order. Reread the story and have students pull out coins from their cash drawer to match the story and count them up as a class—as they do in the story
2. Talk about if it is necessary to use money in everyday situations. Ask the students if they think it is important to use money in everyday situations. Talk about how the students in the story counted on to know their total.
3. Model counting on for the students. Have them help you count on from the coin that is worth the most and count on. Start with a quarter and a dime to show how to count on by tens. Practice with the students as much as necessary until they feel confident at counting on by tens. Next, count a quarter and a nickel to show how to count on by fives. Again, give them additional practice, as you feel necessary. Each student has a bag of coins (each bag has a different collection of coins that

are less than one dollar) and have them sort the coins into cash drawer order. Put on the coin chart to organize. Partner the students up and have them take turns and repeat the process of counting on.

Materials

- ❑ Dice
- ❑ *It makes $ents to Trade Money Chart*
- ❑ *It makes $ents to Trade Recording Sheet*
- ❑ Small scoops

It Makes $ents to Trade

Part 1

1. Group students into pairs.
2. Give each student a die, a money bag (or container of coins), and an *It Makes $ense to Trade Money Chart*.
3. The first player rolls the die and takes that many pennies, places them in the pennies column on the money chart, and states how much they have. Players take turns.
4. On the next turn, before rolling the die, the player must re-state how much money he/she has, roll, take that many more pennies and states the new amount. If he/she can trade up for nickels. Have student recall out loud what amount is being traded and what the amount is being traded for. Make sure the partner checks their work. Play continues trading up when possible until the first player reaches 25 cents. After each pair has met 25 cents, the value to be reached can be changed. The value needed to win can vary up to one dollar depending on the students' ability.

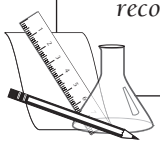
Part 2

1. Group students into pairs.
2. Give each pair of students a container of coins and a small scoop. Each student needs an *It Makes $ense to Trade Money Chart*. Have each student scoop out some coins and sort them onto their chart, count up their total amount, and record it on their *It Makes $ense to Trade Recording Sheet* (their blank sheet of paper). *This can also be done individually*. Students' deposit their scoop back in to the container and get another scoop, repeating the process 10 times for practice.
3. After allowing sufficient time for practice, have students scoop out a specified amount such as 53 cents. Observe what coins students have scooped out and comment on different combinations you observed being used. Encourage students to replace their coins with other coins that would make the same amount. Ask if there are any coins that they could trade.

Option: You could then have students fold a piece of paper in half to make two columns. Have the students scoop out some coins, draw the coins, and write the amount in the first column. Then have the students' trade to make the fewest coins possible to make the same amount. The students draw the new coins in the second column. *This could be used as an assessment.*

Materials

- ❑ *Big Buck Adventure*
- ❑ Money Wallets filled with coin packets
- ❑ *Passing the Buck recording Sheet*



Passing the Buck

Passing the Buck can be broken into two or more sessions.

1. Read the story, *The BIG BUCK Adventure*. Ask the students what they would buy with a dollar. Discuss what they would like and if they would have enough money. Make a class list of items to buy. Tell the students that they are going to go shopping and are going to need to see if they have enough in their money wallets to buy the necessary items.
2. Put students into small groups and give each student a money wallet that contains plastic coin packets adding up to various amounts up to one dollar and a *Passing the Buck Recording Sheet*. Tell the students to count up the money in the wallet and write the total amount on their recording sheet next to the number that is the same as the number written on the money wallets. Have students pass the money wallet to the person on their right. Have them do 10 money wallets.

   Variation: Have students compare two wallets and ask questions such as: Which has more? How much more? Can you show that same amount in a different way?

Assessment Suggestions

- To obtain a formal assessment, use the money clips and the recording sheets to see where the students are and help guide your teaching to the differentiated learning that is taking place in the classroom setting.
- Have students draw the money that they scoop out and label it to check for understanding of the coins' individual worth. Then ask them to count it up and write the total amount.
- On index cards, write different money amounts up to one dollar. Have students show you the amount with coins, then draw the amount of coins, show the same amount with fewer coins, and then write the amount in words (like 57 cents—with the cent sign). This could be done in a center.

- Have containers or cups on the students' desk to collect play money in. Allow students to earn coins for different things all week long. Have a class store where students can "buy" different items (e.g., tootsie rolls, fruit snacks, pencils, books from book orders, any teacher junk that is collected). Students have to count out the exact amount for the items they are purchasing.
- Play the game *I Have, Who Has* for an observational assessment.

Curriculum Extensions/Adaptations/ Integration

- Use a number chart and coins to place on the number chart for students that can not grasp the concept of counting on. Tell the student the coins to use and teach them to put the coin that is worth the most on that number (i.e., a quarter on 25) then ask them to use a dime and show them how to count on from 25 ten more numbers and put the dime on 35. Do the same with nickels. Practice counting on with dimes and nickels from different amounts. Having the student physically count and put the coin on their chart which helps them to make a better connection of the counting on strategy. (Inclusion)
- Have the student show and draw different combinations of the same amount. Talk about how they figured it out. Once they understand the way to count on then work with them to draw the same amount with fewer coins. (Inclusion and Adaptation)
- Put students into pairs. Have them sit back to back. One partner takes some coins and tells how much money and how many coins he/she has. The other partner has to guess which coins the first person has. Take turns doing the activity. (Extensions)
- In the CORE Academy 2005, the book, *The Name Jar*, was read and then the students were to determine the price of someone's name. Use this same activity to buy items or words of interest to the students or to connect with other content that is being taught at the current time in the classroom.

Family Connection

- Cut out items out of the newspaper and together put a price on the pictures. Have students use play money or draw what coins they would use to buy the item.

- Show your student a certain amount and have them show you the same amount using different coin collections. Start with something simple like a quarter and work up to other amounts.
- Have student count the loose change that is in your wallet or pocket or in the laundry room.

Additional Resources

Books

The Money Tree, by Sarah Stewart; ISBN: 0-374-45295-4

Money, Money, Honey Bunny! by Marilyn Sadler; ISBN: 0-375-83370-6

Round and Round the Money Goes, by Melvin and Gilda Berger; ISBN: 0-8249-5310-X

The Case of the Shrunken Allowance, by Joanne Rocklin; ISBN: 0-590-12006-9

Alexander, Who Used to be Rich Last Sunday, by Judith Viorst; ISBN: 0-689-71199-9

The Coin Counting Book, by Rozanne Lanczak Williams; ISBN: 0-88106-326-6

Once Upon a Dime, by Nancy Kelly Ann; ISBN: 1-57091-161-4

The Go-Around Dollar, by Barbara Johnston Adams; ISBN: 0-02-700031-1

If you Made a Million, by David M. Schwartz; ISBN: 0-590-43608-2

Penny Pot, by Stuart J. Murphy; ISBN: 978-0-06-446717-9

The Big Buck Adventure, by Shelley Gill and Deborah Tobola; ISBN: 0-439-49150-9

Media

Carnival Countdown computer game; ISBN: 0-15-307966-5

It Makes $ense to Trade Money Chart

It Makes $ense to Trade Recording Sheet

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It Makes $ense to Trade Recording Sheet

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It Makes $ense to Trade Recording Sheet

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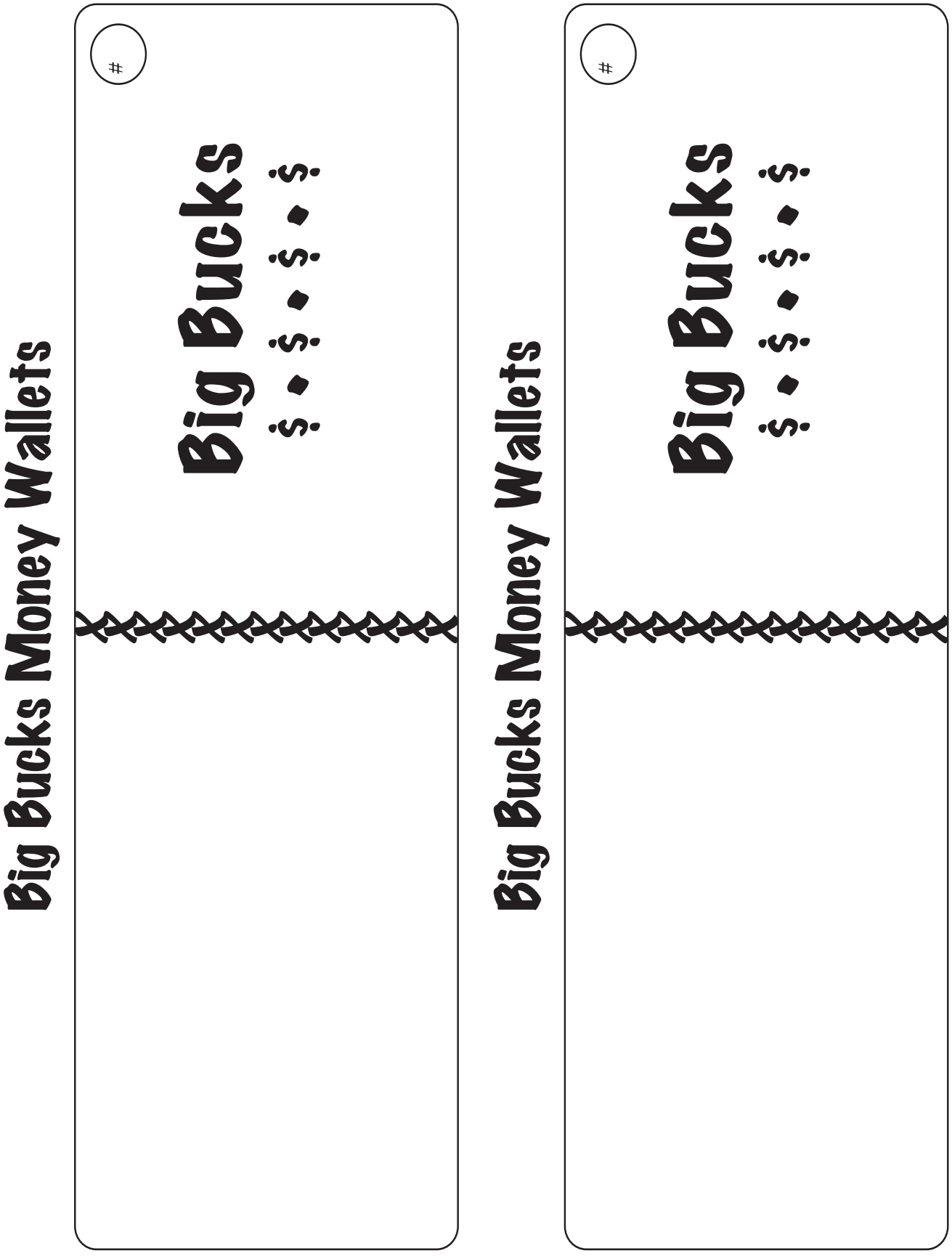
Big Bucks Money Wallets
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Big Bucks
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Big Bucks Money Wallets
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Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

I Have Who Has Cards

I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 

I Have Who Has Cards

I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 

I Have Who Has Cards

I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 

I Have Who Has Cards

I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have  Who has 
I have  Who has 	I have  Who has 	I have Who has

Stirring up Fractions

Standard I:

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

Objective 2:

Use fractions to identify parts of the whole and parts of a set.

Intended Learning Outcomes:

1. Demonstrate a positive learning attitude towards mathematics.

Content Connections:

Math Standard I

Objective 2

Connections

Background Information

The most important aspect of fractions is learning and understanding the relationship of part to whole. Students should be able to understand parts of a whole within solid objects and parts of a whole of a given set. They need to understand how many in each group when separating given sets into equal groups and represent the answer as a fraction. Finally, students should be encouraged to apply their knowledge of parts of a whole and separating given sets to solve word problems that have meaning in their lives. Through continuous practicing of these concepts, students will gain a clearer understanding of relationships of part to whole and representing it as a fraction.

Research Basis

Carpenter, T.P., Frank, M.L., Jacobs, V.R., Fennema, E., & Empson, S.B. (1999). *Children's mathematics: Cognitively guided instruction,* Heinemann, Portsmouth, NH. 28, 41.

Direct Modeling is a common strategy that students' use when learning to do mathematical problems of any kind that paves the way to more counting strategies. It is common for childrens' mathematical thinking to naturally attempt to model the action or relationships in math problems. They first directly model the situations or relationships with physical actions or relationships are at first somewhat visible but become less visible as childrens' thinking matures. Thus, childrens' solution strategies are, first, exact models of problems. As thinking progresses to using more counting strategies, their representation becomes more abstract.

Johnson, D.W., and R.T. Johnson. *Learning together and alone: Cooperative, competitive and individualistic learning* (5th edition). Boston: Allyn and Bacon, 1999.

Cooperative learning enhances students' enthusiasm for learning and their determination to achieve academic success. Cooperative learning provides unique learning experiences for students and offers opportunities for students to learn through speaking and listening processes as well as through reading and writing processes. In cooperative learning situations, students interact, assist one another with learning tasks, and promote one another's success. Students are held accountable for their own academic progress and task completion.

Invitation to Learn

As the students come to class, ask them to graph a pastry on the graph in the front of the room. Have four or five choices to pick from (e.g., apple pie, blueberry muffin, glazed donut, chocolate chip cookie, granola bar). Have each student pull a picture of a pastry out of a Krispy Kreme box. Have each student attach his or her pastry to the graph. Talk to the students about the different choices that are represented on the chart and how many people are in each one. Talk about the different main ingredients that are in the different choices. The teacher can ask a certain "pastry" group questions about them. For example, have the apple pie group come up in front of the class and ask "How many of you like red apples?" You may want to have only four students come up. Talk about the fraction that is represented.

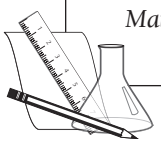
Instructional Procedures

Let's Get Cooking

This is an activity that connects identifying parts of a whole with separating given sets into equal parts in a word problem format.

Materials

- ❑ Recipe boxes
- ❑ *Let's Get Cooking Recipe Cards*
- ❑ Manipulatives
- ❑ *Let's Get Cooking Work Mats*



1. Ask students if they have ever seen their mom make an apple pie. Show students that you have brought ingredients today to make pies. Show the students a basket of 10 apples. Lay out five pie tins and mention you want to make five pies. Invite the student to help you separate the apples into the pie plates so that each pie has an equal amount of apples. Ask students how they were able to determine how many apples would be in each pie.

   Continue this activity changing the number of apples to separate. You can also change the types of fruit for the pies.

   Tell the students they are going to be chefs today and are going to be separating things into equal groups.

2. Put students into groups of four. Give each group a recipe box loaded with *Let's Get Cooking Recipe Cards*, a tub of manipulatives and *Let's Get Cooking Work Mats* for each group of students.
3. Have students work in cooperative groups pulling out recipe cards and working together to solve the problem using the manipulatives and work mats. Invite the students to share with each other how they came up with the amounts for each group.
4. Walk among the groups and ask students how they got their answers. Ask them how many apples were put in each pie pan to share the apples equally. Remind the students to re-read the card and answer the question on the card.
5. After sufficient practice as a group, have students answer cards individually then pass the card to the person sitting on their right. The students continue to do each of the cards in their group.
6. For as many sessions as necessary, provide students with the recipe box and different situations to answer. You can continue with the cooking theme or use questions that would be of interest in your class.
7. When the majority of students are proficient at solving the problems with manipulatives, hand out the recipe cards again and do the same activity asking students to make a picture or use words to solve the problem rather than using the manipulatives. Some students may need to use the manipulatives to help them make the picture. Walk around observing the work and invite students to come up and share their pictures and explanations with the class.
8. To reinforce understanding of how many are in each set, each day—or one day per week—place one of the cards under a desk or chair of a student for either the student or the class to solve as the problem for the day. Have students explain how they solved it.

GRAB My Fair Share

This is another option for helping students understand how many are in each set.

1. Read *Divide and Ride*. Explain to students that they are a part of the equal group. Have students get into groups of two, three, or four players. Have the students select a manipulative from the tub to use. A student takes a handful

Materials

- ❑ *Divide and Ride*
- ❑ Manipulatives
- ❑ *Grab My Fair Share Recording Sheet*

of manipulatives. Each student needs a *Grab My Fair Share Recording Sheet* to record points.

2. Each student tries to separate his/her handful of manipulatives into two equal groups. If it can be done, they score two points. Next, students try to separate their same handful into four equal groups. If they can, they score four more points. If a student can make equal groups of two and four then he/she goes to the bonus round where they will be separating them into equal groups of three. If successful, they get a bonus of three points. When that player's turn is finished, the next player takes a turn.
3. Talk about the different amounts that were best to grab. Ask which would earn them the highest points? Keep playing the game. Circle the numbers that score the most points.

   Discuss the numbers that are best for sharing into equal groups.

Eating My Part

Materials

- ❑ *Eating Fractions*
- ❑ *Eating My Part Pastries*
- ❑ *Eating My Part Fraction Cards*

This activity gives students practice in separating geometric shapes into halves, thirds, and fourths.

1. Read *Eating Fractions*. Tell the students to look at the different fractions shown in the book, (1/2, 1/3, 1/4). Discuss how each of the parts makes a whole.
2. Tell the students that they are going to get to make their own pastry. Provide students with *Eating My Part Pastries*. Have the students color or decorate their own pastry that will be shared with the class.
3. Once the pastries are completed then give them an *Eating My Part Fraction Card* that will tell them how to separate their pastry. This will allow the teacher to take a quick visual assessment to see if the student understands parts of a whole. Ask the students to tell how many parts of their pastry they would get.
4. Make a class bakery display where the students put all of the pastry fractions into nice displays of fraction sets. (e.g., All of the halves together, all of the thirds together, etc.).

Assessment Suggestions

- Journaling Activity: Have students write about what their favorite pie would be. Have them tell how many apples or whatever fruit they choose to begin with. How many pies would they make? How many pieces of the fruit would go into

each pie? Would there be any left or would they be separated evenly?

- Use the pastry picture as a pre-assessment to the level of understanding a student has for simple parts of a whole.
- Having a student do the problem of the day with the recipe card under their desk each day will allow for a formal assessment of the level of understanding of the individual personally.
- Use the problem of the day recipe card activity to make a quick informal assessment. A variation of this would be to have the student that received the card, read it and have the whole class show how to solve it and have them turn it in to the teacher.
- When the students are playing *Grab My Fair Share*, the teacher can roam the room and make a quick visual assessment of understanding of the students of dividing into equal groups.

Curriculum Extensions/Adaptations/ Integration

- The teacher may need to adapt the recipe and fraction cards for differentiated learning in the classroom.
- Some students may need more practice with manipulatives before moving onto the symbolic level.
- Print out a "fill-in" format for students' journal entry for those who have writing difficulties.
- A struggling reader may need to have more pictures with the words. Have a "student" partner that will assist them in the reading portion of the cards or have the students work with a partner when doing the manipulatives.
- An accelerated learner may need to have recipe and fraction cards that are higher numbers and a little more difficult to figure out. The learner can create his/her own *separation* problem and illustrate it. Allow them to share it with a friend or the class.
- Have students keep a fraction journal to write down the different ways that they have seen parts of a whole in real life. Have them draw a picture if they cannot explain it in words.

Family Connection

- Have students bring a small paper bag full of items that need to be divided out. Remind the students that the items that they

bring will not be returned. Have them create a recipe card for their item. Bring to class and share.

- Have students practice sorting socks into equal piles, the laundry, or other household items.

Additional Resources

Books

GO, Fractions, by Judith Bauer Stamper; ISBN 0-448-43113-0

Piece+Part=Whole, by Scott Gifford; ISBN: 0-439-74054-1

Safari Park, by Stuart J. Murphy; ISBN: 978-0-06-446245-7

Seven Blind Mice, by Ed Young; ISBN: 0-590-46971-1

Pizza Counting, by Christina Dobson; ISBN: 0-439-63243-9

Give Me Half! by Stuart J. Murphy; ISBN: 0-590-13691-7

Fraction Action, by Loreen Leedy; ISBN: 0-8234-1244-X

Fraction Fun, by Davis A. Adler; ISBN:0-8234-1341-1

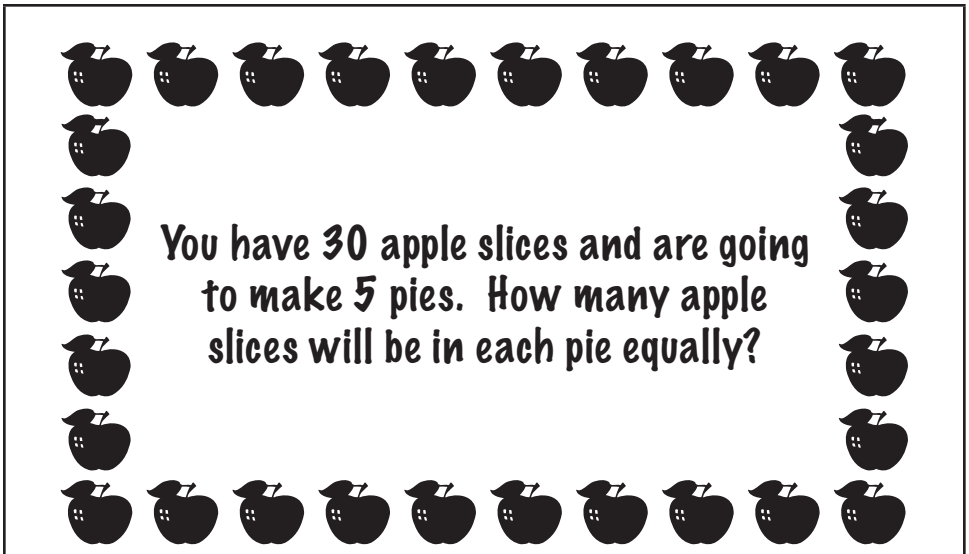
The 512 Ants on Sullivan Street, by Carol A. Losi; ISBN: 0-439-79854-X

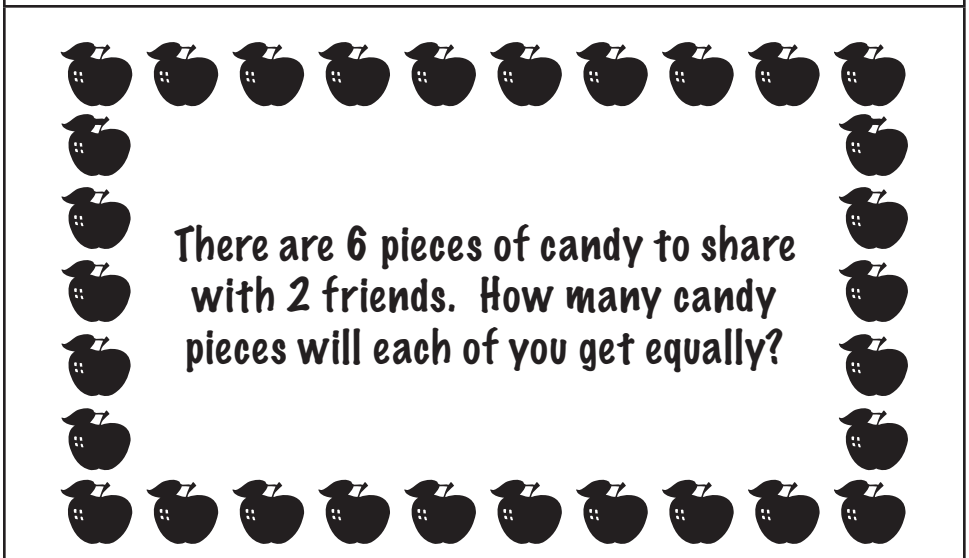
Pizza Pat, by Rita Golden Gelman; ISBN: 0-679-99134-4

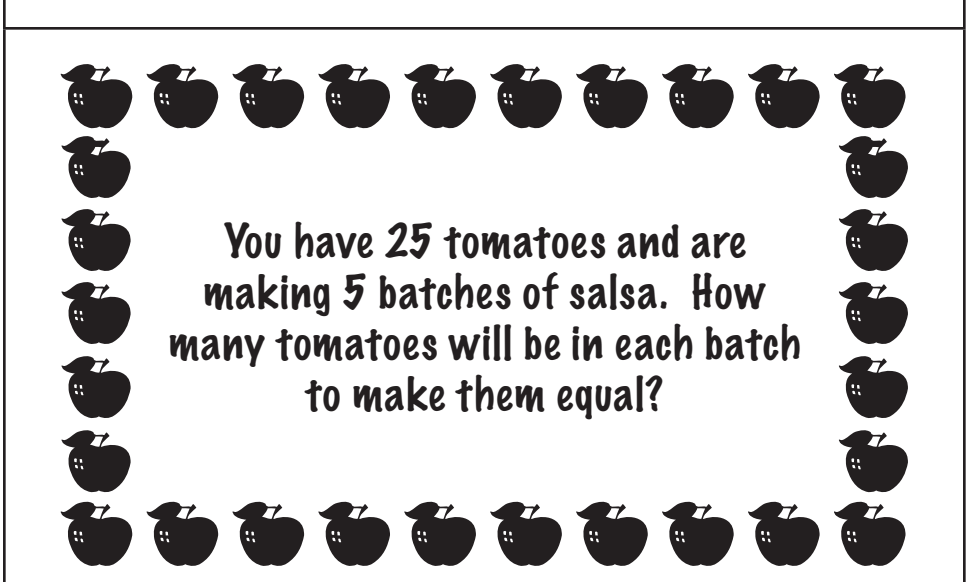
Divide and Ride, by Stuart J. Murphy; ISBN: 978-0-06-446710-0

Eating Fractions, by Bruce McMillan: ISBN: 0-590-43771-2

Let's Get Cooking Recipe Cards







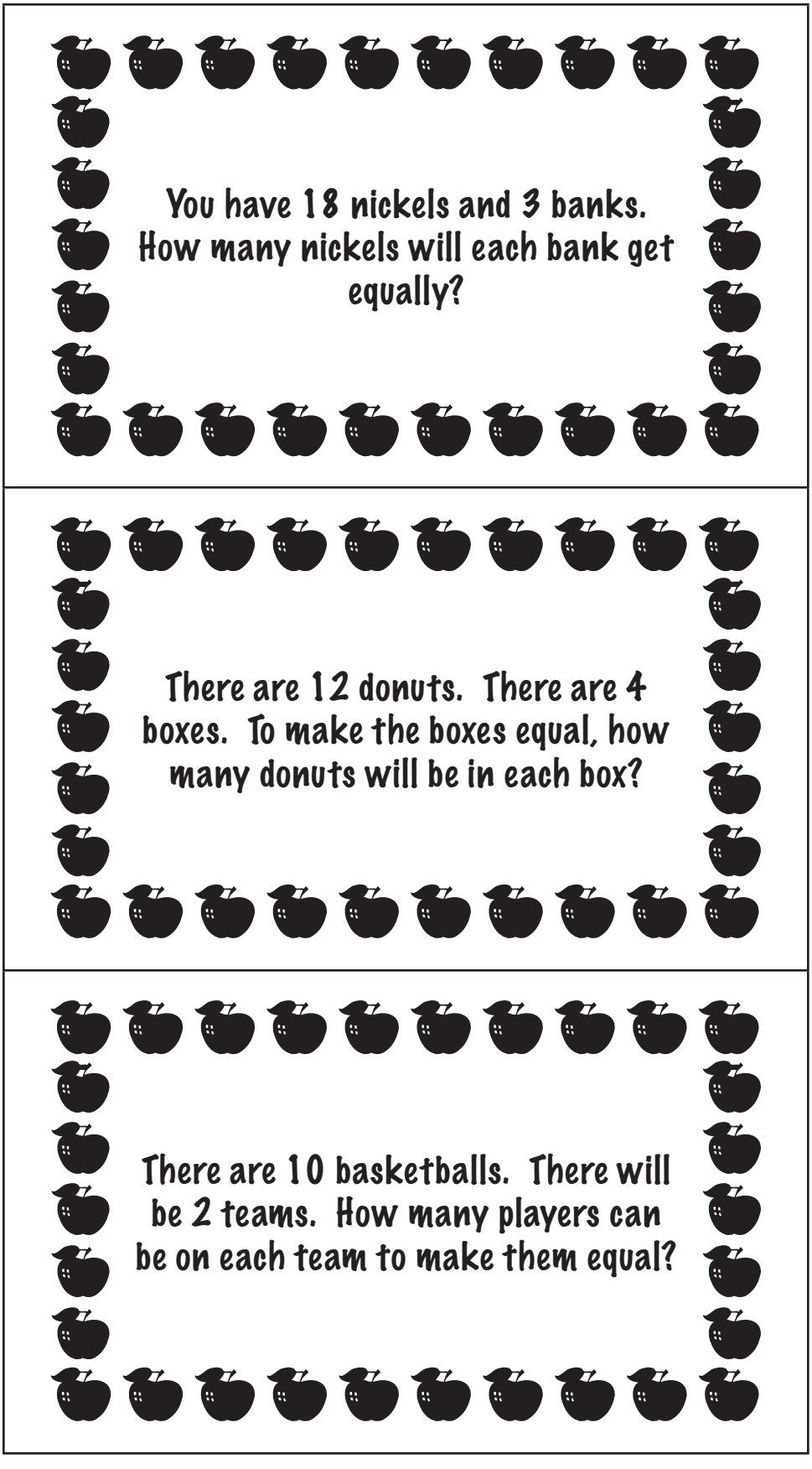
Let's Get Cooking Recipe Cards

There are 20 chocolate chips to go in 5 cookies. How many chips will be put in each cookie equally?

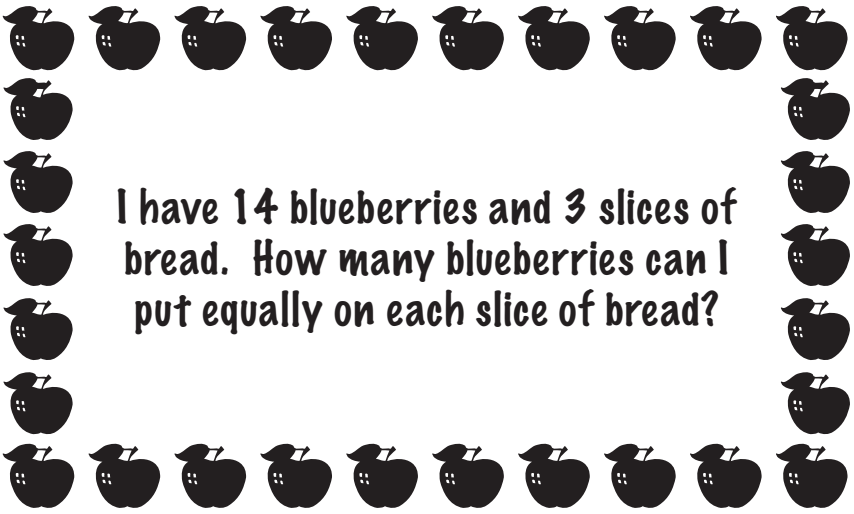
There are 15 orange pieces and 3 glasses. How many orange pieces will go into each glass equally to fill it up?

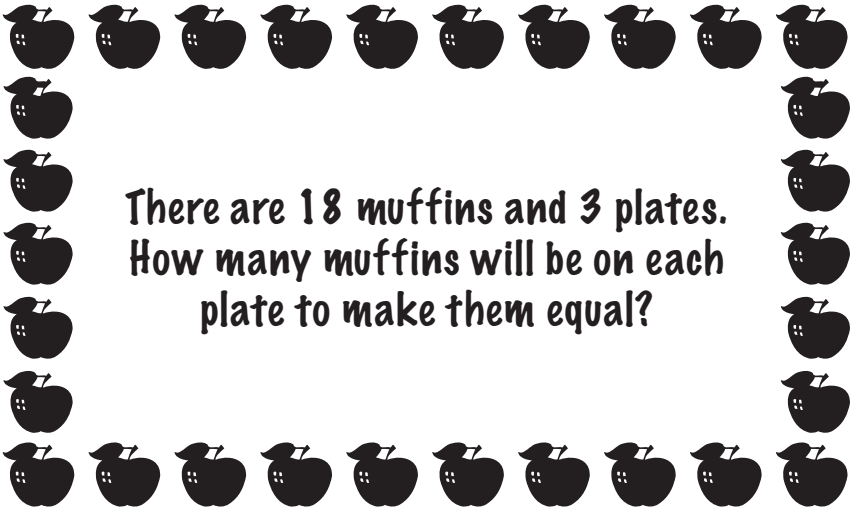
There are 8 curly fries and 2 boxes. How many fries will fit equally into each box?

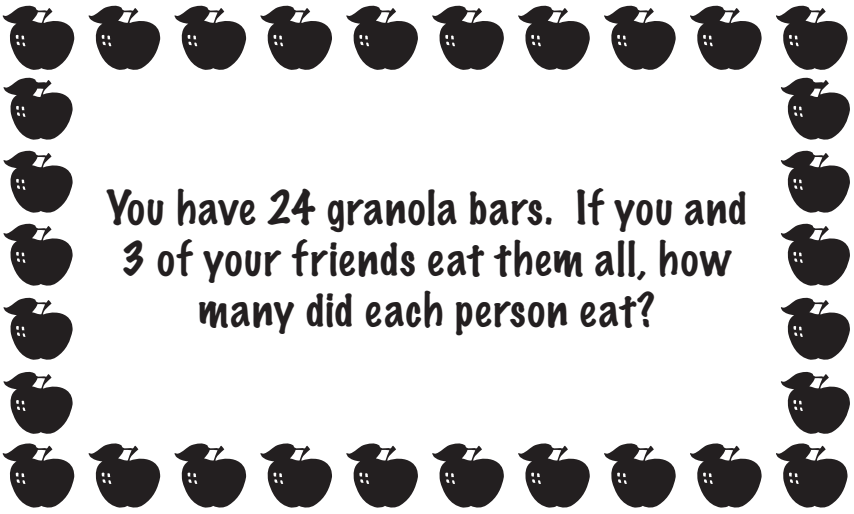
Let's Get Cooking Recipe Cards



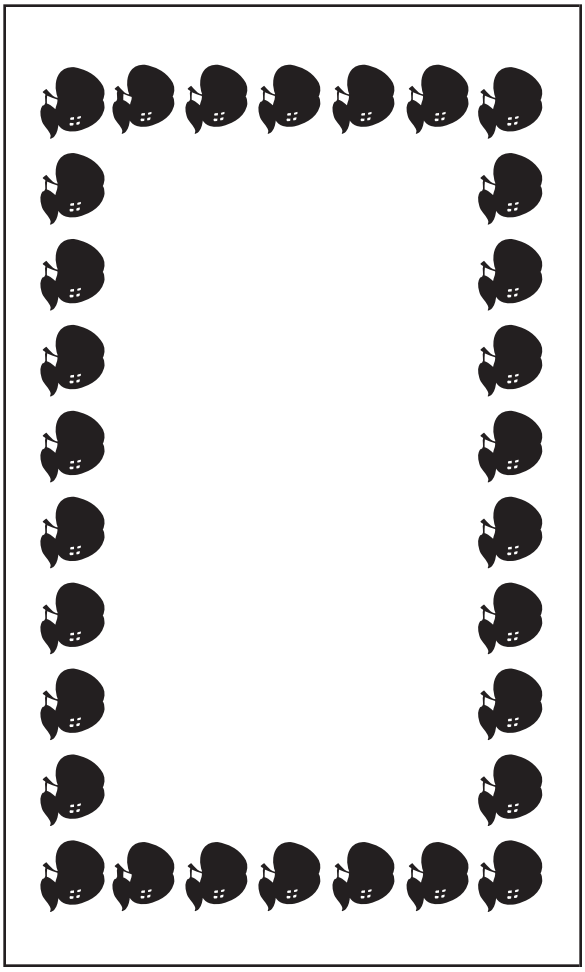
Let's Get Cooking Recipe Cards







Let's Get Cooking Recipe Cards



There are 30 unifix cubes. You need to build 3 towers, how many cubes will each tower get equally?

There are 4 pencils. I have 2 friends, how many pencils will each friend get equally?

I have 50 dimes to give to 5 of my friend, how many will they each receive if they each get the same amount?

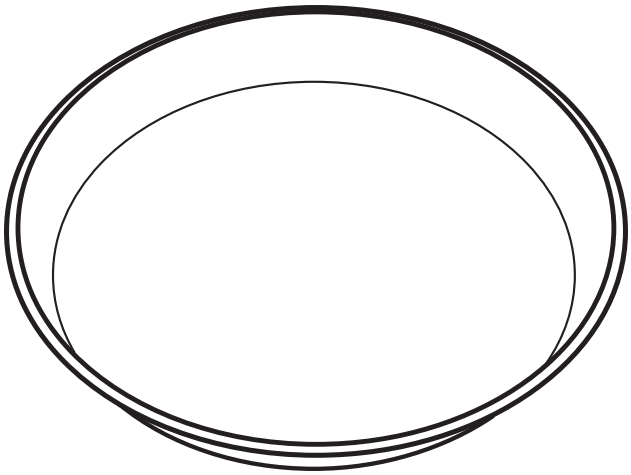
GRAB My Fair Share Recording Sheet

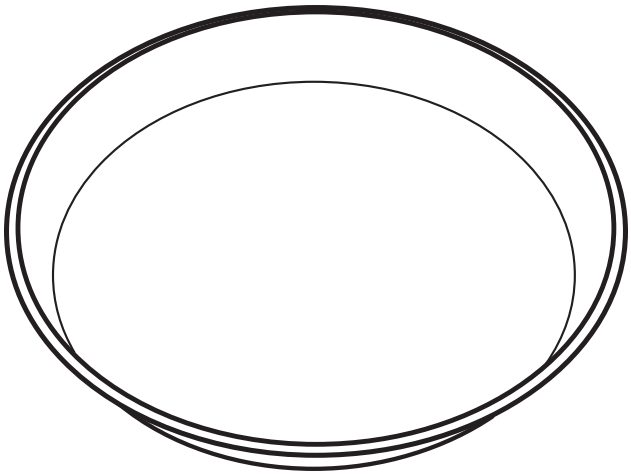
Number of Manipulatives	2 equal groups 2 pts.	4 equal groups 4 pts.	BONUS 3 equal groups 3 pts.	Total points for turn

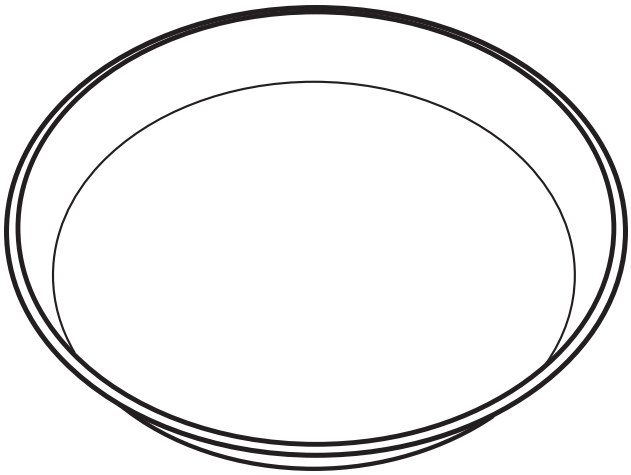
GRAB My Fair Share Recording Sheet

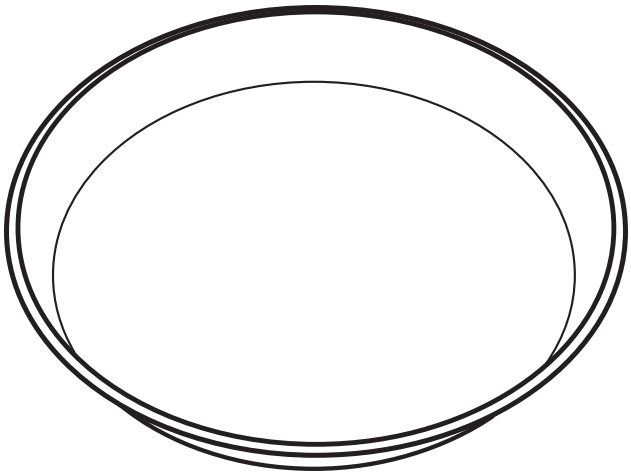
Number of Manipulatives	2 equal groups 2 pts.	4 equal groups 4 pts.	BONUS 3 equal groups 3 pts.	Total points for turn

Let's Get Cooking Work Mats - Pie tin

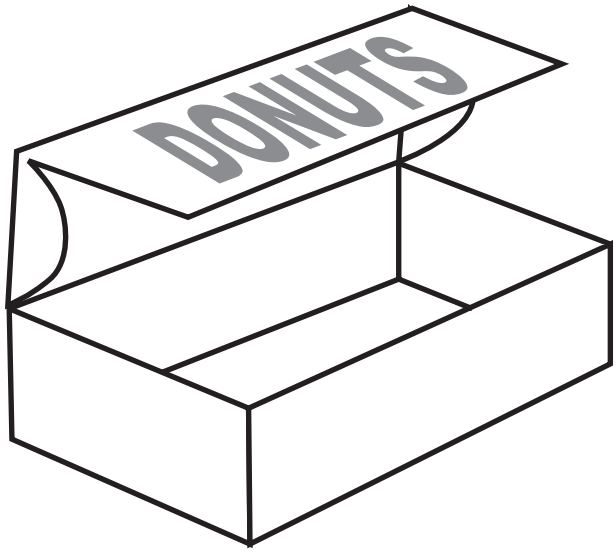


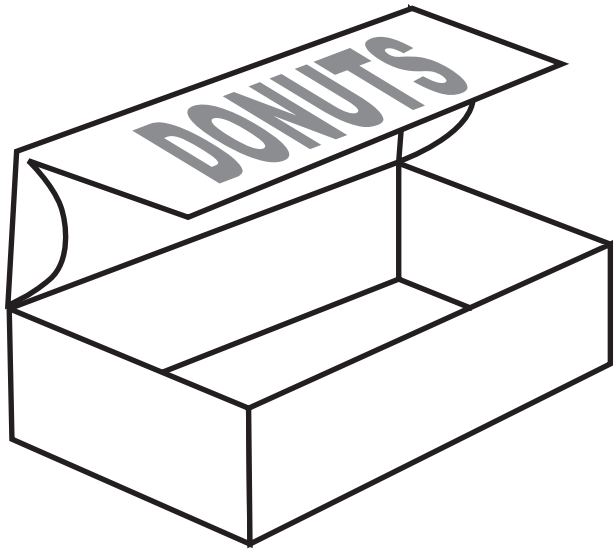


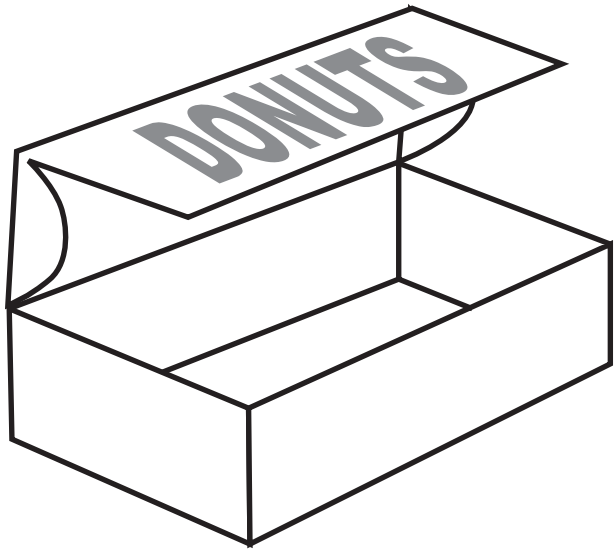


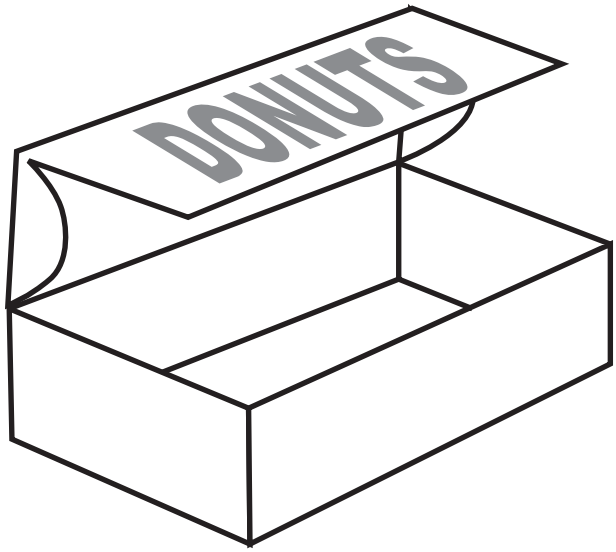


Let's Get Cooking Work Mats - Donut Box

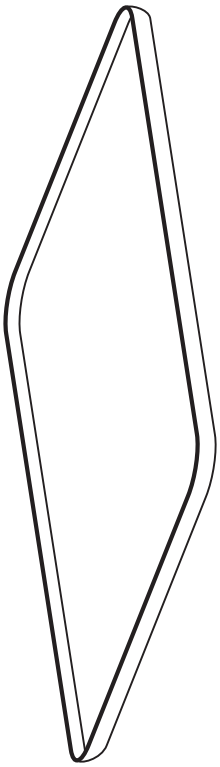


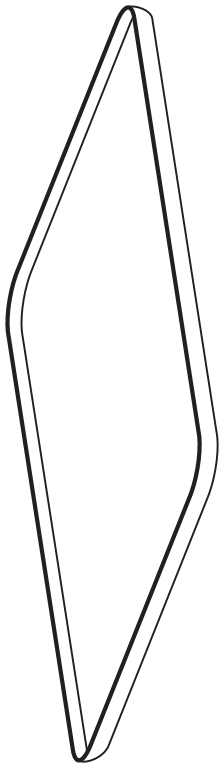


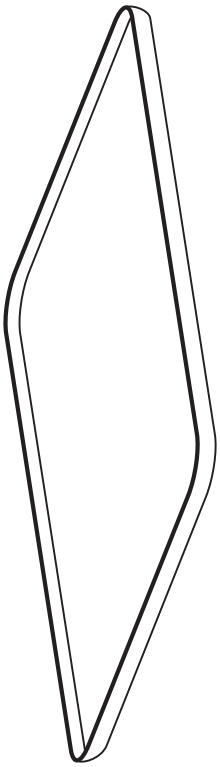


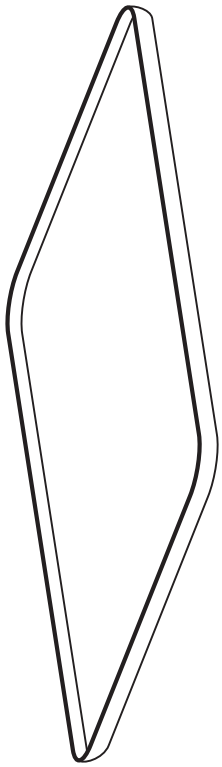


Let's Get Cooking Work Mats - Cookie Sheet

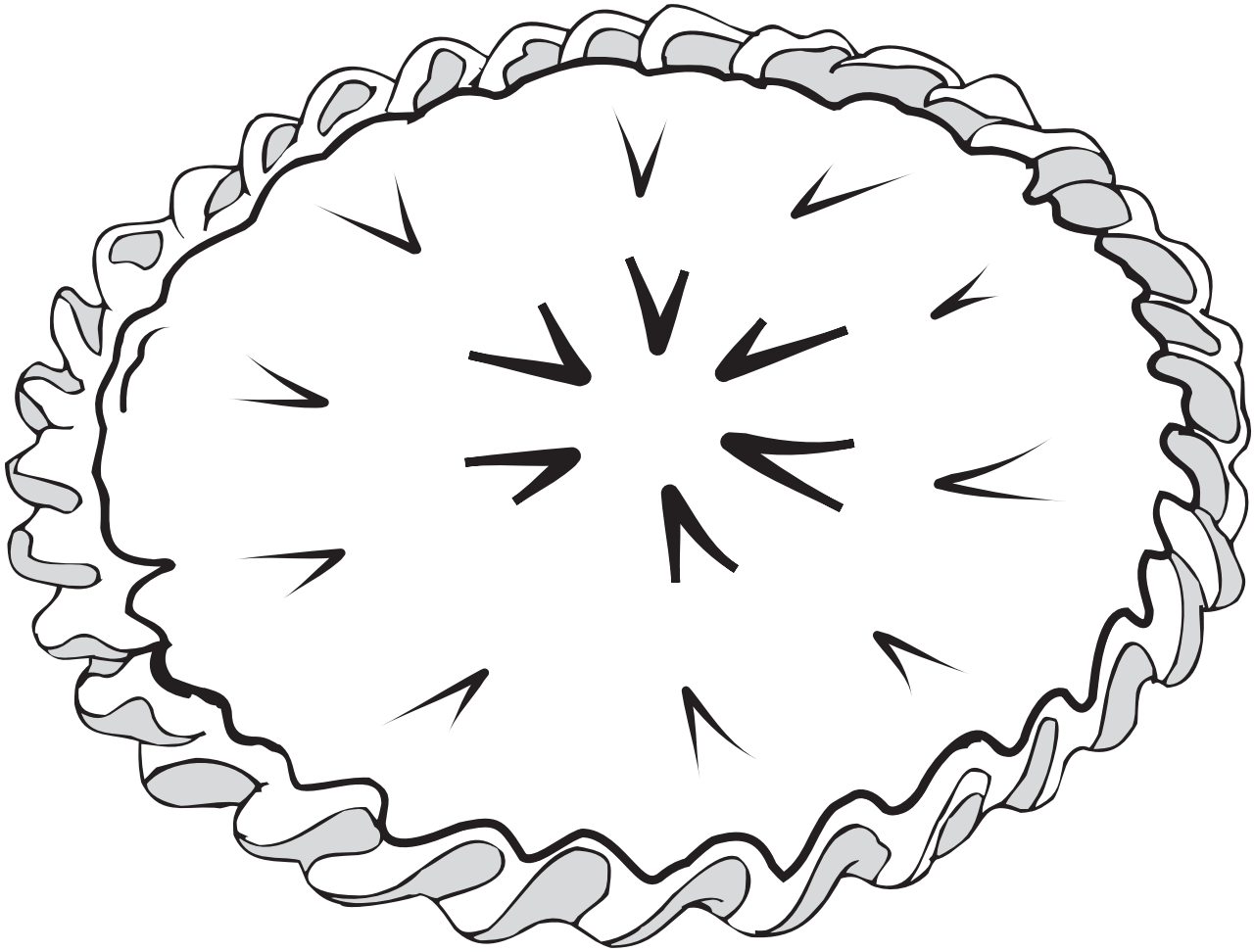






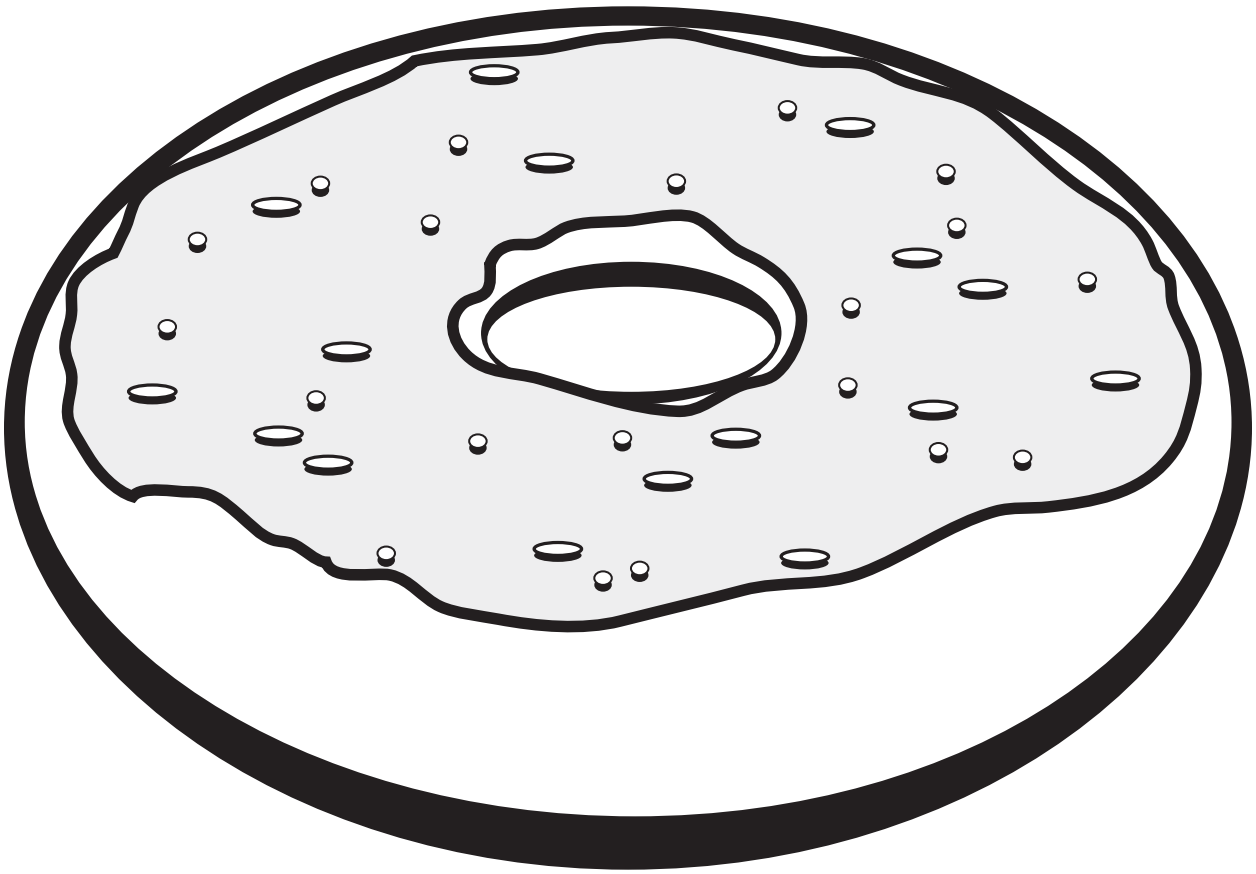


Eatin My Part Pastries - Apple Pie

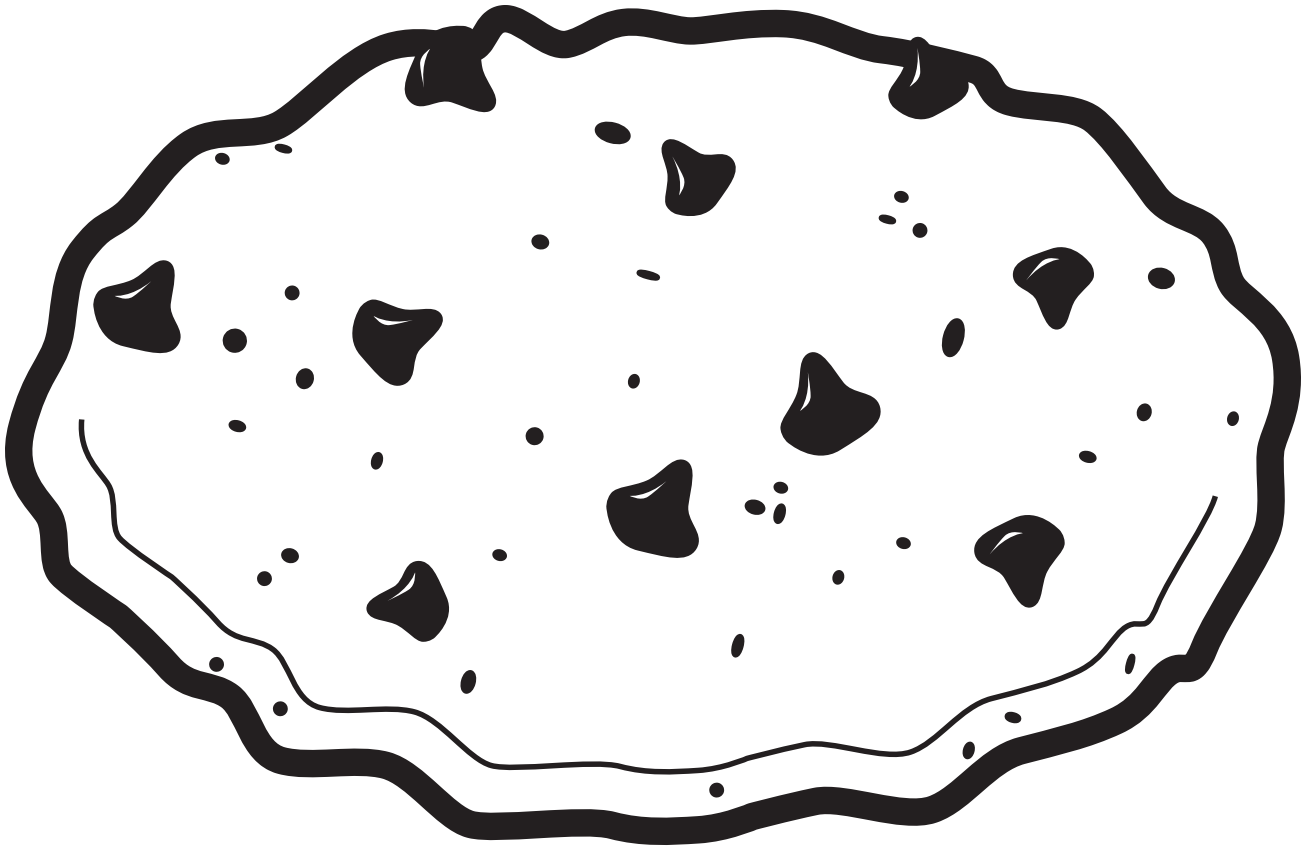


Eatin My Part Pastries - Muffin

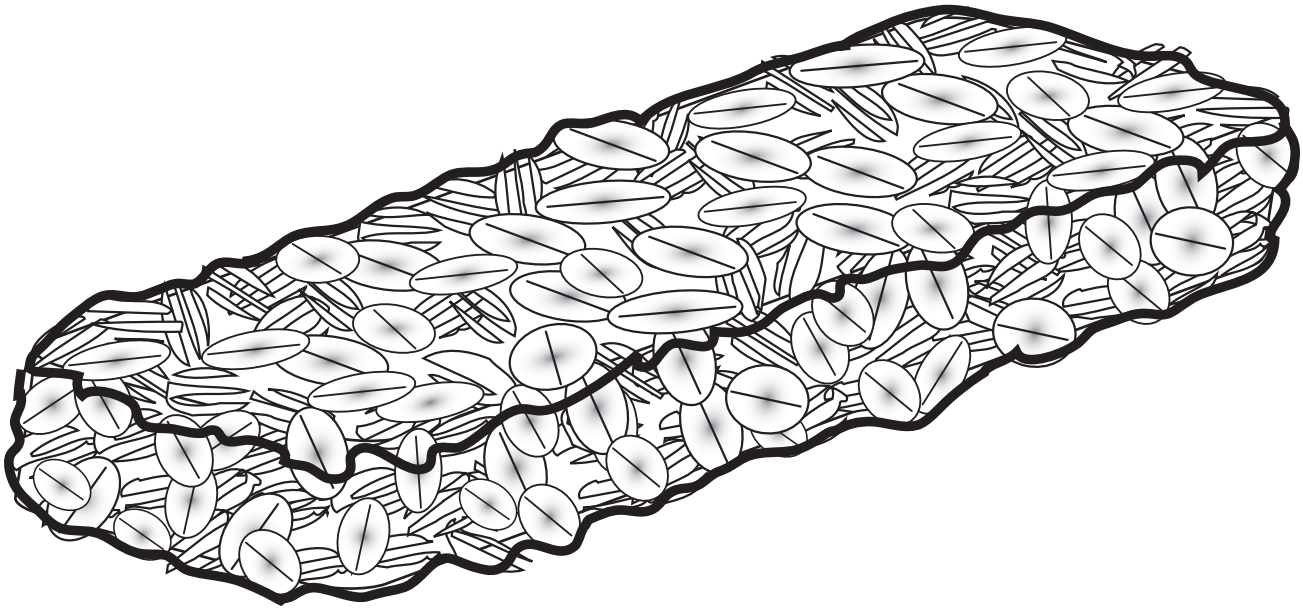
Eatin My Part Pastries - Donut



Eatin My Part Pastries - Cookie



Eatin My Part Pastries - Granola Bar



Eating My Part Fraction Cards

Cut your pastry into 1 out of 2	Cut your pastry into 1 out of 3	Cut your pastry into 1 out of 4
Cut your pastry into 1/2	Cut your pastry into halves	Cut your pastry into 1/3
Cut your pastry into thirds	Cut your pastry into 1/4	Cut your pastry into fourths

Eating My Part Fraction Cards

Cut your pastry into 1 out of 2	Cut your pastry into 1 out of 3	Cut your pastry into 1 out of 4
Cut your pastry into 1/2	Cut your pastry into halves	Cut your pastry into 1/3
Cut your pastry into thirds	Cut your pastry into 1/4	Cut your pastry into fourths

Math III-3
Activities

Graphing

Mr. E Graphs

Standard III:

Students will understand simple geometry and measurement concepts as well as collect and draw conclusions from data.

Objective 3:

Collect, record, organize, display, and interpret numerical data.

Intended Learning Outcomes:

5. Understand and use basic concepts and skills

Content Connections:

Content III-1, 2, 3; Organize their understanding of environment

Math Standard III

Objective 3

Connections

Background Information

A graph is a tool that can show you things quickly. A graph uses pictures, shapes and colors instead of numbers to tell us how many of something there is. In Second grade students are responsible to use a variety of methods to organize, display, and label information, including keys, using pictographs, tallies, bar graphs, and organized tables.

In this lesson we will explore several ways to sort information according to certain attributes. We will then graph that information so we will understand quickly what we have sorted. Because of the versatility of graphs/data organizers being integrated in a multitude of other subject areas, this would serve as a valuable foundational lesson to teach at the beginning of the school year so that extension lessons can follow throughout the year.

Research Basis

Lee, M., & Miller, M., (1993). *Great Graphing*. Scholastic Inc. New York, NY ISBN 0-590-49470-8

Learning Graphing skills benefits children in a variety of ways; it encourages an investigative spirit as questions are generated, conjectures are made, and relationships are discovered. Higher-level critical skills are involved and communications skills are reinforced as children discuss and write about their methods and discoveries. Graphing help children appreciate how useful math can be in the world outside the classroom.

Invitation to Learn

Write the graph title "Today's lunch" on the board. Then under the title write "School lunch" and "Home Lunch," and have them line up behind the graph headings according to what they will be eating that day. Tell them they have just made a human bar graph. Record numbers on a piece of paper to refer to later and start on Instructional Procedures.

Sorting package contains several objects from each of the following categories: plants, animals, fantasy, reality, food, numbers, families, and communities where we live (urban, suburban, and rural).

Materials

- ❑ *Math Concepts for Primary Grades* DVD Chapters 2, 3, and 5
- ❑ *Four Letters from Captain Graff*
- ❑ *Evidence / fact sheet*
- ❑ *Clue Graph*
- ❑ *Evidence mystery tags*
- ❑ *Detective Notebook*
- ❑ *Detective Badges*
- ❑ 19 cases

Introduction letter from Captain Graff:

Dear Mr. E,

I have enclosed a number of clues to a current case that we are working on. Please see what you and your assistant detectives can make of these items and get back with me.

Thanks for your help with this,

Your Friend,

Captain Graff

Instructional Procedures

Case 1

1. Teacher arrives in the classroom dressed as a detective carrying a briefcase that contains *The Sorting Package,* (containing several objects from each of the following categories: plants, animals, fantasy, reality, food, numbers, families, and communities) the *Introduction letter from Captain Graff,* and introduces him/herself as MR. E. He/She welcomes the students to the Math Graph Detective Academy and tells students that they will be assisting in an important math mystery adventure. Inform them that they will gain important information for helping to solve the case by watching a top-secret video clip. Have students watch "3 Skill Building Sort and Group" Chapter 3 Section 1. Stop after 3:26.
2. Discuss what was disclosed as the first step in classifying (using your five senses to help you observe what things are alike). Invite students to help you sort the objects that arrived from Captain Graff into 5 groups by traits determined as a class. Once they have been divided, place the items in gallon size baggies and write on the *Evidence Mystery Tags* what trait each group is sorted by.
3. Break your class into five groups and have them subdivide their mystery tagged bags into smaller groups. When each group has completed their sorting have them stay where their group is and share how they separated their bags into different groups. Have each group place all objects from their bag back into the gallon bag and collect the bags at the end.

Case 2

1. Letter 1 arrives from Captain Graff asking if they have solved the mystery. Review with the class what they learned about sorting objects so far. Review as a class how they sorted their evidence mystery tagged bags as smaller groups yesterday.
2. Ask the class: how can we send all this information that we have been solving to the Captain? We can't just mail him all the evidence back. What would be an easier way to get him the information? On the DVD show chapter 2 "Skill Building with Graphs." Stop at the pictograph section of this chapter 1:45. Discuss the definition of a graph as given in this section: a graph is a tool. It can show you things quickly. A graph uses pictures, shapes, and colors instead of numbers to tell us how many of something there is.
3. Introduce their *Detective Notebook* (a notebook made to collect clues or data). Have them write the definition of a graph in their notebook. Ask: remember how we made a class human bar graph in class? Have any of you done graphs before? What other kinds of graphs are there? Continue on to the pictograph section of the DVD. Chapter 2 1:47.
4. As a class, return to the information gathered in the invitation to learn, and draw a pictograph on a poster board of how they lined up. Then take that information from the pictograph, and have them help you make a bar graph of their lunch for that day.
5. Provide each student with an *Evidence/Fact Sheet* paper. Have them go back to their same mystery tagged bags they sorted on the first day. Have them collect facts or clues on their sheet. Taking the facts they have gathered, have them then make a bar graph with their detective team on their findings.

Case 3

1. *Letter 2 arrives from Captain Graff* stating that more information is needed to solve the mystery. Show the video on charts, Chapter 5 Charts, Graphs and Diagrams. Review what a pictograph is after the video.
2. Discuss each type of graph. As you discuss each graph from the video with the class, hand out the *Clue Graph* pages for them to glue into their clue diary. Invite them to write notes and draw pictures as you discuss these things, so they can be

Letter 1:

Dear Mr. E and associates,

I was just writing to check on the progress you have made on our top-secret case. I would love to see what you have come up with so I can compare it with what we were thinking here at the station. Please let me know what you have discovered as soon as possible. We are excited to hear from you.

Your Friend,

Captain Graff

Letter 2:

Dear Mr. E and associates,

Thank you for the helpful information you have sent to us. I was thinking about the same thing. I know that this case is not yet solved and would love to hear any other information you may have to help crack this case, I know we are close.

Anxious to hear from you!

Your Friend,

Captain Graff

good detectives when they get back to their evidence mystery tagged bags.

Case 4

1. *Letter 3* arrives from Captain Graff thanking the class for their help with the mystery. Read the letter to the class.
2. Pass out the *Evidence/Fact Sheet* and (as time allows), read sections of *Graphs* by Bonnie Bader to the class. Pause at each fact, or clue for the students to record the data presented. Do not show the pictures of the book at this time.
3. When you have completed the book or current section of the book you would like to work on, discuss the data from the book. Have them think of ways that they could graph the information they have collected. Working in small groups, have them pick a section of data or the current section you are on, and think of which type of graph they could use to show the facts the best with the class.
4. After they have worked on their graphs, have them share with the class what they found out. Prepare that information to send to the captain.
5. Before "mailing" the letter to the Captain, re-read *Family Reunion* to the class and compare their graphs to the ones in the book. Discuss what types of graphs his son used compared to what they used as a class.

Letter 3:

Dear Mr. E and Associates,

Thank you for your help in solving our mystery. You truly have learned a lot about sorting information to be used to make a graph. I have another case that I need your help with. I am attending a family reunion and my son wanted to keep track of facts that he gathers from the reunion. Can you help us think of different facts that we could collect to share with his teacher for extra credit? I have included a book of the facts with this letter. Good luck! I am excited to hear from you all.

Your Friend,

Captain Graff

Case 5

1. *Letter 4* arrives from Captain Graff thanking them for solving the cases that he had assigned to them. Read the letter to the class.
2. Divide your class into seven groups and explain the *Seven Centers with Nineteen Cases* needing to be solved. Provide each detective group with materials needed at each station, and several *Evidence Fact Sheets* for them to gather their clues on and put in their *Detective Notepad*, have them write their case number on their *Evidence Fact Sheets* and glue into their *Detective Notepad*). Check each graph for accuracy against the case number that they received.
3. Review each type of graph. Ask each student to tell and record in his or her clue journal his or her favorite graph discussed in the book. Present each detective with an official *Great Graph Detective* badge.

Letter 4:

Dear Mr. E and Associates,

WOW! You have all become such great detectives! Thank You for helping me solve the case. I have a huge caseload that has just come up and would love any help you can give me with this. I know that you are all first rate detectives, and that these cases will be solved with ease! Good Luck.

Your Friend,

Captain Graff

Assessment Suggestions

1. Check the data and graphs from the 19 cases they have solved.
2. Check their E*vidence Fact Sheets* they completed on case 2 and 5.
3. Include some of the 19 cases in a center for them to choose their case to solve. Check their work.

Curriculum Extensions/Adaptations/ Integration

- Morning message: Put a letter for Mr. E filled with corrections for them to solve on the board for their daily work.
- Monthly Integrated Graphing Ideas:
- August: **Summer Fun—**Provide a sun-shaped paper for students to draw a favorite summer memory from one of the following categories: traveling, sports, family activities, other. Graph results.
- September: **Favorite School Subjects—**Provide each student with piece of an apple pie (a circle approximately 14 inches in diameter, cut into as many equal sized pieces as you have students). They need to be equal pieces, so you may have to include yourself or other staff member. Have the students color their piece according to what their favorite school subject is. red: math, yellow: spelling, orange: reading, and so on. Glue each piece onto a circle, grouping them according to their color.
- October: **Pumpkins—**Provide each student with a piece of orange art paper. Have them draw and cut out a pumpkin (you should get many sizes and shapes). Provide different kinds of art supplies to decorate their pumpkin with, such as pain, glitter, sequence. Bar Graph the pumpkins by traits determined by the class.
- November: **Food Groups—**Provide each student with a turkey clip art to draw their favorite type of food they eat on Thanksgiving Day on the belly of the turkey. Provide choices for them from each of the food groups. Graph turkeys on a food pyramid chart according to what they drew. Make a pictograph of what they have drawn.
- December: **Money—**Provide pictures of candy price marked with pennies, nickels, dimes, or quarters. Have them graph their candy according to the coin their candy is labeled with. To

make it more challenging, have students graph according to the sum of their coins. Discuss the graph.

- January: **Weather Affects on Animals—**Make a Pictograph of how the weather affects animals. Have the students draw an animal they would like to sort according to what the animal does in the winter, hide, migrate, hibernate or stay active. Discuss the graph.
- February: **Letter Writing—**Read the story *Who Loves Mr. Hatch* by Ellen Spinelli. Discuss how the nice letter to Mr. Hatch made him a happier, nicer person. Have them choose to write a letter to a family member, friend, school staff, or other to brighten their day. Provide them with an envelope to write the name of the person the letter is going to. Bar graph the envelopes according to who they are sent to, a family member, friend, school staff, or other. Discuss the graph.
- March: **Weather—**Bar graph the daily weather for the month, graph the students favorite kind of weather.
- April: **'Egg'cellent Animals—**Graph according to whether animals are born live or if they hatch from eggs. Have students draw their babies on a square-shaped piece of paper if they are born live and on an egg shaped piece of paper if they hatch from an egg. Graph results. Discuss other ways you could graph these animals as a class.
- May: **Second Grade Memories—**As a class, make a timeline of the school activities you have had throughout the year. To create a class graph, have the students illustrate their favorite activity on a Post-it® note and place it in a category such as: field trips, friends, room-mother parties, assemblies, holidays, other.

Family Connections

1. Gather data about family—eye color, hair color, boys, girls, etc., make a graph at home.
2. Have them graph their favorite toys and bring data and how they sorted their toys.

Additional Resources

Books

Graphs, by Bonnie Bader; ISBN 044842962

Graphs, by Sara Pistoia; ISBN 1-59296-687-X

Who's Got Spots? by Linda W. Aber; ISBN 0-439-3326-5

Tiger Math Learning to Graph from a Baby Tiger, by Ann Whitehead Nagda and Cindy Bickel; ISBN 0-8050-7161-X

Get up and Go! by Stuart Murphy; ISBN 0-590-23811-6

A Tiger Cub Grows up, by Joan Hewett; ISBN 0-439-44193-5

The Great Graph Contest, by Loreen Leedy; ISBN 0-439-82838-4

Let's Graph, by Lisa Trumbauer; ISBN 0-7368-2891-5

Graph Games, by Susan Holding; ISBN 0-690-34964-5, 0-690-34965-3 (LB)

Great Graphing, by Martin Lee and Marcia Miller; ISBN 0-590-49470-8

Graph-A-Day, by Michelle Long Windmoeller; ISBN 0-7424-0146-0

Graphing Primer, by Laura Duncan Choate and JoAnn King Okey; ISBN 0-86651-486-4

Media

Math Concepts for Primary Grades, by 100% PRODUCTIONS 1998-2001, UIMC (Utah Instructional Math Consortium), Utah State of Education.

My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

Detective Notebook Page

Graph Name

Type of Graph used _____

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

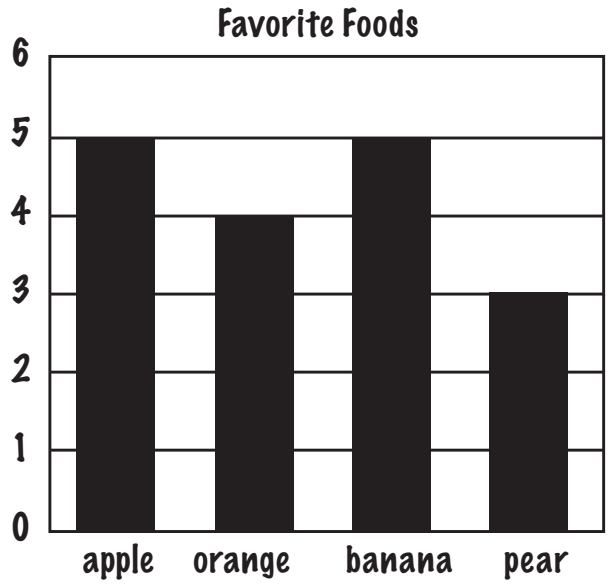
Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

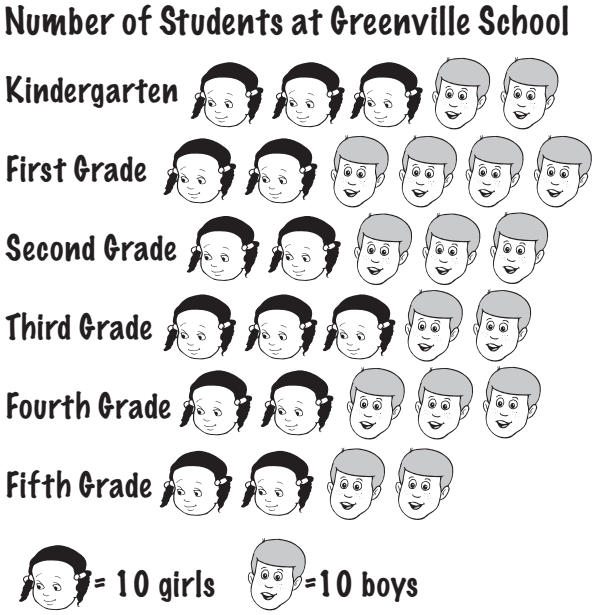
Clue Graphs

Bar Graph



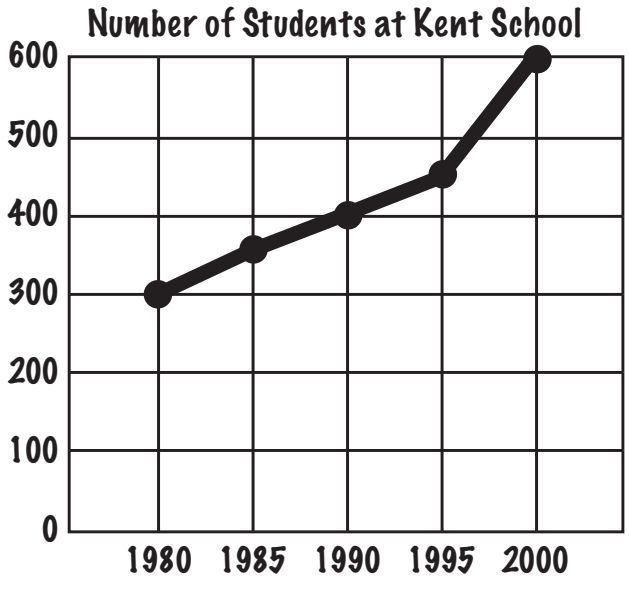
In a bar graph, the length of a bar tells how much or how many.

Pictograph



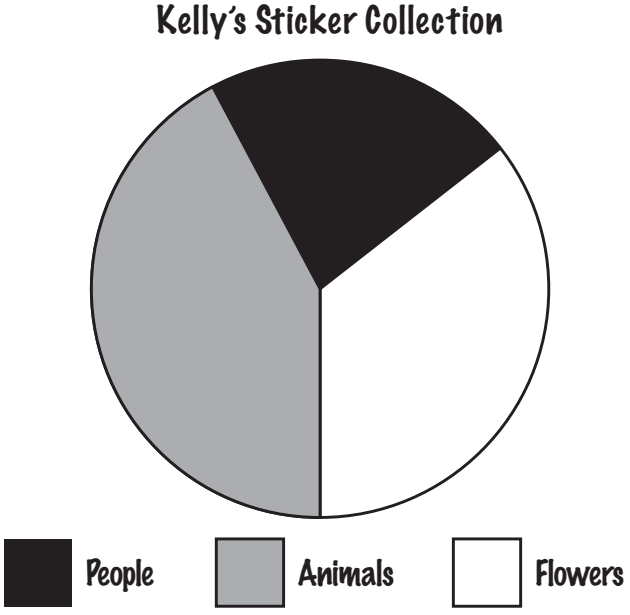
In a pictograph, each picture stands for a certain amount

Line Graph



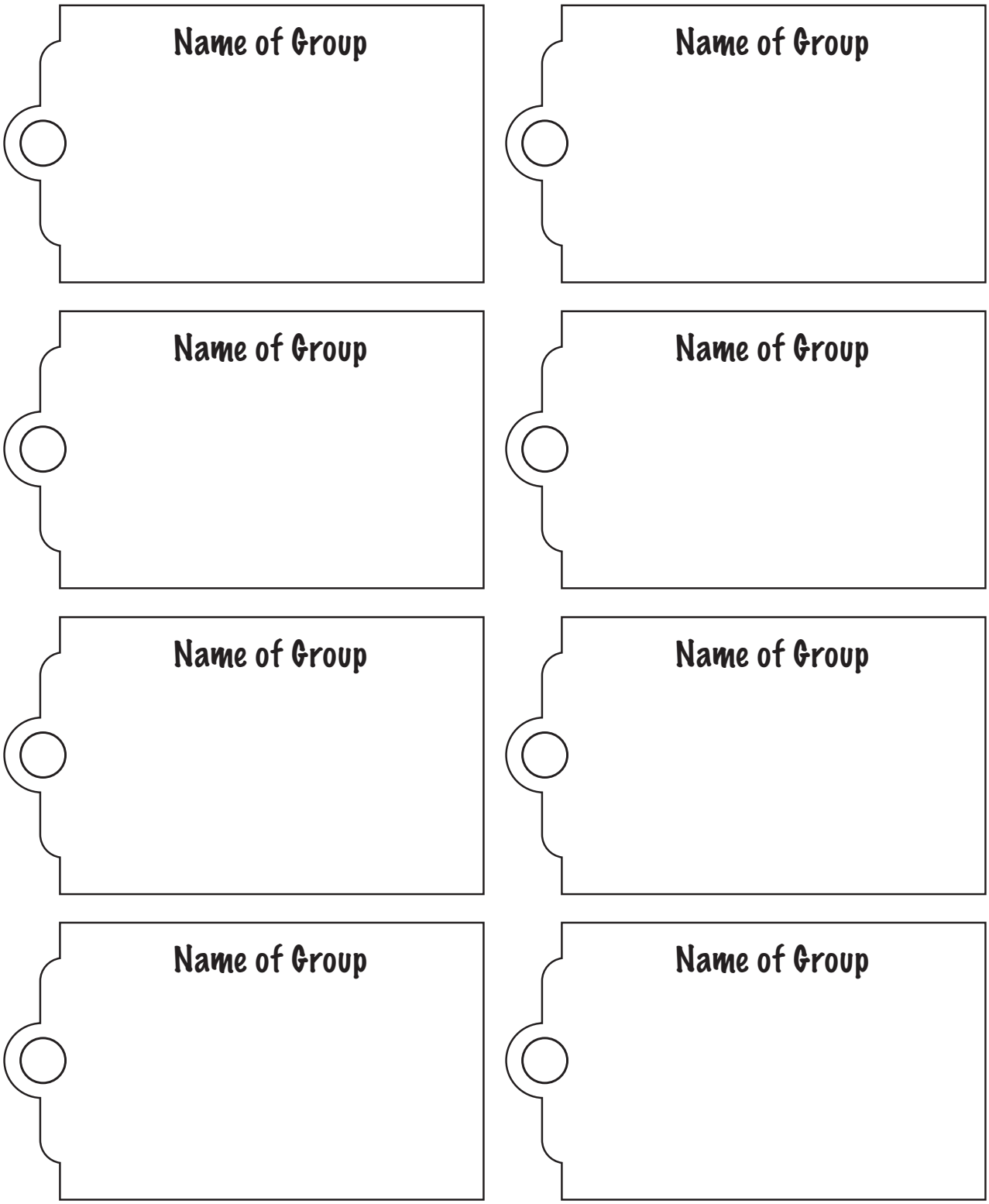
In a line graph, a line shows how something changes over a period of time.

Circle Graph



In a circle graph, the parts of a circle tell how much or how many.

Evidence Mystery Tags



Detective Badges

Seven Centers with Nineteen Cases

Center One: Plants

Materials: 1/4 sheet of paper for them to draw plants on. Seeds to grow a classroom plant.

Case #1: Provide paper for them to draw pictures of any plants we eat. Graph plants according to what part of the plant we eat, the top or the bottom, or the middle.

Case #2: Provide paper for them to draw a picture of their favorite plant they like to eat. Graph the results.

Case #3: Grow a plant as a class and graph the growth of that plant over a time determined by the class. Compare the growth spurts of the plant over time.

Center two: Animals

Materials: 1/4 sheet of paper for them to draw on.

Case #4: Provide paper for them to draw a picture of their favorite animal. Graph the results.

Case #5: Provide paper to draw one animal they have at their home. Graph results.

Case #6: Provide paper to draw an animal and sort according to how they act in the winter: hibernate, hide, migrate, or stay active.

Center Three: Fantasy/Reality

Materials: A variety of fiction and non-fiction picture books that are related (e.g., the three little pigs, a fact book on pigs).

Case #7: Provide a fiction and non-fiction book about the same subject, for example the three little pigs, a fact book on pigs. Gather clues of information from each book. Compare how they are the same and different using a Venn Diagram. Repeat with other sets of books.

Case #8: Pick a fiction and non-fiction book provided about the same subject, for example the three little pigs, a fact book on pigs. Gather clues of information from each book. Cut a circle into as many pieces as you have facts or clues you have found. Write each clue you have gathered on a separate piece of the pie. Color the real facts red, and the fantasy facts blue. Glue them back on the blank circle grouping them by color. Repeat this with one other topic.

Center Four: School Rules

Materials: A copy of your classroom rules. A copy of your district school rules if applicable. Four Pie Graphs per group doing this center, small Post-it® notes.

Case #9: Provide two pies per group. Have one divided into equal parts for the size of your group. Have them write their favorite rule on one of the pieces of pie. Glue their piece on the blank pie grouped with the same rules by each other. Color each section of the same rules together a different color.

Case #10: Provide two pies per group. Have one divided into equal parts for the size of your group. Have them write rules they see followed the most on their piece of pie. Glue their piece on the blank pie grouped with the same rules by each other. Color each section of the same rules together a different color.

Case #11: Provide small sticky notes with a copy of the class rules. Have the students take two small sticky notes to record data on. Have the students write one rule they see each other keeping on one sticky note, and one rule they see broken often on their other sticky note. Graph the results.

Center Five: Numbers

Materials: Provide a worksheet from your math program that has addition and subtraction problems on it. Two pie graphs per group. Two Pie Graphs per group doing this center, small squares cut from different colors.

Case #12: Using the round data table, have them choose a piece of the circle and color it: Blue if their favorite fraction is 1/3. Yellow if their favorite fraction is 1/2. Red if their favorite fraction is 1/4. Glue it back on the empty circle and compare favorites.

Case #13: Using the worksheet from your school math program count out how many times the numbers 5, 6, 7, 8, and 9 were used. Using the same color for one number, glue one square on your graph. For example, if you have seven 5's, glue seven green squares on your graph. Finish gluing to complete graph.

Case #14: Using the worksheet from your school math program count out how many times addition and subtraction were used. Using the same color for addition, and a different color for subtraction, glue one square on your graph for each time they are used. For example, if you have seven addition problems, glue seven squares of one color on your graph. Finish gluing to complete graph.

Center Six: Families

Materials: *Post- it notes®*

Case #15: Take a Post- it notes® and write the number of people in you family. Graph results.

Case #16: Take a Post- it notes® and write the color of eyes you have in your family. One Post- it notes® for each color of eyes represented in your family. Graph results.

Case #17: Take a Post- it notes® and write the number of girls and boys you have in your family. One Post- it notes® for boys, one Post- it notes® for girls. Graph results.

Center Seven: Urban, Suburban, and Rural

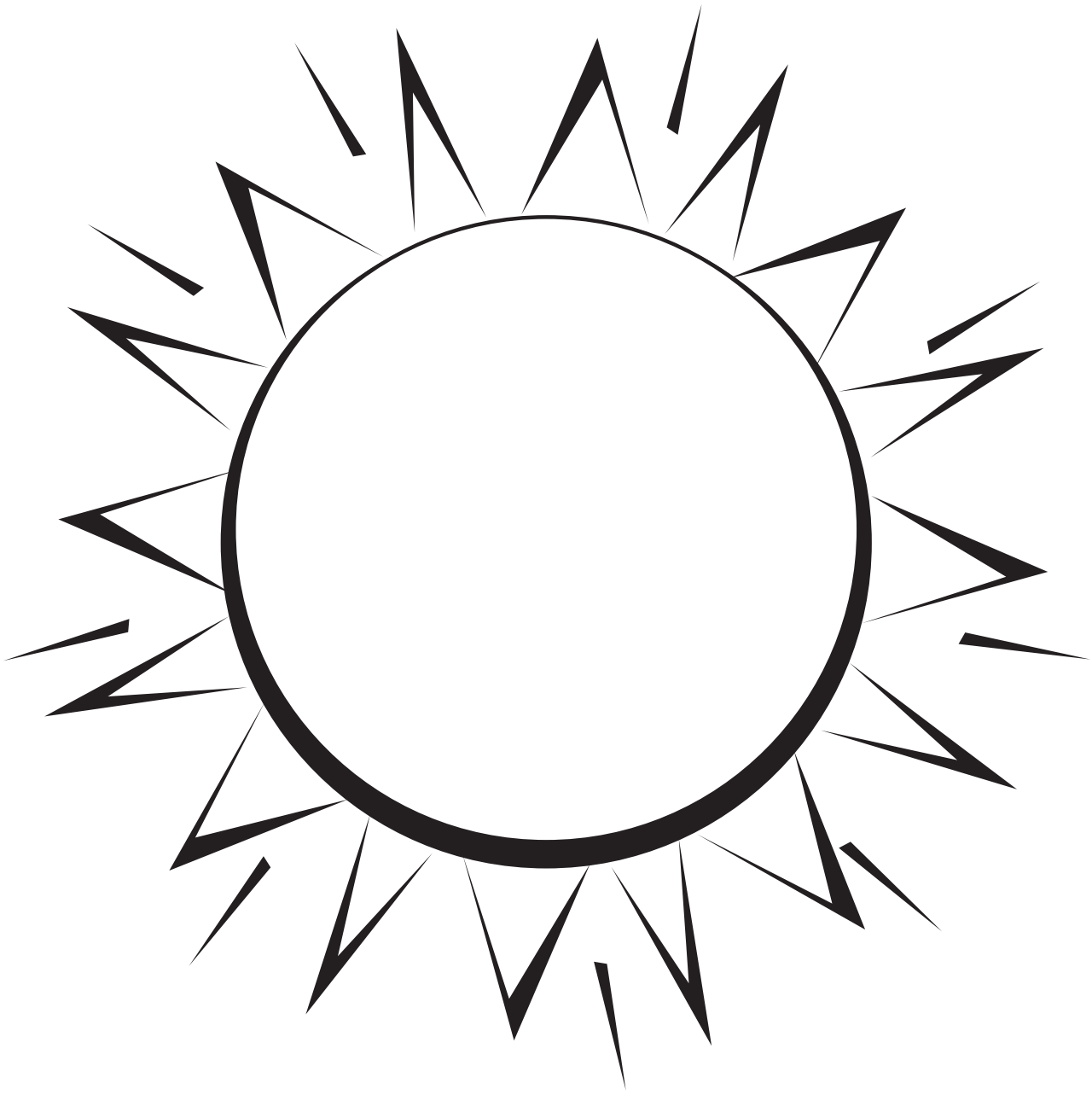
Materials: A variety of pictures, toys, animals, stickers to be sorted into urban, suburban, and rural groups. Lunch sacks labeled urban, suburban, and rural.

Case #18: Using the 3 lunch sacks labeled urban, suburban, and rural, sort objects provided by the teacher according to where you would find them.

Case #19: Sort objects into three groups: urban, suburban, and rural. Draw a Venn Diagram comparing urban and suburban with rural. Have them write how they overlap and what is defiantly different.

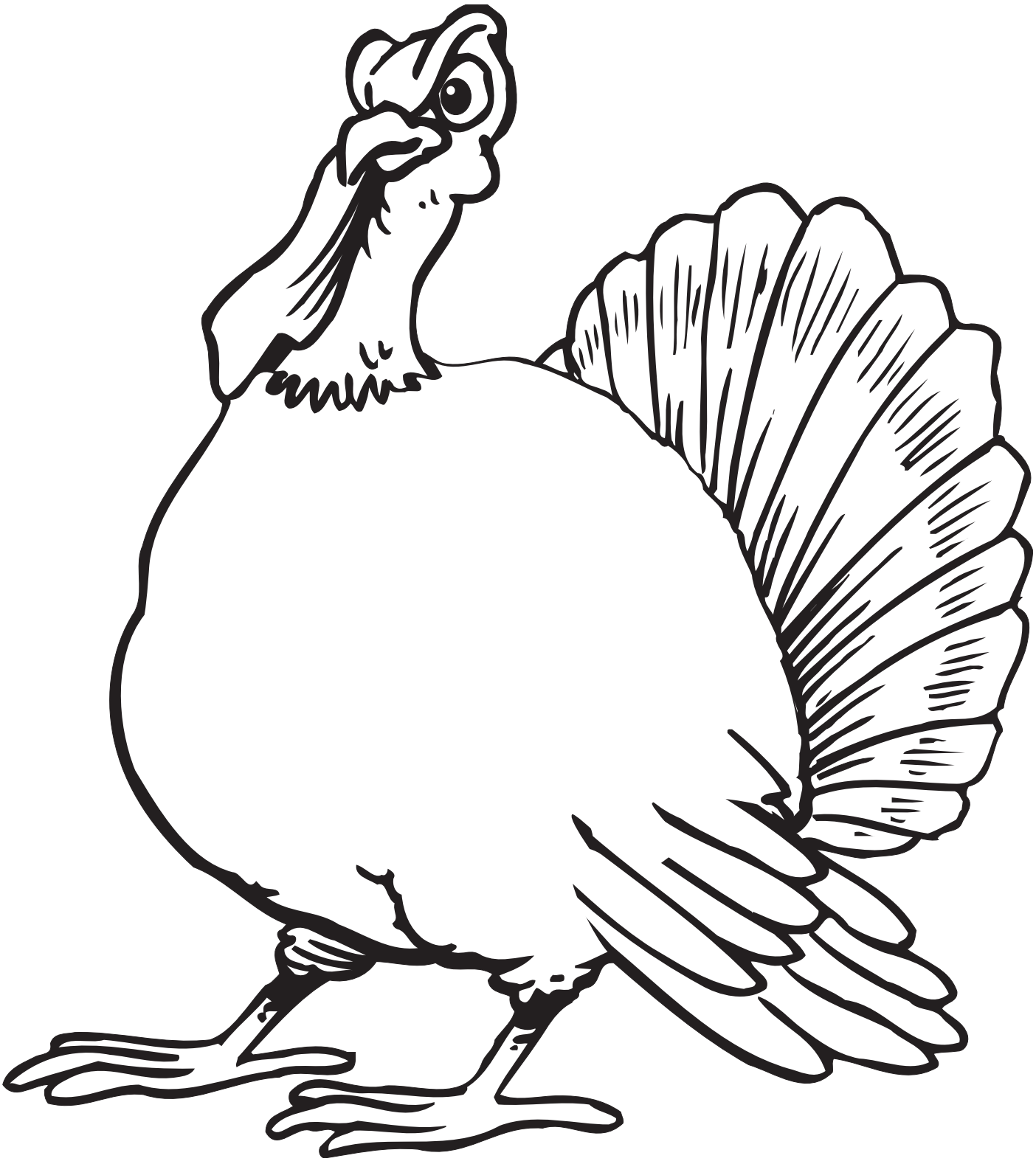
Monthly Integrated Graph

August



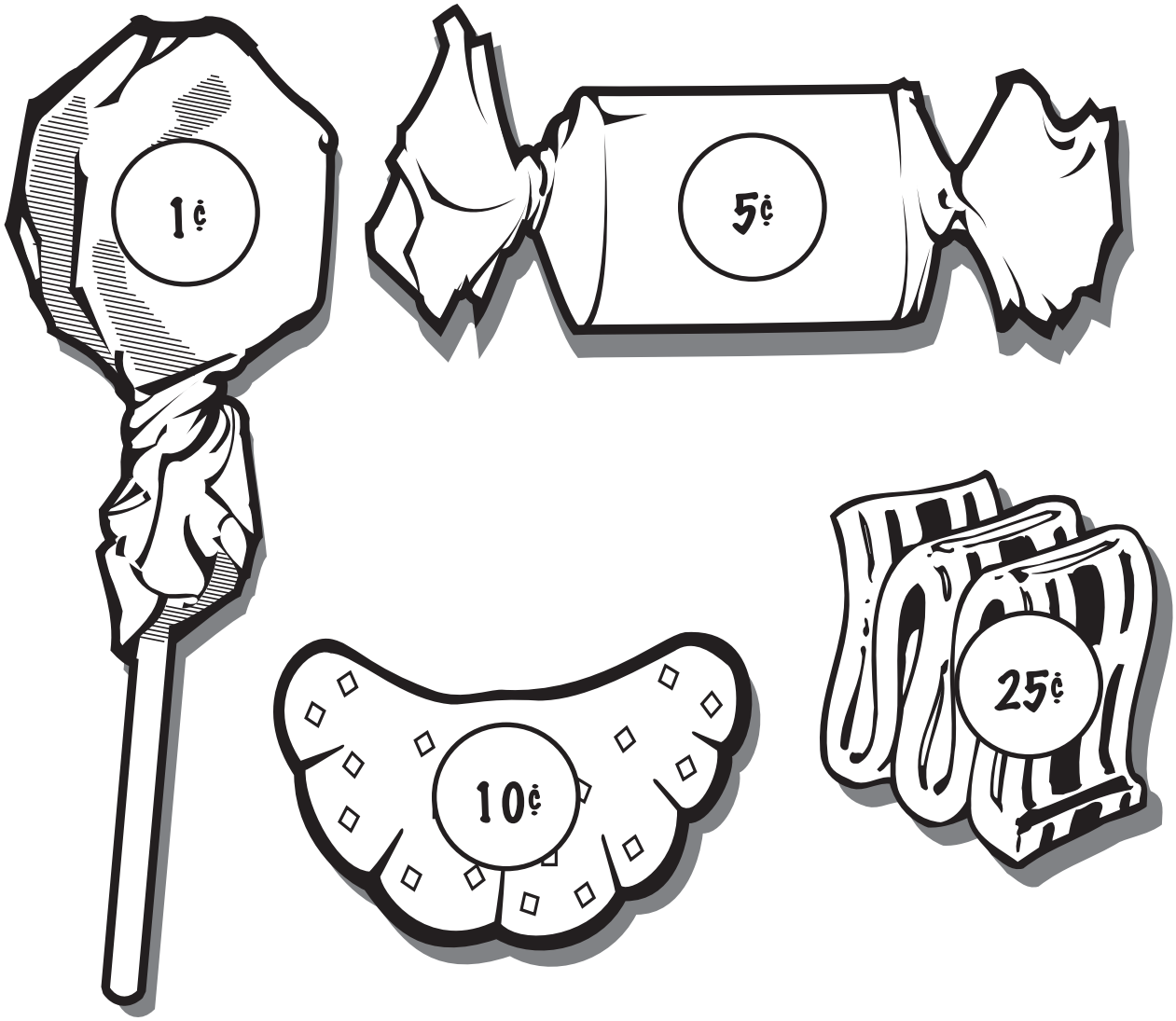
Monthly Integrated Graph

November



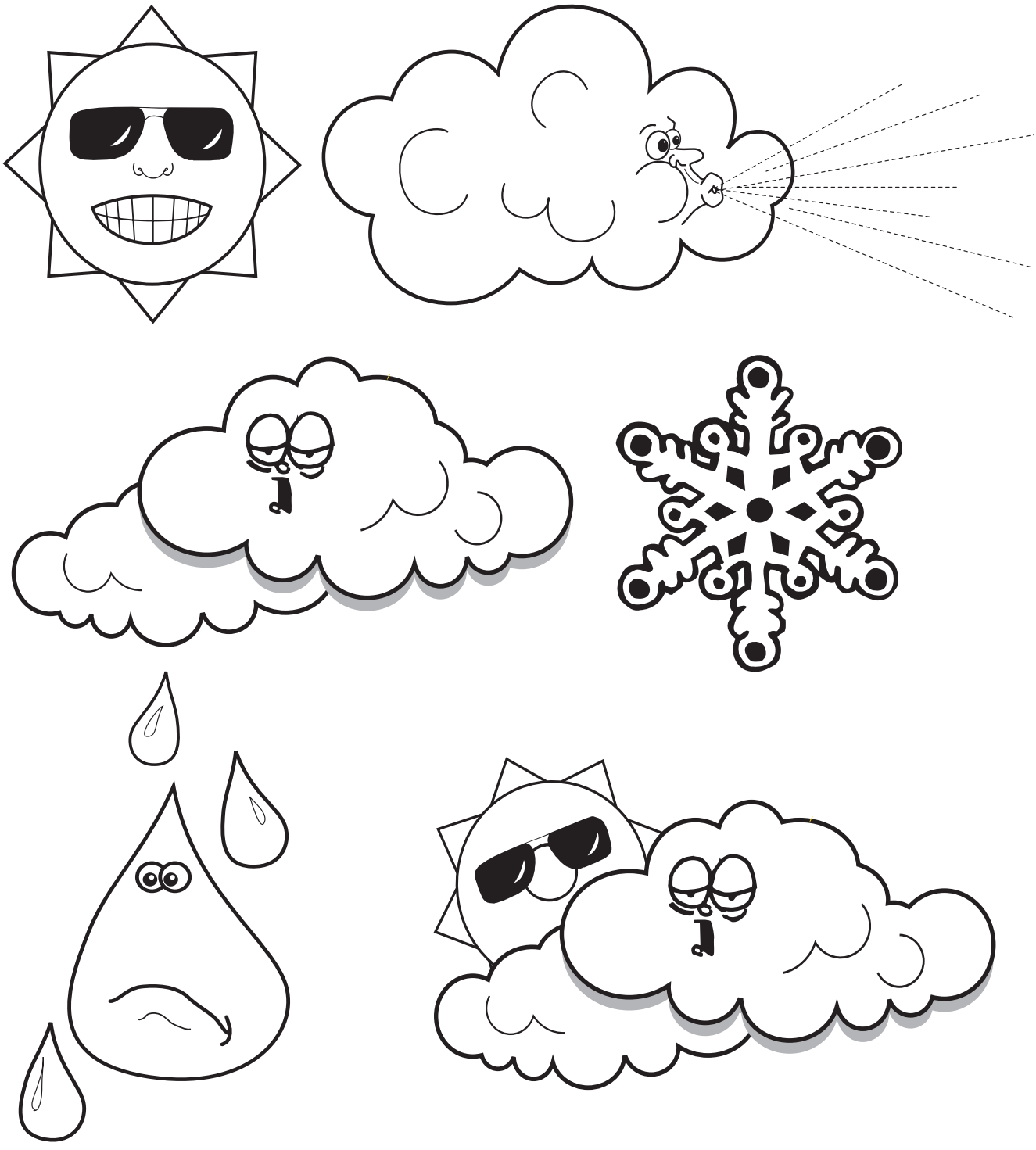
Monthly Integrated Graph

December



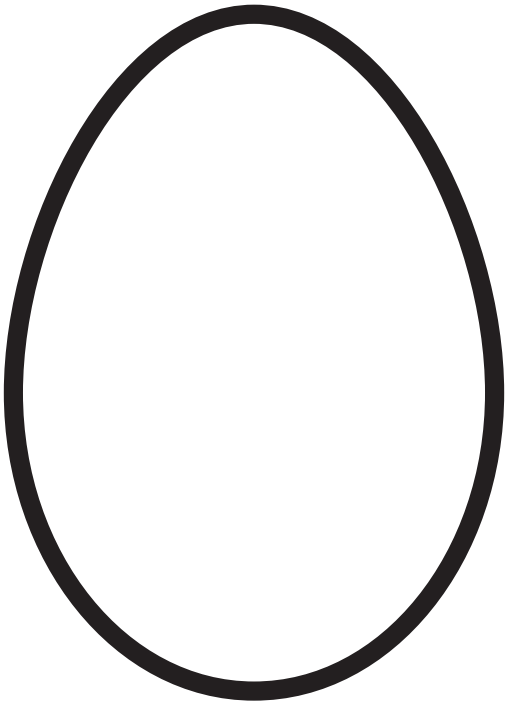
Monthly Integrated Graph

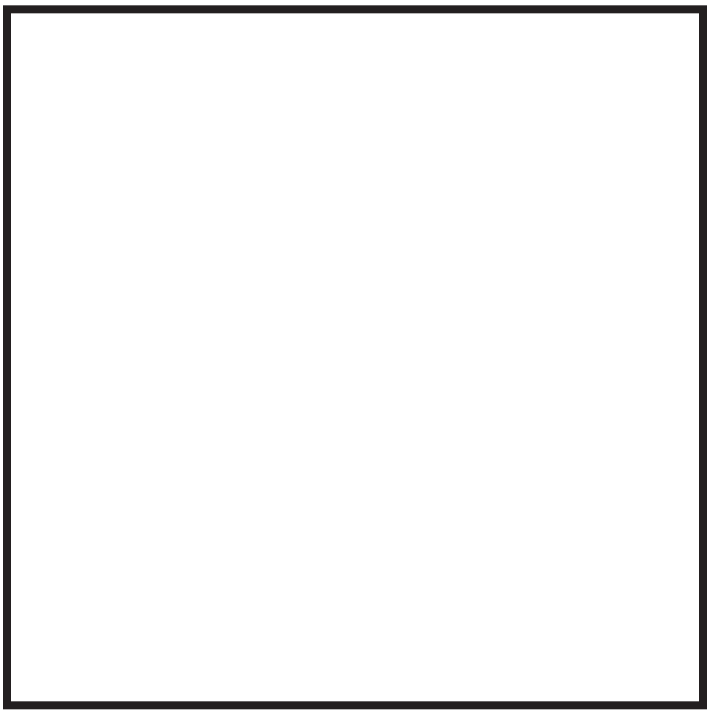
March



Monthly Integrated Graph

April





Content III-1
Activities

Plants & Animals

Plant and Animal Communities

Standard III:

Students will develop an understanding of their environment.

Objective 1:

Investigate relationships between plants and animals and how living things change during their lives.

Intended Learning Outcomes:

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

Content Connections:

Language Arts, Standard VIII: Writing

Content Standard III

Objective 1

Connections

Background Information:

There are six main classes of the animal kingdom: insects, birds, fish, mammals, amphibians, and reptiles. All animals live in a habitat that is suited to fit their needs. Animals also have adaptations that allow them to survive in their habitat. In addition, plants have adaptations that allow them to live in a specific habitat. All living things depend on plants to survive.

Research Basis

Gallenstein, N. (2005). Engaging young children in science and mathematics. *Journal of elementary science education,* Volume 17.

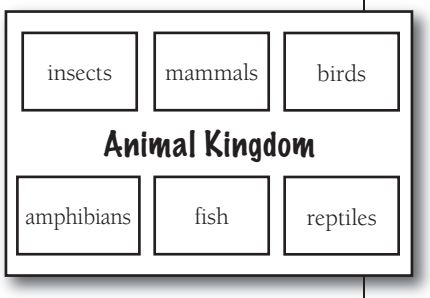
A key element for children in understanding science and mathematics knowledge on the early childhood level is through active, creative, and intellectual engagement. According to Jerome Bruner, instruction should include a variety of developmentally appropriate techniques. These techniques include the representation of knowledge through actions, drawings, and words. The process skills of observing, communicating, and inferring are also crucial to the understanding and problem solving in science and mathematics. In addition, basic mathematics concepts—such as comparing, sorting, counting, and graphing—are crucial to the understanding and organization of data in science.

Invitation to Learn

Place a picture of an animal on the board facing inward so that the students cannot see it. Make up some riddles and have the students try to guess the animal you are describing.

Materials

- ❑ Plastic animals
- ❑ Bucket
- ❑ Sentence strips
- ❑ Marker
- ❑ Animal Kingdom Poster
- ❑ *6 flap book pages*
- ❑ *Animal Kingdom Labels*
- ❑ *Animal Pictures*
- ❑ Baskets / containers
- ❑ 12x18 sheets of construction paper



Which Class do you belong to?

1. Label the six containers with each of the main classes of the animal kingdom (insects, mammals, birds, amphibians, fish, reptiles).
2. Place the plastic animals in the bucket. Ask a student to come up, pick an animal and place it in the appropriate class. If the student places an animal in the incorrect class, just ignore it for now. Later you will correct it.
3. Write the animals that have been placed in each container on the sentence strips. Stick the sentence strips up on the poster. Tell the students that they will be learning more about the animal kingdom.
4. Spend some time discussing facts from each of the six main classes of the animal kingdom using nonfiction literature, videos, etc. As you discuss each kingdom, give each student a copy of the *fFlap Book Page*. Have them write down facts about the animals as you write them on the overhead. Then have them cut out their *Flap Book Page* and fold it.
5. Next, have the students color the *Animal Pictures* and cut them out. Then have the students cut out the *Animal Kingdom Labels* and glue them on the front of each page of their book. Finally, have the students glue the *Animal Pictures* on each appropriate class on the book.
6. Arrange the book pages onto the sheet of construction paper as shown at left. Have the students label their flap book poster with a marker.
7. After making the flap book and discussing each of the six main classes of the animal kingdom, pull out the poster from the beginning of the lesson. Decide if any of the animals need to be moved to a different class.

   These are basic facts from each of the classes that can be written in the flap books.

Insects:

- Have an exoskeleton
- Have three body parts (head, thorax, abdomen)
- Have six legs
- Have two antennae
- Mouthparts

Mammals:

- Usually have fur or hair
- Use lungs to breathe
- Give birth to live young
- Drink milk from the mother
- Mom takes care of her young

Birds:

- Has feathers
- Two legs
- Has wings
- Has lungs
- Lays eggs
- Has a beak instead of a mouth

Amphibians:

- Begin life in the water and move onto land as adults
- Lay eggs in the water and eggs hatch in the water
- Have wet skin
- Begin with gills that then change into lungs
- Grow front and back legs to live on land
- The word amphibian comes from two Greek words. "amphi" means double, and "bios" means "life." Amphibians live a double life.

Examples: frogs, toads, and salamanders

Fish:

- Live their whole life in the water
- Breathe with gills
- Have scales
- Most fish lay eggs, but some give birth to live young
- Have fins to help them move

Reptiles:

- Land animals
- Have dry skin covered with scales
- Use lungs to breathe
- Some young hatch from eggs and some are born alive
- Babies take care of themselves

Examples: Lizards, snakes, alligators, crocodiles, turtles and tortoises. Tortoises live on land and turtles live in the water.

What do plants and animals need?

1. Explain to the students that plants and animals have needs in order to survive.
2. Tell the students that plants need water, sunlight, soil and air (carbon dioxide) to survive. Explain that people and animals give off carbon dioxide when they breathe out. Tell the students that plants make their own food from each of these needs. Do the following experiments with the students.

Materials

- ❑ Green plant
- ❑ Black construction paper
- ❑ Paper clips
- ❑ Petroleum jelly
- ❑ Clear bowl
- ❑ Jar
- ❑ Pond plants
- ❑ Four pennies
- ❑ Water

What happens when a plant doesn't get enough light?

a. Attach a piece of black paper to the top of a leaf using paper clips.
b. Check the leaf each day for one week. Observe and describe what the leaf looks like each day. Have the students record results using words and pictures in a science journal.
c. Discuss what happens when a plant doesn't get the sunlight it needs to survive.

What happens when a plant doesn't get enough carbon dioxide?

a. Cover a few leaves of the plant with petroleum jelly.
b. Check the leaves each day for one week. Observe and describe what is happening to the leaves each day. Have the students record the results in a science journal using pictures and words.
c. Discuss what happens when a plant doesn't get enough carbon dioxide.

3. Animals need food, water, a home, and oxygen to breathe in order to survive. Plants give off oxygen. Land animals get oxygen from the air by breathing with their lungs. Insects get oxygen by breathing through tiny hole in their bodies, and water animals get oxygen from the water. Animals don't make their own food, but they have body parts that help them to get their food. Do the following experiment with the students.

How do animals that live in the water get oxygen?

a. Explain to the students that water plants help to add oxygen to the water.
b. Fill the jar up with water and water plants.
c. Put the bowl on top of the jar and carefully flip it over so that the jar is upside down in the bowl.

d. Pour a few inches of water into the bowl.

e. Slide the four pennies underneath the rim of the jar.

f. Leave the bowl and jar in the sun for a few hours. Oxygen bubbles will start to form on the plants and float to the top of the jar.

4. Make a Venn diagram of plant and animal needs.

Forest and Pond Communities

Materials

- ❏ *Forest Bright Forest Night*
- ❏ *Pond Plants*

1. Explain to students that the forest is a place where many trees and smaller plants grow. Many kinds of animals make their homes in the forest.
2. Read *Forest Bright, Forest Night?* by Jennifer Ward. Talk about some of the different animals and plants that live in a forest and pond. Make a list of the animals.
3. Read *Pond Plants* by Ernestine Giesecke and discuss the plants that live around the pond. Explain that the plants and animals work together to make a community. Plants provide animals with food and shelter, and animals also help plants.

How do plants help animals?

Materials

- ❏ *Animal Homes*
- ❏ *Food Chain Picture Cards*
- ❏ *The Dancing Deer and the Foolish Hunter*

1. Explain to the students that many animals make their homes out of plants. Read *Animal Homes* by Diane James and Sara Lynn to the students. Discuss how animals use plants to make their homes.
2. Explain to the students that another way that plants help animals is by providing food. Many animals eat plants. Animals that only eat plants are called herbivores. Animals that eat plants and other animals are called omnivores, and animals that only eat other animals are called carnivores. However, even though some animals only eat other animals, all animals depend on plants.
3. Tape the *Food Chain Picture Cards* to the board vertically. Put the grass at the bottom, the cricket, the frog next, then the snake, and the hawk last (at the top). Explain that a cricket eats grass, so grass is the beginning of the food chain. The food chain is the path of food from one animal to another. Next, a frog eats the cricket. A snake eats the frog, and finally a hawk eats the snake. What would happen if all of the grass died? Would the hawk be able to stay alive even though he doesn't eat grass?

Sing the following song sung to the tune of "The Farmer in the Dell."

The Food in the Forest

The cricket eats some grass; the cricket eats some grass,
Hi ho the forest-o, the cricket eats some grass.

The frog eats the cricket; the frog eats the cricket,
Hi ho the forest-o, the frog eats the cricket.

The snake eats the frog; the snake eats the frog,
Hi ho the forest-o, the snake eats the frog.

The hawk eats the snake; the hawk eats the snake,
Hi ho the forest-o, the hawk eats the snake.

That's how the food chain works, that's how the food chain works,
Hi ho the forest-o, that's how the food chain works.

Materials

- ❑ *How and Why Seeds Travel*
- ❑ One fresh cut flower
- ❑ Three artificial flowers
- ❑ Cornmeal
- ❑ Container of water
- ❑ Plastic flying insect
- ❑ Piece of fake fur
- ❑ Different kinds of seeds (maple, cherry, apple, sandbur, corn, acorn)
- ❑ Tweezers

4. *Read the Dancing Deer and the Foolish Hunter* to the class. Relate the chain in the story to the food chain that the students just learned about. Discuss what is fantasy and what is real in the story.

How do animals help plants?

1. Explain to the students that animals help plants too. Read the book *How and Why Seeds Travel* by Elaine Pascoe.
2. Discuss the different ways that animals help seeds to travel. Hold up the seeds and ask how an animal would help them to travel. Place the seeds on the piece of fake fur and see if any stick. Ask if these seeds would be spread through droppings, or if they would be spread through fur?
3. Insects drink nectar from flowers. When an insect takes a drink of nectar, it picks up pollen from the flower and carries it from plant to plant helping to make new plants grow.

   Try this experiment:

1. Use a real flower and show the students what pollen looks like.

2. Sprinkle some cornmeal into the center of the artificial flowers.
3. Dip the plastic insect's legs and mouth parts into the water.
4. Show the insect travel from flower to flower picking up "pollen" on its body and spreading it to the other flowers. Explain that this will help new flowers to grow.

Assessment Suggestions

- Check student journals for understanding of the concepts taught.
- Ask students to name two ways that plants help animals, and two ways that animals help plants.
- Ask students to identify characteristics of animals in each of the six kingdoms.

Curriculum Extensions/Adaptations/ Integrations

Read *Frog in a Bog* by John Himmelman. Make a cause and effect chart using the events in the story.

Family Connections

- Have the students observe animal and plant life in their neighborhood.
- Encourage students to teach family members what they have learned.

Additional Resources

Books

Animal Homes, by Sally Hewitt; ISBN 1587288605

Animal Faces in the Forest, by Hannah Kate Sackett; ISBN 1-57768-428-1

Life in a Pond, by Allan Fowler; ISBN 0-516-06053-8

Peek at a Pond, by Neecy Twinem; ISBN 0-448-41953-X

What's in the Pond? by Anne Hunter; ISBN 0-395-91224-5

Pond Plants, by Ernestine Giesecke; ISBN 157572826-5

Who's Who in the Garden? by Vera Rosenberry; ISBN 0-8234-1529-5

Box Turtle at Long Pond, by William T. George; ISBN 0-688-08184-3

Around the Pond: Who's Been Here? by Lindsey George Barrett; ISBN 0-688-14376-8

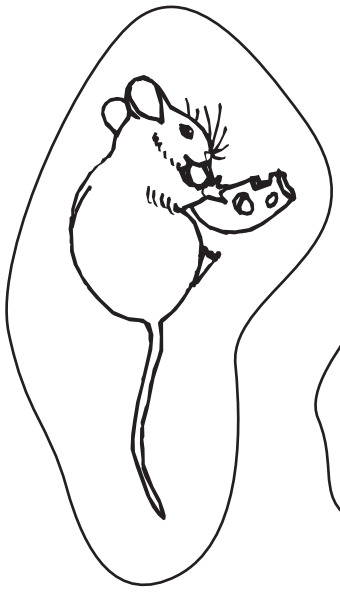
In the Snow: Who's Been Here? by Lindsay Barrett George; ISBN 0-688-12321-X

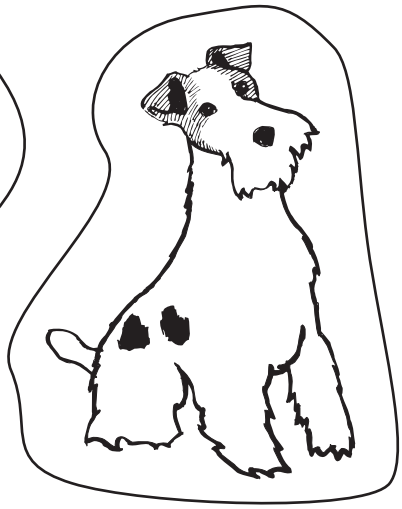
Forest Bright, Forest Night, by Jennifer Ward; ISBN 1-58469-066-6
Animal Homes, by Diane James and Sara Lynn; ISBN 0-590-20585-4
Finding a Friend in the Forest, by Dean Bennett; ISBN 0-89272-662-8
Frog in a Bog, by John Himmelman; ISBN 1-57091-518-0
Plants that Eat Animals, by Allan Fowler; ISBN 0-516-27309-4
Animal Babies Series:
Reptiles, by Rod Theodorou; ISBN 157572884-2
Mammals, by Rod Theodorou; ISBN 1575728834
Insects, by Rod Theodorou; ISBN 157572-880-X
Fish, by Rod Theodorou; ISBN 157572882-6
Birds, by Rod Theodorou; ISBN 1575728818
Amphibians, by Rod Theodorou; ISBN 1575729504
How and Why Seeds Travel, by Elaine Pascoe; ISBN 1574716581
A Walk in the Woods, by Caroline Arnold; ISBN 0382246500
The Dancing Deer and the Foolish Hunter, by Elisa Kleven; ISBN 0525468323

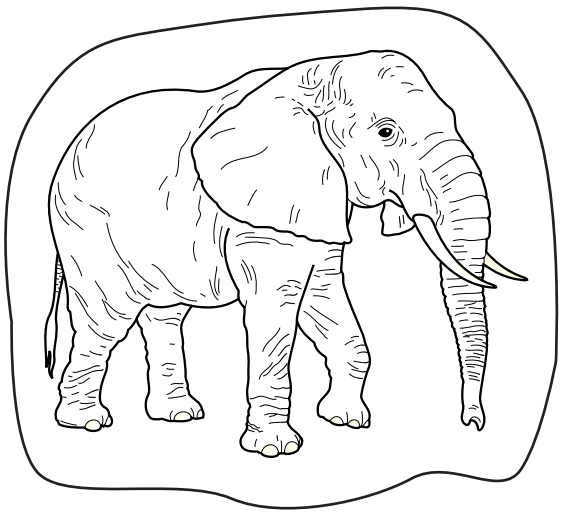
Flap Book Page

Animal Kingdom Labels

Insects	Fish
Birds	Reptiles
Mammals	Amphibians

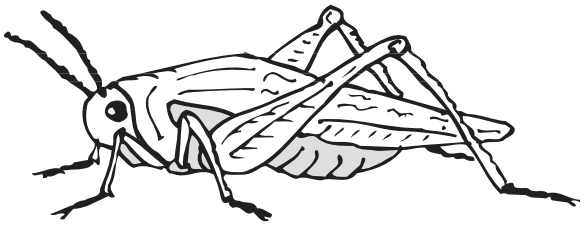
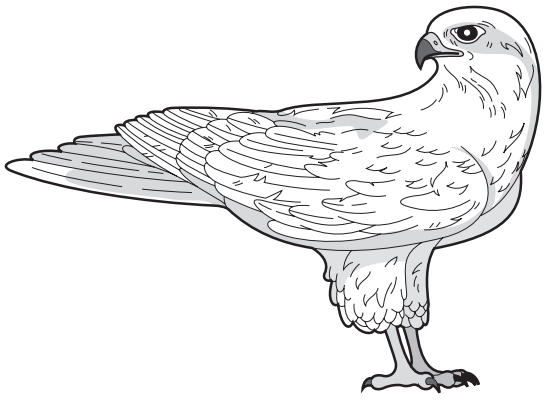






Animal Pictures

Food Chain Picture Cards

Grass 	**Cricket** 
Frog 	**Snake** 
Hawk 	

Plant and Animal Changes

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

Objective 1:
Investigate relationships between plants and animals and how living things change during their lives.

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

Content Connections:
Language Arts, I-2; Develop language

Content Standard III

Objective 1

Connections

Background Information

Many changes occur among plants and animals during the seasons. Some animals hibernate for the winter, some migrate, and some stay active.

Research Basis

Jiyoon, Y., & Onchwari, J. A. (2006) Teaching young children science: Three key points. *Early childhood education journal,* Volume 33.6, pp. 419-423.

Science education should be described as "doing" instead of just memorization of facts. For science to be successfully taught, knowledge of child development, individual differences, and sociocultural context, must be intertwined to develop a developmentally appropriate learning experience. Using the instructional model of the five "Es" (engaging, exploring, explaining, elaborating, and evaluating) will result higher level thinking skills and increased performance.

Invitation to Learn

Ask students what they do when it gets really cold outside. Tell students that animals and plants must prepare for winter also, but in different ways then we do.

Instructional Procedures

1. Read *What Do Animals Do In Winter?* by Melvin and Gilda Berger. Discuss that during the winter, some animals travel or migrate, some hibernate, some hide, some change color, and some make changes to their bodies like growing extra fur.

Materials

- ❑ *What Do Animals Do In Winter?*
- ❑ Glue
- ❑ Two soup cans
- ❑ A piece of cotton batting
- ❑ Two thermometers
- ❑ Classroom clock
- ❑ *How Does Fur Help Animals?*

2. Discuss migration. Some animals migrate to find food or water. Others migrate because they are looking for safe places to raise a family. Other animals migrate to escape the cold. List the animals that migrate (birds, monarch butterflies, reindeer, whales, etc.).
3. Discuss hibernation. Animals hibernate when food is hard to find. Some animals are deep sleepers, and some animals are light sleepers. Dormice, ground squirrels, and groundhogs are three deep sleepers. They don't wake up at all. In fact, they look dead when they are hibernating! Turtles and frogs bury themselves in mud to hibernate.
4. Some animals make adaptations to survive during the winter. They can't put coats on like we do. For example, a fox grows extra fur. The following experiment will show how fur helps animals to stay warm.

   How does fur help animals?

   a. Glue the cotton batting around one of the soup cans. The cotton batting will represent fur. Wait for the glue to dry.
   b. Fill both cans with hot water. The can with cotton batting represents fur.
   c. Place a thermometer in both cans and record the temperature of the water on the *How Does Fur Help Animals?* recording sheet. Record the temperature in the cans every 10 minutes for 30 minutes. What did you discover?

Apple Tree Community

Materials

- ❑ *AppleTree Community Book*
- ❑ *Apple tree animals*
- ❑ Crayons
- ❑ Scissors
- ❑ Glue
- ❑ Stapler
- ❑ Construction paper

1. Prior to the lesson, copy an *Apple Tree Community* book for each child on heavy paper or cardstock. Fold and staple the books.
2. Explain to the students that plants change with the seasons as well as animals.
3. Read the black line of the *Apple Tree Community* to the students. Discuss ways that the apple tree helps the animals, and the animals help the apple tree. Tell the students that they will get to make their own book.
4. Pass out the *Apple Tree Community* book to each student. Read and discuss page one and two together as a class.
5. On page three of the book, have the students color the bare tree trunk. Then have them decorate the tree with small, ripped pieces of pink paper or tissue paper. Next, have them color, cut out, and glue the *apple tree animals* for page three onto the tree. You will need to leave the book open until these pages dry.

7. Read page four together as class. Then on page five, have the students color the trunk, and decorate the tree with ripped pieces of green paper or green tissue paper. Finally, have the students color, cut out, and glue the *apple tree animals* for page 5 on the appropriate parts of the tree indicated by the words of the story. Page four and five will need to be left open until the glue dries.

10. Read page six together as a class. Then have the students color the trunk and decorate the tree with ripped pieces of green and yellow paper for the leaves. The apples are ripe at this time. Have the students use red pompoms or red circles to show the ripe apples. Then have the students color, cut out, and glue the apple tree animals on the appropriate places of the tree. Again, wait for these pages to dry before moving on.

11. Read page eight together as a class. On page nine, have the students color the trunk, and glue a few ripped pieces of yellow and orange paper on the tree to represent the leaves. Also tell them that they will want to put a lot of leaves on the ground. Have the students put a few apples on the tree and also some on the ground. Cut out the squirrels on the apple tree animals page for page nine. Have them glue the squirrels onto the page. Wait for the glue to dry, and then have the students read and share their books.

Assessment Suggestions:

- Ask the students what animals do when winter comes.
- Have the students name three animals that depend on the apple tree for survival, and name how the animals depend on the apple tree.

Curriculum Extensions/Adaptations/ Integration

- Continue to discuss animal adaptations.
- Have the students write animal reports.

Additonal Resources

Books

Winter Lullaby, by Barbara Seuling; ISBN 0-15-201403-9

Animal Migration, by Janet McDonnell; ISBN 1-56766-402-4

How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

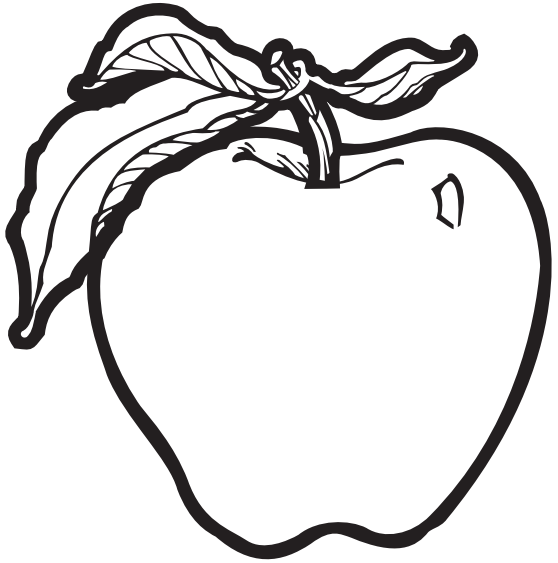
How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

The Apple Tree Community



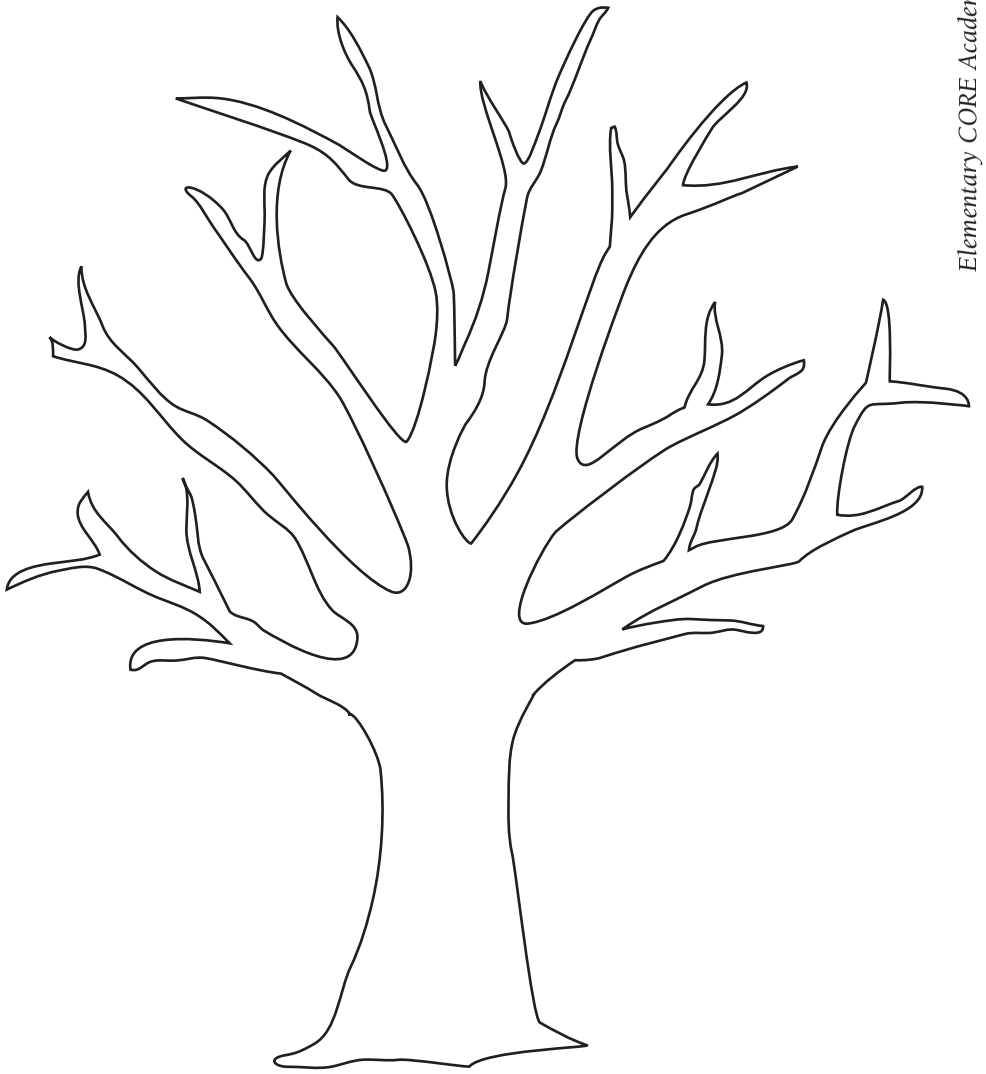
Name _____

In late fall, almost all of the apples are gone. Squirrels collect apples from the ground to hide and eat during the winter. All of the animals that eat the apples will help to scatter the seeds through their droppings. This helps other apple trees to grow. New apple trees will provide food and homes for more animals.

Have you ever thought of an apple tree as a community? Well, it is!

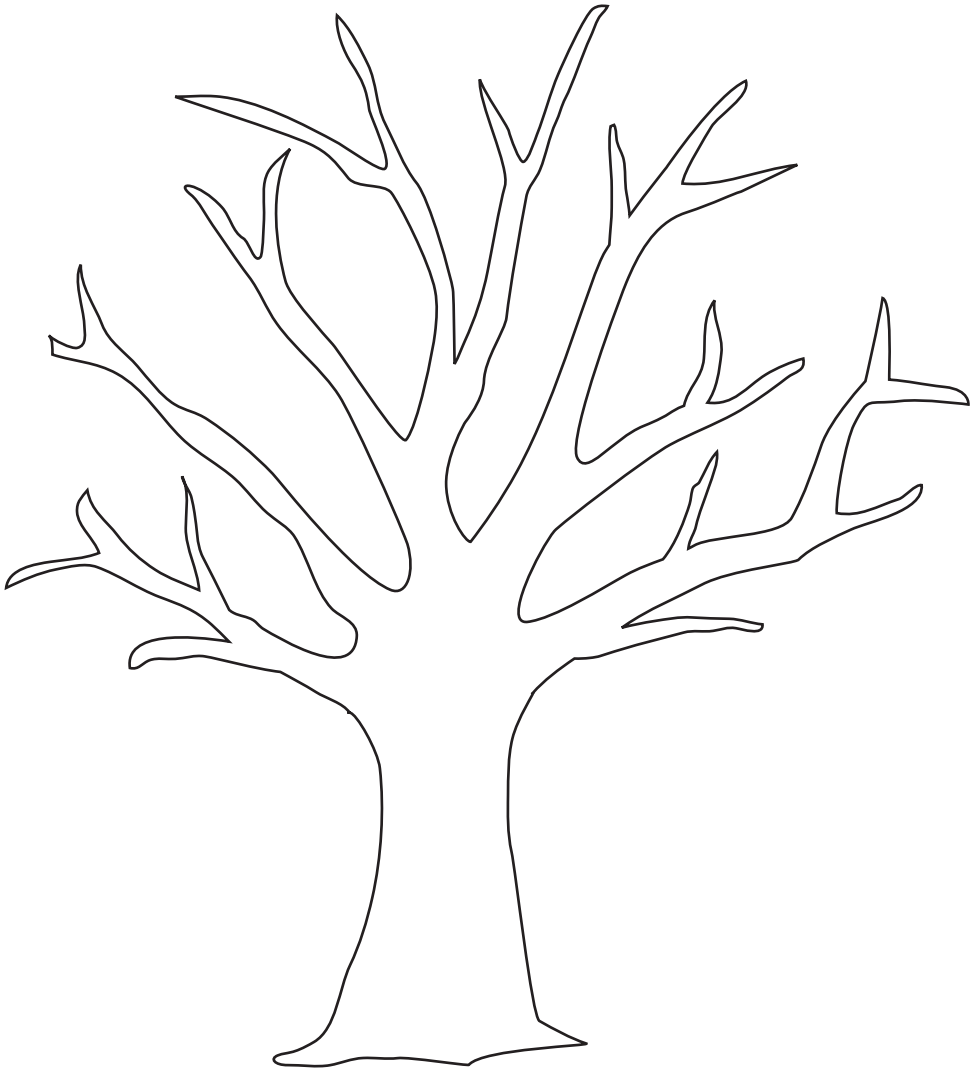
Insects, birds, and other animals make their homes and find food in the apple tree. The apple tree helps the animals and the animals help the tree. They help each other.

In the spring the apple tree is covered with blossoms. Insects drinknectar from the blossoms. As the insects drink nectar, pollen sticks to their bodies and is spread from blossom to blossom. This helps the tree to make apples.



In early fall, the apples are ripe. Birds, insects, deer, squirrels and other animals come to eat the apples.

The animals are getting ready for winter by eating lots. There won't be much food when the weather turns cold.



In the summer the apple tree's leaves are green and apples are startomg to grow. Many animals make their homes in or around the tree.

A **mouse** makes a nest by the tree's roots.

Hornets build a nest in the branches.

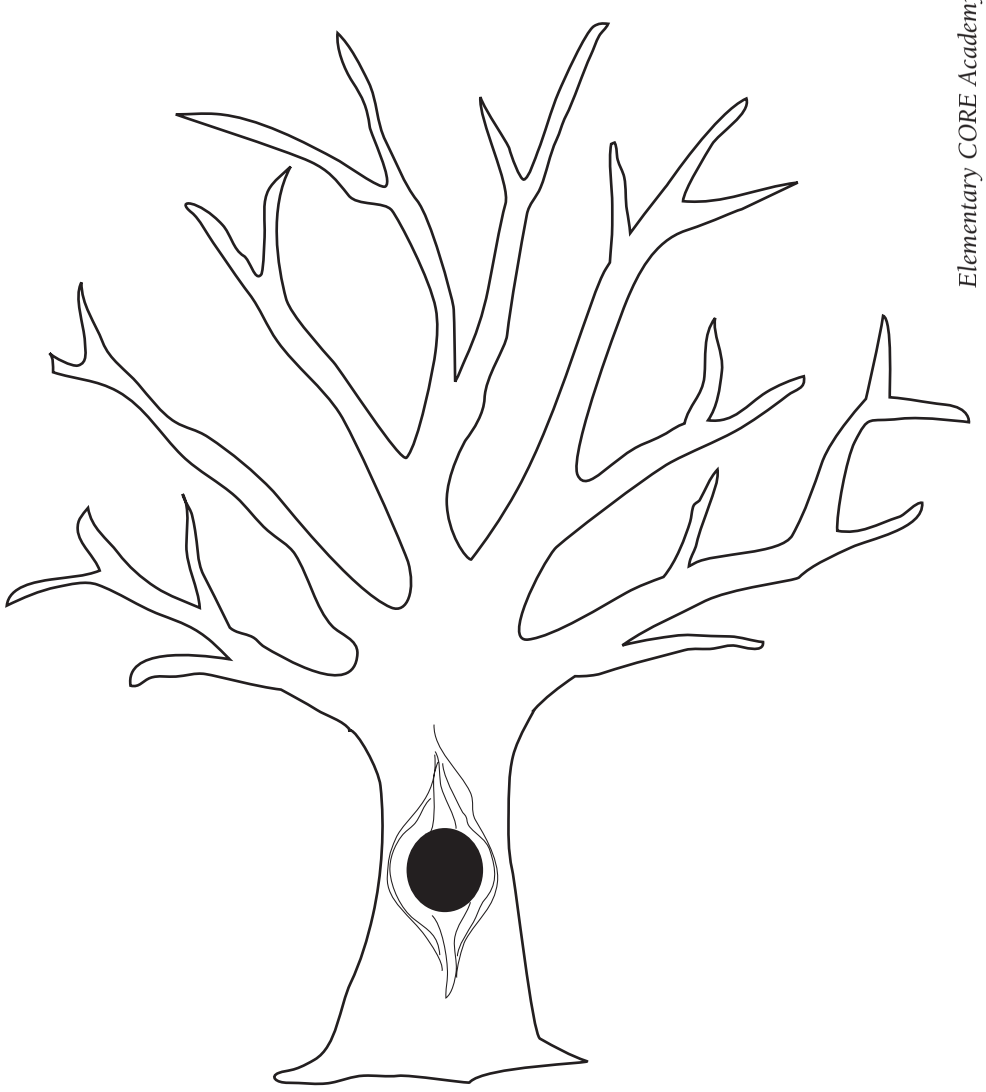
Birds make nests ourt of sticks in the branches and come to eat insects in the tree.

A **woodpecker** makes a hole in the trunk to live in.

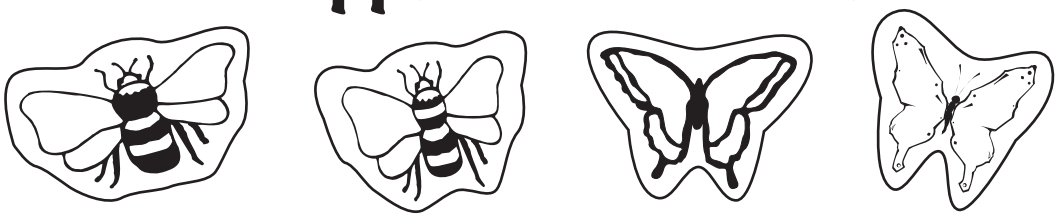
A **moth** lays her eggs on a leaf.

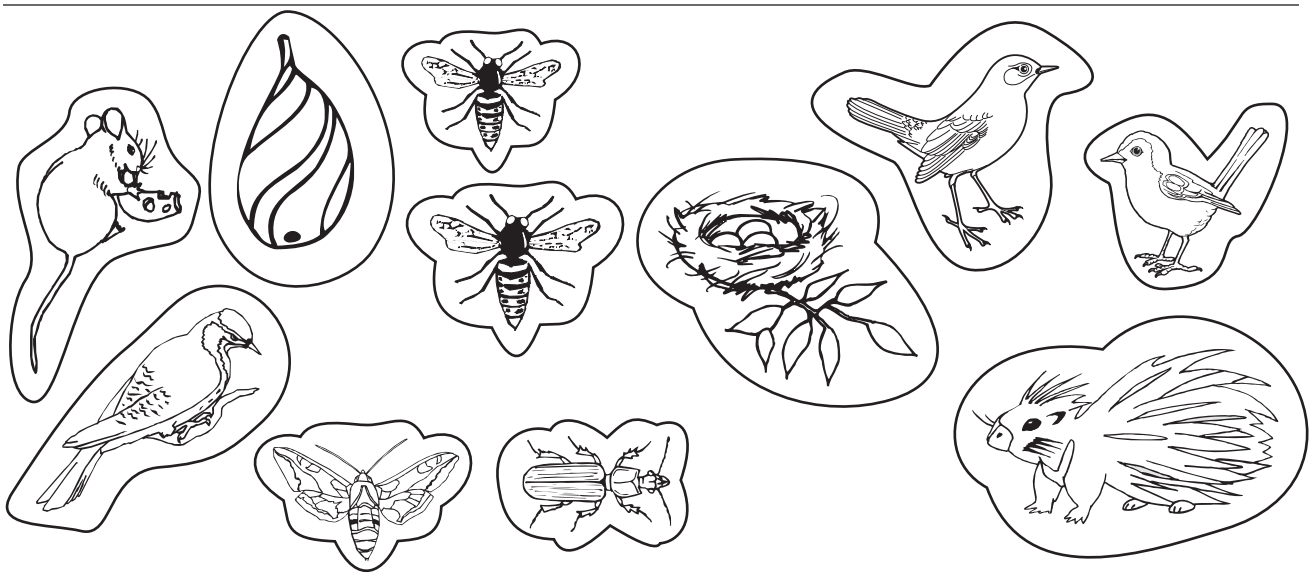
Beetles lay eggs on the bark.

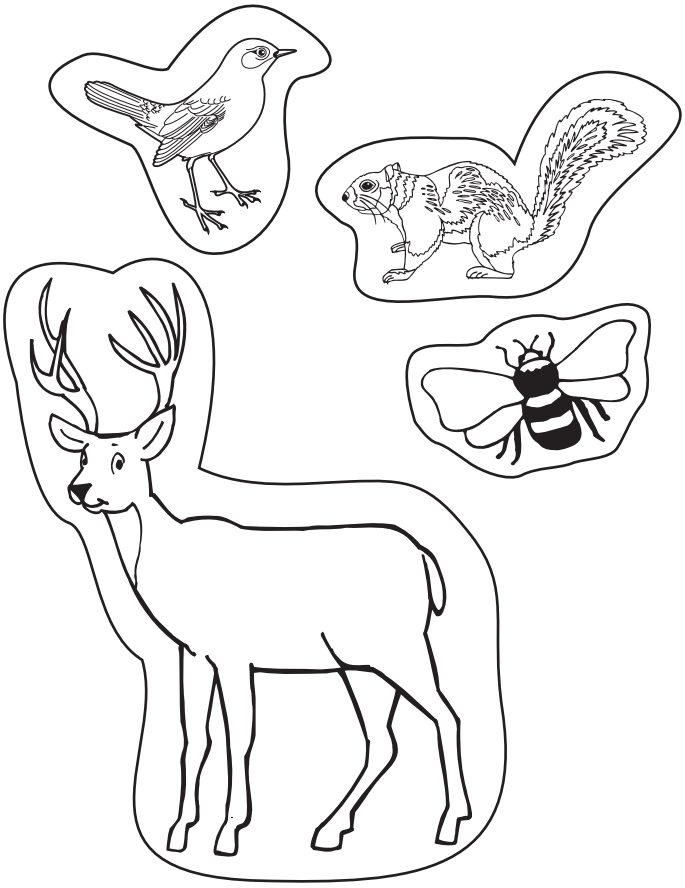
A **porcupine** eats the bark.

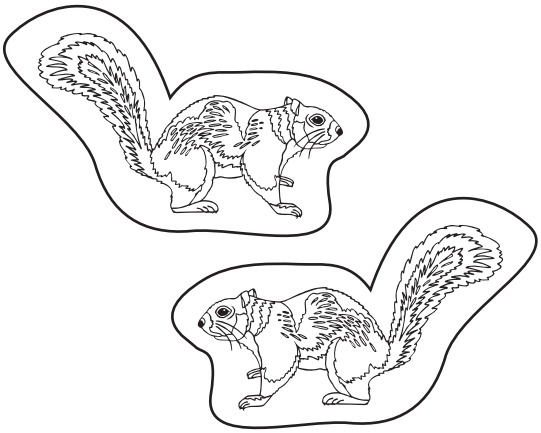


Apple Tree Animals









Content I-1
Activities

Diet & Safety

Food Foldable

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

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

Content Connections:
Language Arts VI-1; Learn new words

Content Standard I

Objective 1

Connections

Background Information

According to the new food guide pyramid, the five food groups are: grains, vegetables, fruits, meat & beans, and milk. Oils are not a food group, but people need some oils for good health. When students eat a balanced diet they will eat from all of the food groups every day. Students should eat more from some groups than others. Within each food group there are foods that should be eaten more often than others.

A person's diet is what they usually eat. Some children may think that a diet is only something you "go on" to loose weight. A calorie is a unit used to measure the amount of energy in food. A calorie is also called a kilocalorie. We use the energy in calories during our daily activities and when we exercise. Food provides our bodies with nutrients.

Students should have a basic understanding of the new food guide pyramid and how it can help us make healthy choices.

Research Basis

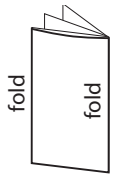
Barton, M.L., & Jordan, D.J. (2001). *Teaching reading in science: Asupplement to teaching reading in the content areas teacher's manual* (2nd Edition). Retrieved November 27, 2006, from http://www.eric.ed.gov.

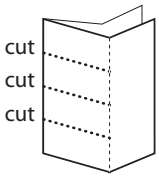
The Frayer model is a strategy used to teach vocabulary. There are two versions used to teach the Frayer model. In one model the students learn examples and non-examples, definitions, and characteristics. In the second model students also learn examples and non-examples, to this they add essential characteristics and nonessential characteristics.

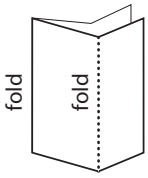
Monroe, E.E., & Pendergrass, M.R. (1997). Effects of mathematical vocabulary instruction on fourth grade students. *Reading Improvement,* 34(3), 2-24.

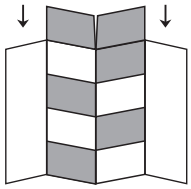
Materials

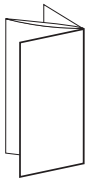
- ❑ *Food Foldable Inserts*
- ❑ *Food Foldable*
- ❑ Food Model Cards
- ❑ Styrofoam plates (preferably with five serving areas)
- ❑ *Guess Your Food Group*
- ❑ *Nutrition Song*











This study compares the use of integrated graphic organizers that utilize the Frayer model and a definition only model. The results show a greater number of mathematical concepts recorded by the group using the integrated graphic organizers. The Frayer model is an effective method for teaching.

Invitation to Learn

Read the poem *Balanced Diet* found in the book *Miles of Smiles.*

Instructional Procedures

1. Cut out the *Food Foldable Inserts.*
2. Fold the *Food Foldable* in half and cut on the dotted lines.
3. Unfold the *Food Foldable* and weave the inserts through the openings. Make sure you can see the words Healthy Vocabulary on one side.
4. Teach the children the words on the Healthy Vocabulary side of the *Food Foldable*.
5. Have students complete the inside of each word's section. There are directions inside the *Food Foldable* for each word.
6. Turn to the Food Group's side of the *Food Foldable*. Give each student two food model cards.
7. Read the words next to the grains section on the top row of the *Food Foldable.*
8. Ask students to look at their food model cards and hold up any food model cards that belong in the grain group.
9. Attach the cards where everyone can see them.
10. Repeat this process for the other food groups. Students will have some cards left that do not belong in any of the food groups. Explain to students that we should only eat these foods once in a while. These foods are not in a food group.
11. Have students complete the inside of each food group section by drawing at least one example and one non-example.
12. Use the *Food Foldable* as a study guide.

Assessment Suggestions

- Put the food model cards on a table. Give each child a paper plate (styrofoam plates with five serving areas work best). Have

each student walk along the table as if in a cafeteria and select food items to create a balanced meal.

- Guess Your Food Group
  1. Divide the students into groups of five.
  2. Give each child in the group one *Guess Your Food Group* card.
  3. Signal the students to place their *Guess Your Food Group* cards on their foreheads and stand up.
  4. Students should look at the cards on their team-members' heads without talking. The students should use deductive logic to guess their food group.
  5. Once the students know their food group, they may sit down while the other students guess.
  6. Each team member must state their guess before anyone looks at their cards.

Curriculum Extensions/Adaptations/ Integration

- Sing the "Nutrition Song".
- Investigate foods from other cultures.
- Discuss ways to handle and store food safely.
- Research the agricultural production of foods and the process involved in growing, processing, and transporting the food. Help children understand that food does not come from the grocery store.

Family Connections

- Ask families to keep a dinner diary and list what they eat. Ask students to work together with their families to improve their diet.
- Use the food guide pyramid to help create a healthy grocery list.

Additional Resources

Books

Good Enough to Eat: A Kid's Guide to Food & Nutrition, by Lizzy Rockwell; ISBN 0060274352

Food Safety, by Sharon Gordon; ISBN 0516259881

Miles of Smiles, p. 52, by Bruce Lansky; ISBN 0439082110

Web sites

http://mypyramid.gov/

http://www.agclassroom.org/ut (Food Model Cards can be purchased at this site.)

http://www.hearthighway.org

http://www.nutritionexplorations.org/

Food Foldable Inserts

cut

HEALTHY

Non-Examples:

calories

Non-Examples:

oils

cut

Examples:

The usual foods and drinks a person or animal eats

Examples:

Parts of food that your body uses to do its work

Examples:

cut

cut

GRAINS

Roots, leaves, stems, flowers, or pods that are used as food

cut

FRUITS

draw yourself doing two activities that burn calories.

cut

Mineral Vitamins Proteins

Answer _____ nutrients

Food made from milk, sometimes called dairy foods

cut

MEAT AND BEANS

Draw four foods that have alot of oil.

Food Foldable

cut

VOCABULARY

cut

diet

cut

Draw four foods that are in your diet.

cut

fold

energy found in food

cut

Count the types of nutrients:

Carbohydrates Fat Water

cut

How many types of nutrients are there?

cut

nutrients

cut

fat found in some foods

Name _____

Food Groups

Foods made from the seeds of wheat, corn, rice, or other cereal plants

cut

Examples:

cut

Part of a flowering plant that contains seeds

cut

Examples:

cut

Part of an animal that can be eaten as food or beans from a plant

fold

Non-Examples:

cut

VEGETABLES

cut

Non-Examples:

cut

MILK

cut

Non-Examples:

Food Foldable

Guess Your Food Group

Guess Your Food Group	
Guess Your Food Group	Guess Your Food Group
Guess Your Food Group	Guess Your Food Group

Guess Your Food Group

	Grains
Vegetables	Fruits
Meat and Beans	Milk

Nutrition Song

By: Holly Fjeldsted

I don't know but I've been told
Treat your body just like gold.
Nutrients are what we need
To keep our bodies up to speed.

The food guide pyramid is the key
To stay as healthy as can be.
Grains, Fruits, Veggies, Milk and Meat
Help to make a body complete.

Exercise twenty minutes each day
Healthy your heart will ever stay.
Drinking and smoking isn't that smart
You've got to say "No!" and do your part.

Sound off!
One, Two!
A little more!
Three, Four!

Keep your body healthy forever more!

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Burning Calories

Content Standard I

Objective 1

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

Intended Learning Outcomes:
4. Develop physical skills and personal hygiene.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Math III-2, Use Measurements

Connections

Background Information

In addition to making healthy food choices, the new food guide pyramid reminds us to be physically active every day. Students will need background knowledge regarding how to make a prediction in order to complete this activity. They should also know what a calorie is. Make sure that students understand that when we talk about burning calories we are not talking about fire, we are talking about our bodies using the calories as a form of energy.

Students will need to walk during this activity. Students with physical limitations or food allergies may need accommodations to complete this activity. The lesson requires students to walk three different distances. They will need a hallway or outside area with space to walk. The distance walked does not need to be a straight line.

Research Basis

Bell, R., (1990). Whole-Class Inquiry: Science. *Learning and Leading with Technology,* 32(8), 45-47.

This article discusses three comparable lessons: (1) a traditional textbook-based lesson; (2) an example of the same lesson taught in a computer laboratory setting using a hands-on approach; and (3) scaffolding provided to facilitate inquiry in a whole-class setting.

Jarrett, D., (1997). Inquiry Strategies for Science and Mathematics Learning: It's Just Good Teaching. Northwest Regional Education Laboratory. Retrieved November 30, 2006, from http://www.eric.ed.gov.

Inquiry-based learning satisfies the natural curiosity children possess. Students who are learning through inquiry are actively involved in the learning process. Teachers may begin to create an environment that supports inquiry by using appropriate questioning,

having children collect data, and engaging children in activities that lead to discovery.

Invitation to Learn

Ask the children how many steps they think a second grader would have to walk to burn the calories contained in one regular-sized package of M&M candies. Hold up the package of M&M candies. Tell students to write their answers on their Post-it® notes and attach it to the *Crystal Ball* poster.

Instructional Procedures

Materials

- ❑ *Crystal Ball* (poster size)
- ❑ M&M candies
- ❑ Post-it® Notes
- ❑ *Predictions*
- ❑ Pedometers
- ❑ Slice of a raw baby carrot
- ❑ Froot Loops
- ❑ Journals

1. Hand out *Predictions*.
2. Give each student one carrot slice and instruct them to eat the carrot slice.
3. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #1*.
4. Tell the students that in order to burn the calories in the carrot slice we will have to walk.
5. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 57 steps. Tell the students that we have just burned the half of a calorie that was in the carrot slice.
6. When you get back to class have the children write in the correct answer.
7. Give each student one Froot Loop and instruct them to eat the Froot Loop.
8. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #2*.
9. Tell the students that in order to burn the calories in the Froot Loop we will have to walk.
10. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 114 steps. Tell the students that we have just burned the single calorie that was in the Froot Loop.
11. When you get back to class have the children write in the correct answer.

12. Give each student one M&M candy and instruct them to eat the M&M candy.
13. Now have the students predict how many steps they will have to walk to burn the calories they just ate. Have the children write their prediction in *Crystal Ball #3*.
14. Tell the students that in order to burn calories in the M&M candy we will have to walk.
15. Take the children to a hallway or an open area and walk. Have the children help you count the steps using a pedometer. Stop when you get to 342 steps. Tell the students that we have just burned the three calories that were in the M&M candy.
16. When you get back to class have the children write in the correct answer.
17. Ask probing questions regarding the conclusions children can make from this activity.
18. Help the children conclude that:

    Foods have different levels of calories.

    We need to be careful about the foods we consume.

    The more high-calorie foods we eat, the more calories we need to burn to stay healthy.
19. Have the children write at least one conclusion in a journal that they made in the process of this activity.
20. Finally, to burn the calories in a whole package of M&M candies a second grader would have to walk 26,904 steps.

Assessment Suggestions

- Show students two portion cards (one should be a high-calorie food and one should be a low-calorie food). Ask students to identify the food with the greatest or least amount of calories.
- Complete *Calories Count*.

Curriculum Extensions/Adaptations/Integration

- Explain to students that within each food group the number of calories per serving fluctuates. Eating one cup of apples has far fewer calories than eating one cup of strawberries.
- Advanced learners may compare calories of the fast food items they eat at the Kid's Nutrition web site.

- Students may look at a variety of menus from restaurants and make comparisons. They could also practice selecting healthy foods from restaurant menus.
- Place different foods on a piece of construction paper. Make sure to include some high fat foods such as potato chips. Observe the transfer of fat to the paper.

Family Connections

- With the help of an adult, students can find out what their favorite foods are composed of using the USDA website.
- Students could organize physical activities for their family members to do together.

Additional Resources

Books

The Lunch Line, by Karen Berman Nagel; ISBN 0590602462

WHY? by Lila Prap; ISBN 1929132808

Articles

Kids Discover, Kids Discover; ISSN 1054-2868

Web sites

http://www.kidsnutrition.org/consumer/nyc/vol1_03/energy_calculator.htm

http://www.nal.usda.gov/fnic/foodcomp/search/

http://www.pecentral.org

http://news.ucanr.org/mediakits/Nutrition/nutritionfactsheet.shtml

Crystal Ball

Name _____

Predictions

1. Answer:

_____ steps

2. Answer:

_____ steps

3. Answer:

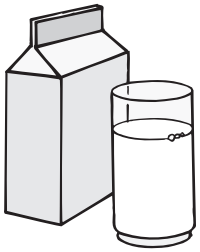
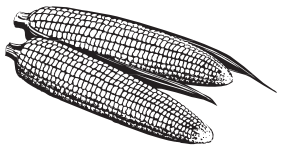
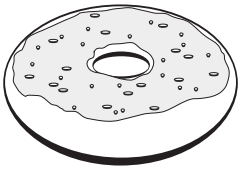
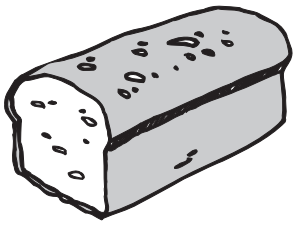
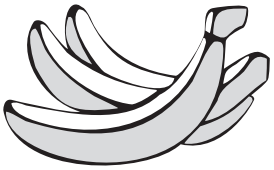
_____ steps

Name _____

Calories Count

Cut out the 8 foods at the bottom of the page. Glue the kinds of foods we can eat every day in the low calorie box. Glue the kinds of foods we should only eat once in a while in the high calorie box.

Low Calorie Foods		High Calorie Foods	

Safety Safari

Standard I:
Students will develop a sense of self.

Objective 1:
Describe and adopt behaviors for health and safety.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude
5. Develop social skills and ethical responsibility.

Content Connections:
Language Arts VII-2; Comprehend text

Content Standard I

Objective 1

Connections

Background Information

According to the Safe Kids Worldwide Organization the leading causes of accidental injury-related deaths (for children ages 0-14) are: motor vehicle occupant 29%, airway obstruction 17%, drowning 16%, pedestrian 11%, fire and burns 10%, other causes 10%, bicycle 2%, poisoning 2%, falls 2%, and firearm 1%.

Students with limited reading skills should be paired with a partner who will be willing to help with the reading. Students will need to understand the meaning of the words: correct and incorrect. Students should recognize that they are using their background knowledge to answer the questions on the *Anticipation Guide*. They should answer to the best of their ability and are not expected to know all of the answers at the beginning of the lesson.

Students who may be tempted to change their first answer if it was incorrect could be asked to color over their answer with a yellow crayon to prevent erasing the first answer.

Research Basis

Duffelmeyer, F.A. & Baum, D.D. (1992). The Extended Anticipation Guide Revisited, *Journal of Reading,* 35(8), 654-56.

This article discusses flaws found in teacher generated anticipation guides. Suggestions for effective anticipation guide creation are offered. The revisited anticipation guides require students to write or tell why their answer was correct or incorrect.

Polette, K. (2005). *Read & Write It Out Loud!* Boston: Pearson Education.

This book focuses on effective ways to teach students to become oral readers. One of the main literacy practices discussed and demonstrated in the book is the use of anticipation guides. Using

anticipation guides helps teachers understand the background knowledge each child possesses regarding the topic. It also helps the students know what information they should be searching for.

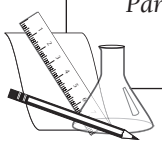
Invitation to Learn

Listen to the song "Buckle Up!" From the *Take a Stand* CD.

Instructional Procedures

Materials

- ❑ *Take A Stand*
- ❑ *Anticipation Guide*
- ❑ Clipboard
- ❑ Empty toilet paper rolls
- ❑ 36 inch piece of yarn
- ❑ Tape
- ❑ *Safety Safari Signs*
- ❑ *Dinosaurs, Beware! A Safety Guide*
- ❑ *Water Safety Anticipation Guide for Parents*



1. Set up the Safety Safari by randomly placing the *Safety Safari Signs* around the classroom. The signs should be placed at a level where the children can read them. The *Safety Safari Signs* each show one safari animal and give safety information.
2. Have students complete the *Anticipation Guide* by circling yes or no for each question. Tell the students to look for the *. We are only answering yes or no at this point. We will write in the other boxes later.
3. Make binoculars by taping the two empty rolls of toilet paper together and attach a string to either side.
4. Tell students to put the binoculars around their necks so they will be ready to go on a Safety Safari.
5. Assign students a partner. Give each student a clipboard.
6. Students should use their binoculars to find all 12 animals in the classroom.
7. After finding each animal they should read what the animal tells them about safety.
8. Then they should circle the corresponding answer on their *Anticipation Guide*. To find the correct section on the *Anticipation Guide* they should look for the animal graphic on the sign and then find the same animal graphic on the *Anticipation Guide*.
9. Next students should write a sentence that tells why their answer was correct or incorrect.
10. If students find all of the animals they will know the answers to all of the questions.
11. Read the book *Dinosaurs, Beware! A Safety Guide* to the class.
12. Help the children make connections from the *Dinosaurs, Beware! A Safety Guide* text to the Safety Safari Activity.

Assessment Suggestions

- Go on a Safety Safari in your school. Have the children take binoculars and search for safety items in the classroom, hallway, playground, bus loading area, parking lot etc. Students may find exit signs, fire extinguishers, fire alarms, door locks, street signs, markings on sidewalks, etc.
- Students may draw pictures that show safari animals doing one thing that is not safe. Then students should write what is not safe about their picture on the back of the page. The pages could then be made into a classroom book called *Spying Safari Safety*. The students can use the book to identify where safety is needed.

Curriculum Extensions/Adaptations/ Integration

- Students with limited reading abilities should be partnered with another child who can be of assistance.
- Focus on rules for playground safety. Discuss how we do not tie anything around our necks, we look before we jump, we don't climb up slides, we stay away from people who are swinging, etc.

Family Connections

- Students may take their binoculars home and conduct a Safety Safari in their home or neighborhood. They can look in their homes for smoke detectors, first aid kits, window and door locks, safe places to keep poisons (including medicines), etc. They can look in their neighborhoods for crosswalks, road signs, McGruff Houses, hazardous areas, etc.
- Families may create a fire safety plan. If they already have a plan they can practice their plan on a regular basis. Students could also locate and change batteries in smoke detectors throughout their home.
- Students may administer the *Water Safety Anticipation Guide for Parents* and discuss safety measures their families can use to prevent drowning.

Additional Resources

Books

Dinosaurs, Beware! A Safety Guide, by Marc Brown and Stephen Krensky; ISBN 0316112194

Franklin's Bicycle Helmet, by Paulette Bourgeois; ISBN 0439121884

Officer Buckle and Gloria, by Peggy Rathmann; ISBN 0590976439

Media

Take a Stand, by Steve James ***Buckle Up!*** (Prevention Dimensions, something good, Inc.)

Web sites

http://www.mcgruff-safe-kids.com/

http://www.unicef-icdc.org/publications/pdf/repcard2e.pdf

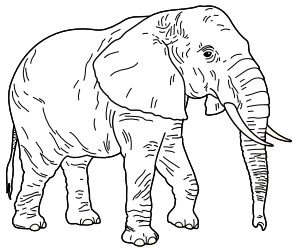
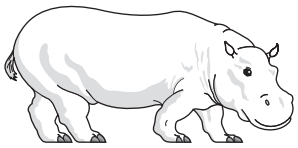
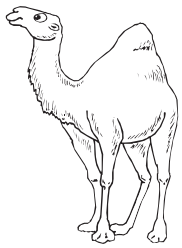
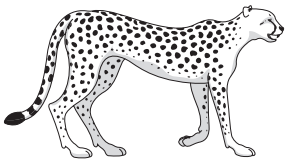
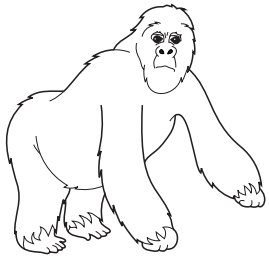
http://www.usa.safekids.org/tier3_cd_2c.cfm?content_item_id=19010&folder_id=540

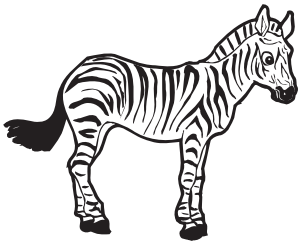
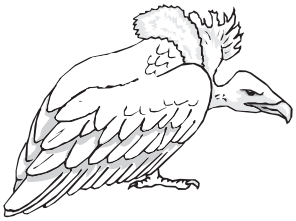
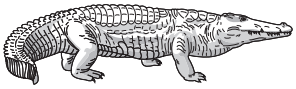
Organizations

Utah Department of Health (VIPP), PO Box 142106 Salt Lake City, UT 84114-2106, phone 801-538-6864, http://health.utah.gov/vipp

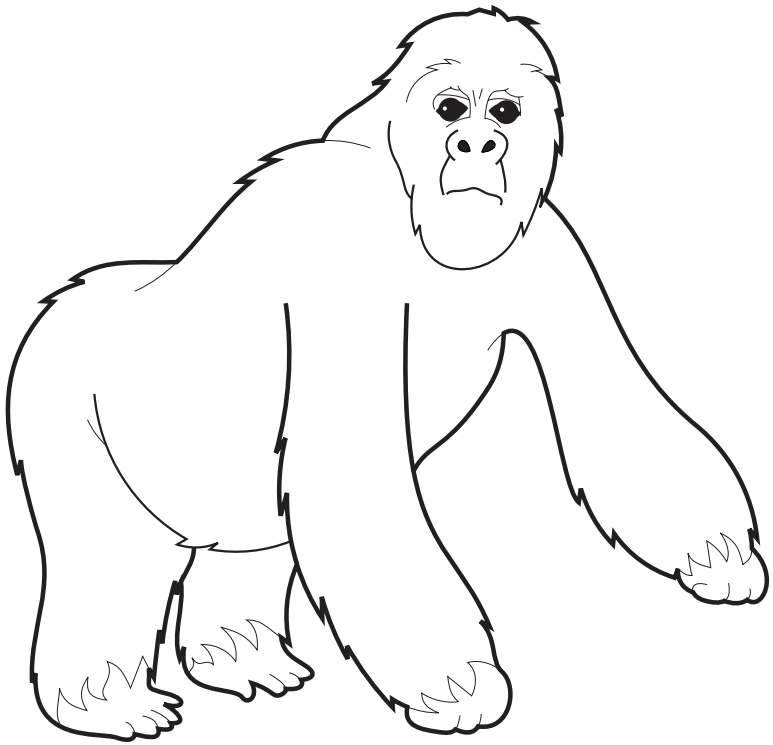
Name _____

Anticipation Guide

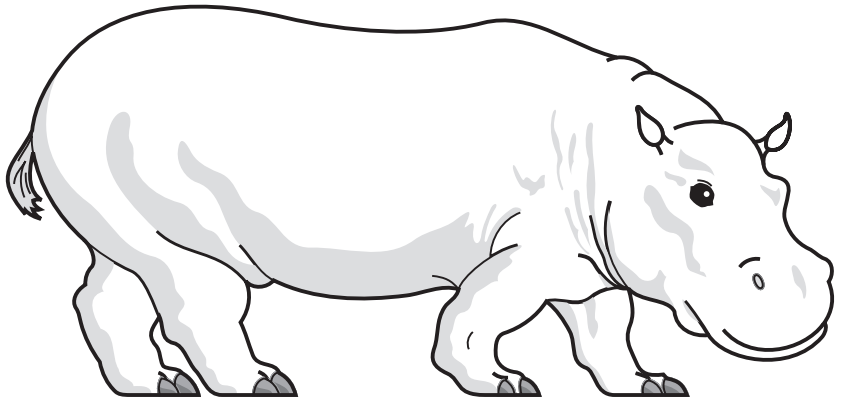
	Is this true? Yes No	It is safe to take off your life jacket if the boat you are in is not moving.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	It is safe to swim alone if the water is not very deep.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should always wear a seat belt even if you are just driving down one street.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	A second grader should not sit in the front seat of a car.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Some poisons look like drinks or candy.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should not wear a bicycle helmet if you are in your own driveway.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

	Is this true? Yes No	You should never tie any ropes or strings around your neck.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If a stranger tells you to get in a car you should listen to the stranger.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Children should call 911 if their pet is lost.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If you find matches you should always give them to a grown-up.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You can cross the street anywhere you want if you run quickly.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If your ball goes in the street you should chase the ball.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

Safety Safari Signs

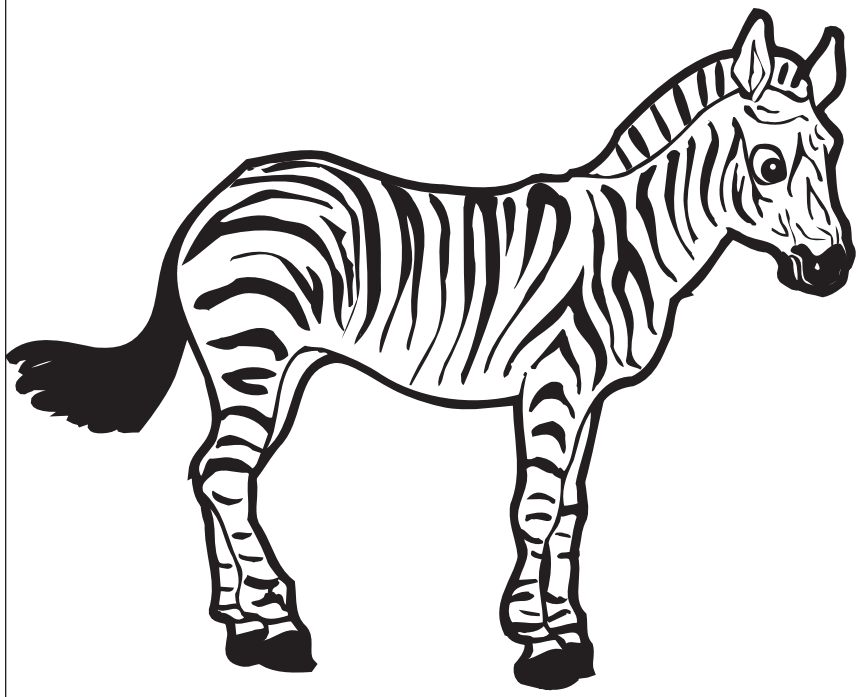


Gorilla says you should always wear a bicycle helmet if you are on a bike. You should wear a helmet in your driveway.



Hippopotamus says you should never swim alone. You should not swim alone even if the water is not deep.

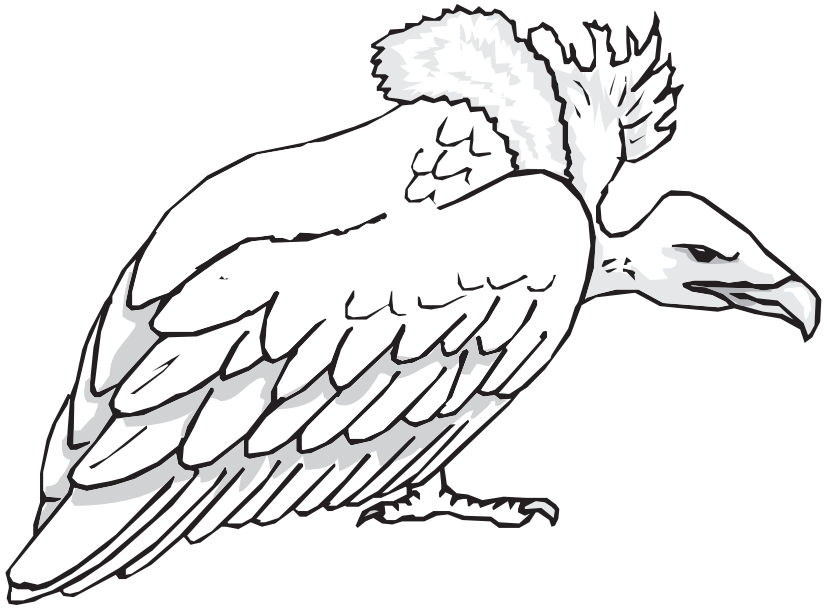
Safety Safari Signs



Zebra says that you should never tie any ropes or strings around your neck. Also you should not tie jump ropes around your neck.

Ostrich says never talk to strangers and never get in a car with a person you don't know. If a stranger tells you to get in their car, run away and tell an adult.

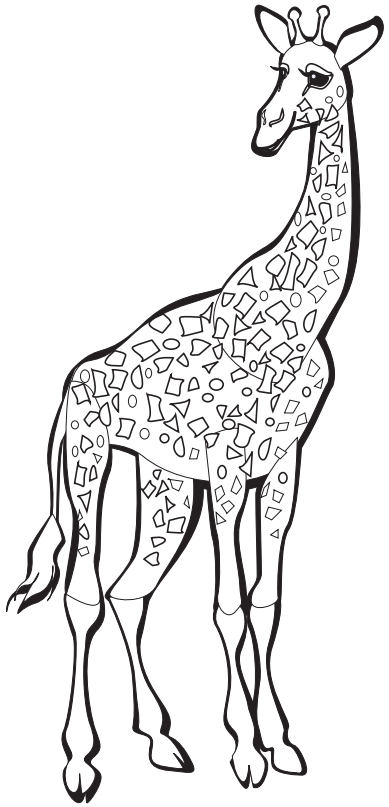
Safety Safari Signs



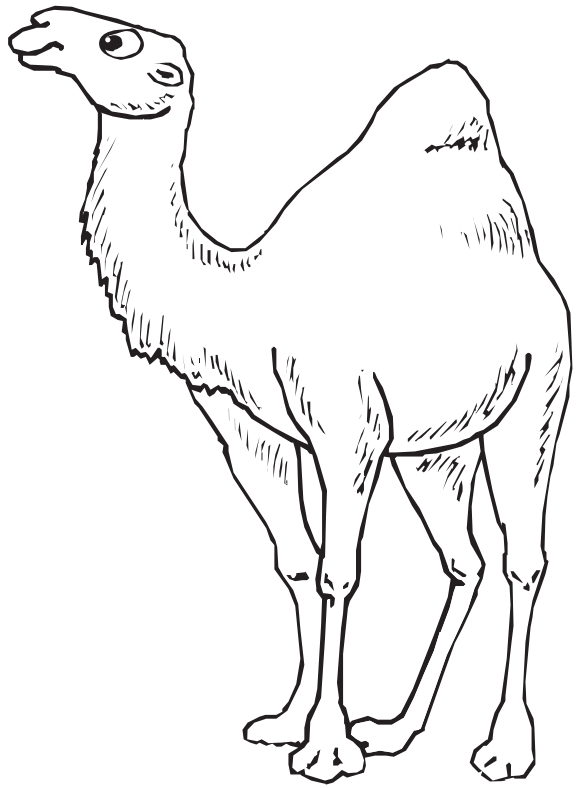
Vulture says you should call 911 if there is an emergency. If you lose your pet you should not call 911. You should tell your family.

Lion says you should never play with or try to start matches on fire. If you find matches you should give them to a grown-up.

Safety Safari Signs

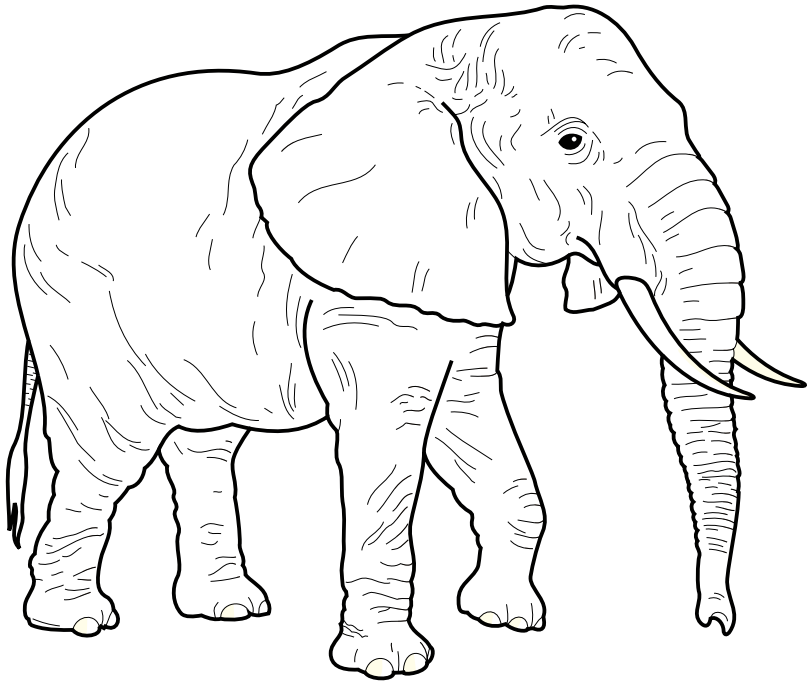


Giraffe says that the safest place for second graders to sit is in the back seat of a car. Second graders should not sit in the front seat.

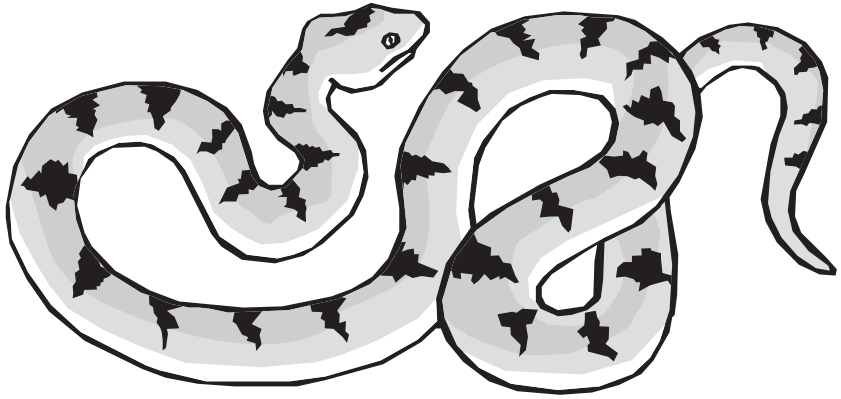


Camel says you should wear a seat belt anytime the car is moving. You should wear a seatbelt driving down your street. You should even wear a seatbelt in your driveway.

Safety Safari Signs

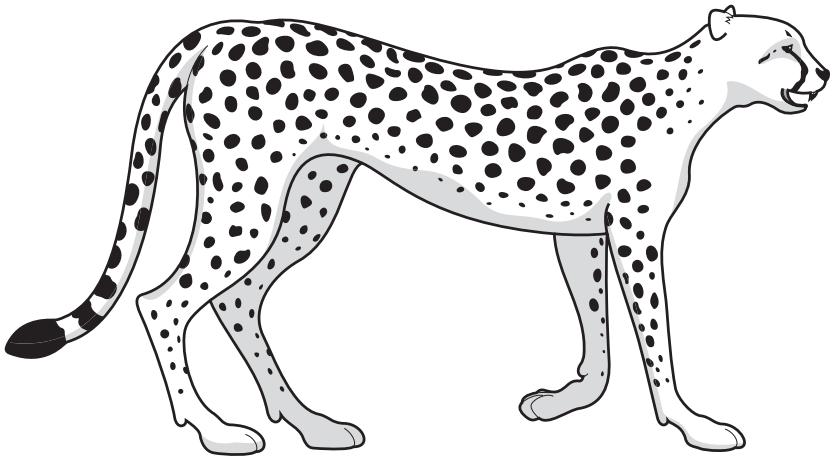


Elephant says you should always wear a life jacket when you are near or on the water. You should wear a life jacket even if the boat is not moving.

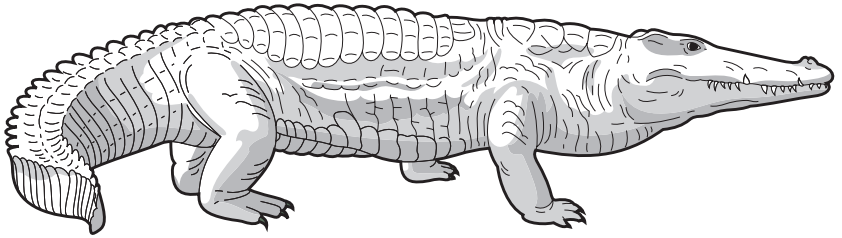


Python says if your ball goes in the street you should ask an adult to get it for you. You can also look both ways and if there are no cars coming, you can get your ball. Never crawl under a car or bus to get something.

Safety Safari Signs



Cheetah says some poisons look like candy. Some poisons look like drinks. If you find something that looks like candy or a drink you should always ask an adult before you put it in your mouth. It may be poison.



Crocodile says you should never walk into the street unless you stop and look both ways and check for cars. It is best to cross the road when you are at a crosswalk.

Name _____

Water Safety Anticipation Guide for Parents

Read each statement. If you think the statement is true put an X on the word yes. If you think that the statement is not true put an X on the word no.

Yes	No	1. Drowning is the fourth leading cause of death among children ages 1 to 14.
Yes	No	2. Nearly 90% of drowning deaths happen while a child is being supervised.
Yes	No	3. Drowning that occurs in the bathtub accounts for more than 10% of all childhood drowning deaths.
Yes	No	4. Most children who drown in pools had been missing from sight for fewer than 10 minutes.
Yes	No	5. Since 1980 less than 50 children have drowned in pools and spas.
Yes	No	6. Children can drown in as little as one inch of water. Children drown in bathtubs, wading pools, diaper pails, toilets, and buckets. It is estimated that 30 children drown each year in buckets.

Answers:

1. No: Drowning is the second leading cause of death.
2. Yes
3. Yes
4. No: Most children had been missing less than 5 minutes.
5. No: More than 230 children have drowned in pool and spas.
6. Yes

Math II-2

Activities

Missing Addends

Circle the Wagons a Number is Missing

Standard II:

Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

Objective 2:

Model, represent, and interpret number relationships using mathematical symbols.

Intended Learning Outcomes:

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

Content Connections:

Math I-1 & 3; Language Arts VIII-6

Math Standard II

Objective 2

Connections

Background Information

This activity is designed to give the students an opportunity to work in pairs as they search for the missing addend that will complete a mathematical sentence. Students will demonstrate the ability to change the order of the addends and still produce the same sum. To insure a smooth transition into the activity, modeling of what the activity is suppose to look like will have had to be previously taught and practiced.

Research Basis

Walters, L. S., (2000). Putting Cooperative Learning to the Test. *Harvard Education Letter*. May/June 2000. (1-6).

Cooperative learning in the classroom has a strong research base. Teachers are moving away from the traditional teaching methods, rearranging their students into groups where they are encouraged to talk and share ideas as they shift to accommodate more teamwork within the classroom. Two essential components need to exist for cooperative learning to lead to significant gains in achievement. The first key component promotes interdependence with groups -- fostering the perception that students must work together to accomplish the goal. The second key component is to hold students individually accountable for demonstrating their understanding of the material. Students cannot "hitchhike" within the group.

Lacampagne, Carole, B. (1993). State of the Art: Transforming Ideas for Teaching and Learning Mathematics. Office of Educational Research and Improvement, July 1993. (1-14)

This research covers some fundamental shifts for the teaching and learning of mathematics. For teachers, administrators, and parents, it presents ten ideas for transforming mathematical teaching. A major focus is that all students can and must learn mathematics.

Mathematics is not linear and hierarchical with teaching rote skills first, followed by problem solving later; but builds on that students learn best when they are intellectually challenged so that they are motivated to fill in mathematical gaps when necessary. Teachers need to provide stimulating problems and an environment to motivate mathematical learning.

Invitation to Learn

Pass out a card with an addend on it to each student. The cards should be numbered 0-10. Instruct the students that their assignment is to find someone who has an addend that when added to their addend will produce the sum of ten. Once they have found the addend to complete the assignment have them stand next to each other and hold up their cards. You will collect the cards and make a quick assessment to see if each pair is correct. Now that each student has a partner we will play a game. Each pair will face each other and put one hand behind their back. On the teachers mark each student will show the hand they have been hiding showing a number of fingers (1-5). The student who can correctly give the sum of the two hands quicker wins that round. The students who did not win will take their seats and the remaining students will pair up with the student closest to them and play the game again. The game is played until one student remains. Discuss with the students why for some of them it was easier than it was for others.

Instructional Procedures

Materials

- ❑ *Missing Addend Sentence Cards*
- ❑ *Numeral Cards*
- ❑ Dice
- ❑ *Missing Addend – Dice*
- ❑ Math Journal
- ❑ Pencils

1. Students will be separated into two equal groups. Have one group form a circle, each student should face outward. This will be the inside circle. Have the second group of students form a circle around the first circle. Each student should face inward and line themselves up with a student from the inside circle. If there is an odd amount of students have two students from the outside circle pair up.
2. Each student from the outside circle should be given a card from the *Missing Addend Sentence Cards.*
3. Each student from the inside circle should receive a card from the *Numeral Cards.*
4. Tell the students facing each other to check and see if the numeral the student is holding in the inner circle will make the math sentence held by the outer circle student true. If the sentence is true have the pair exit the circle, collect their math

journals, and return to one of their tables as a pair. Together the pair should record their math sentence in their math journal and then create and record a math family from the original sentence.

5. After all of the students whose sentences are true have left the circle have the remaining students in the outer circle rotate to the right and go through the process found in step 4. Continue this until all the students have found the math sentence or the numeral that makes their sentence true.
6. All students should now be seated with their partners at a table. Hand out two dice and the worksheet *Missing Addend – Dice* to each pair.
7. Explain to the students that the sum they have been working with for their math family is going to be the sum for all of the missing addend problems they will be creating. To complete the worksheet they will first fill in the blank for the sum, and then they will roll the dice and record the number of dots for each dice in the space that looks like dice. The sum of the dice will be recorded on the line above the picture of the two dice. The students will then solve the addition sentence for the missing addend. The missing addend will be recorded on the worksheet in the missing addend symbol.
8. For closure to the lesson have a few of the pairs share with the class how they went about solving the worksheet.

Assessment Suggestions

- Observe how the students work together – does one student dominate the activity?
- Have the students share with you what they are recording in their math journal.
- Use the *Missing Addend –Dice* worksheet.
- Have the students verbally explain their thinking process.

Curriculum Extensions/Adaptations/ Integration

- The number of dice can be increased or decreased.
- Instead of using dice you could use dominoes.
- This activity can be adapted to make a station for a math center.

Family Connections

- Have the students teach their families the different activities used in class.
- Have family members use household items to create real life situations with missing addends.

Additional Resources

Books

Mission Addition, by Loreen Leedy; ISBN 0823414124

Quack and Count, by Keith Baker; ISBN 0152050256

M&M's Counting Book, by Barbara Barbieri McGrath; ISBN 0-88106-853-5

Web sites

www.lessonplanet.com

www.aaamath.com

www.edhelper.com

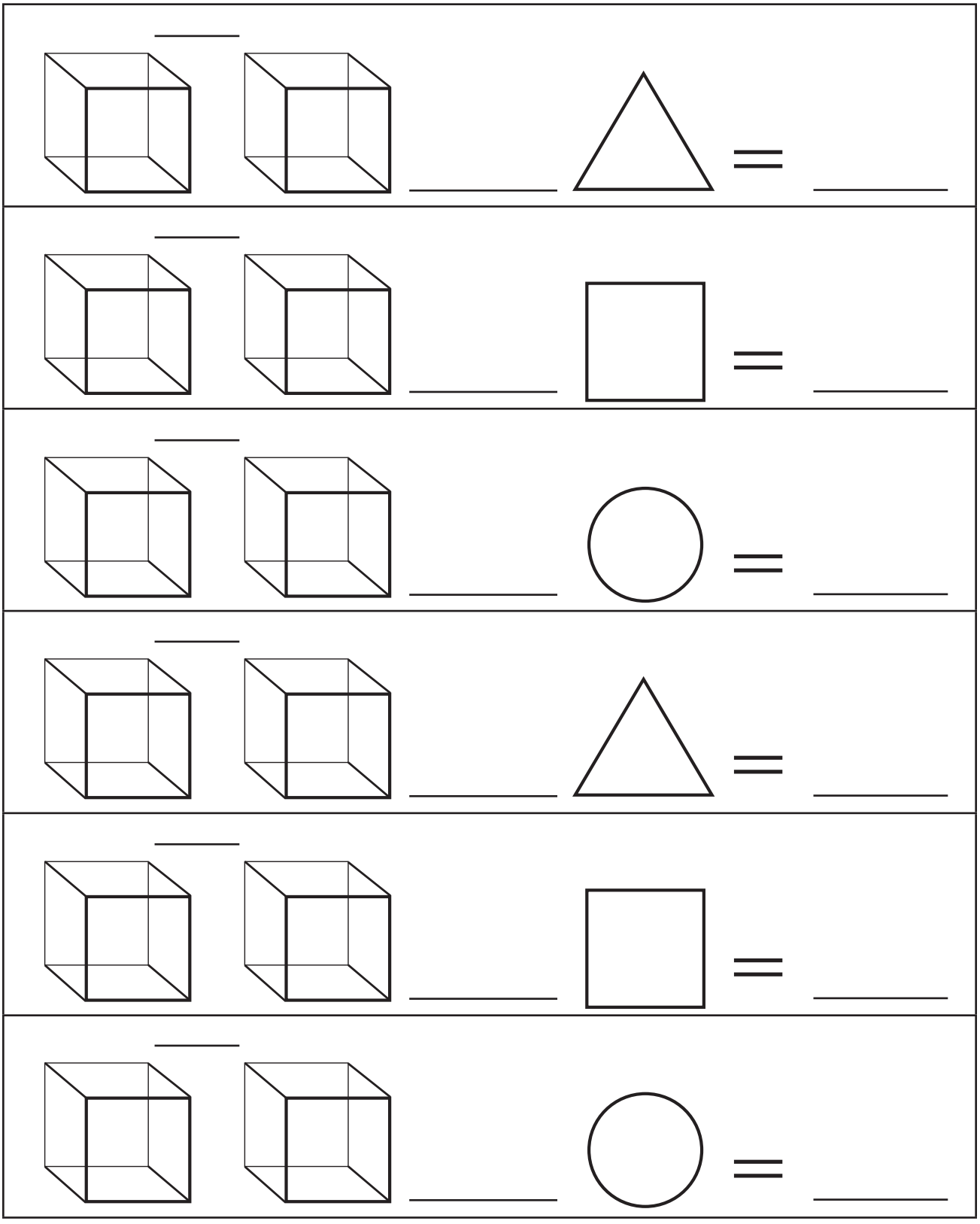
Missing Addend Sentence Cards

4 + □ = 12	5 + □ = 12	6 + □ = 12
7 + □ = 12	8 + □ = 12	9 + □ = 12
10 + □ = 12	11 + □ = 12	

Numeral Cards

1	2	3
4	5	6
7	8	9
10	11	12
0		

Missing Addend - Dice



What's Your Function?

Math Standard II

Objective 2

Standard II:

Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

Objective 2:

Model, represent, and interpret number relationships using mathematical symbols.

Intended Learning Outcomes:

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

Content Connections:

Math I-1 & 3; Language Arts VIII-6

Connections

Background Information

This activity is designed to give the students an opportunity to demonstrate their cognitive skills. Students will be presented with conditions that will require the ability to make sense of a mathematical situation with missing information. Students will recognize that some function has taken place and their assignment will be to figure out what it was.

Research Basis

Walters, L. S., (2000). Putting Cooperative Learning to the Test. *Harvard Education Letter*. May/June 2000. (1-6)

Cooperative learning in the classroom has a strong research base in which teachers are moving away from the traditional teaching methods, rearranging their students into groups where they are encouraged to talk and share ideas as they shift to accommodate more teamwork within the classroom. Two essential components need to exist for cooperative learning to lead to significant gains in achievement. The first key component promotes interdependence with groups -- fostering the perception that students must work together to accomplish the goal. The second key component is to hold students individually accountable for demonstrating their understanding of the material. Students cannot "hitchhike" within the group.

Lacampagne, Carole, B. (1993). State of the Art: Transforming Ideas for Teaching and Learning Mathematics. Office of Educational Research and Improvement, July 1993. (1-14)

This research covers some fundamental shifts for the teaching and learning of mathematics. For teachers, administrators, and parents, it presents ten ideas for transforming mathematical teaching. A major focus is that all students can and must learn mathematics. Mathematics is not linear and hierarchical teaching rote skills first

followed by problems solving later; but builds on that students learn best when they are intellectually challenged so that they are motivated to fill in mathematical gaps when necessary. Teachers need to provide stimulating problems and an environment to motivate mathematical learning.

Invitation to Learn

Pass out a cup of beans and the worksheet *Balance the Beans* to each student. Draw a picture of the scale and the shapes on the chalkboard. Explain to the students that they can balance the scale by placing beans in the square, circle, and the triangle. Display the following rules on the chalkboard or on chart paper and then discuss them.

- Shapes that are the same must have the same number of beans in them.
- Shapes that are different must hold a different amount of beans.
- All shapes must have some beans.
- The two sides must balance by having the same amount of beans on both sides.

Instruct the students to balance 12 beans. Now try and balance it with 15 beans, and finally have them balance 18 beans. Record in their math journal what they have learned from this experience.

Materials

- ❏ Bag of beans
- ❏ *Balance the Beans*
- ❏ *Function Box*
- ❏ Empty half gallon carton
- ❏ Duct tape
- ❏ *Function Box Cards*
- ❏ Math Journal
- ❏ Pencils

Instructional Procedures

1. Construct the box – See *Function Box* black line for instructions.
2. Create function box cards of 10's, 12's, 15's, 18's, as well as random amounts. The smaller numeral should be written in black and the larger number should be written in blue.
3. Review with the students what they have learned about the symbols +, -, = and ≠.
4. Explain that the *Function Box* performs math functions using the symbols we have just discussed and a missing addend. The students are to use their knowledge to figure out what function is being used and what is the missing addend.
5. Introduce the acronym T.I.P.S. T represents Thought – what function is being used? I represents Information – what information do you know? P represents Plan – how are you going to solve this problem? S represents solution – what is the missing addend?

6. Model to the students how the box works using the function 10 cards. Put a black 3 in the box and pull out a blue 10.
7. Have the students discuss what they have observed and then using T.I.P.S., record what happened in the function box in their math journals. Model on the chalkboard how this should look in their journals. Students could also include thoughts and pictures (students should have access to beans or another type of manipulative to help if necessary).
8. Continue working with the function 10 cards, students should create a T.I.P.S. record for all of the problems in their journal.
9. The next day change which color goes into the box first blue 10 into the box black 3 out of the box. Students should discuss their observations and record their findings in their math journal. Remind them of T.I.P.S.
10. Continue working with the function 10 cards, students should create a T.I.P.S. record for all of the problems in their journal.
11. Now model the *Function Box* using the random function cards. This can produce an addition sentence or subtraction sentence. Students should discuss their observations and record their findings in their math journal.
12. The next day, create a *Function Box* and *Function Box* cards for each student.
13. Have students work in pairs alternating turns with their *Function Box*. After each turn they should discuss and then record in their journals using T.I.P.S. what they observed.

Assessment Suggestions

- Observe how the students work together – does one student dominate the activity?
- Have the students share with you what they are recording in their math journal.
- Have a student demonstrate how the box works, walking you through a step-by-step process.

Curriculum Extensions/Adaptations/ Integration

- Have students write a story involving the *Function Box*.
- Create easier or more difficult *Function Box* cards depending upon students' mastery of the skill.
- This activity can be adapted to make a station for a math center.

Family Connections

- Have the students take home their *Function Box* and share it with their families.
- Have family members create missing addend problems that can be used with the student's function box.

Additional Resources

Books

Counting Crocodiles, by Jody Sierra and Will Hillenbrand; ISBN 0-15-200192-1

Ten Flashing Fireflies, by Philemon Sturges; ISBN 1558586741

Seven Blind Mice, by Ed Young; ISBN 0698118952

Web sites

www.lessonplanspage.com

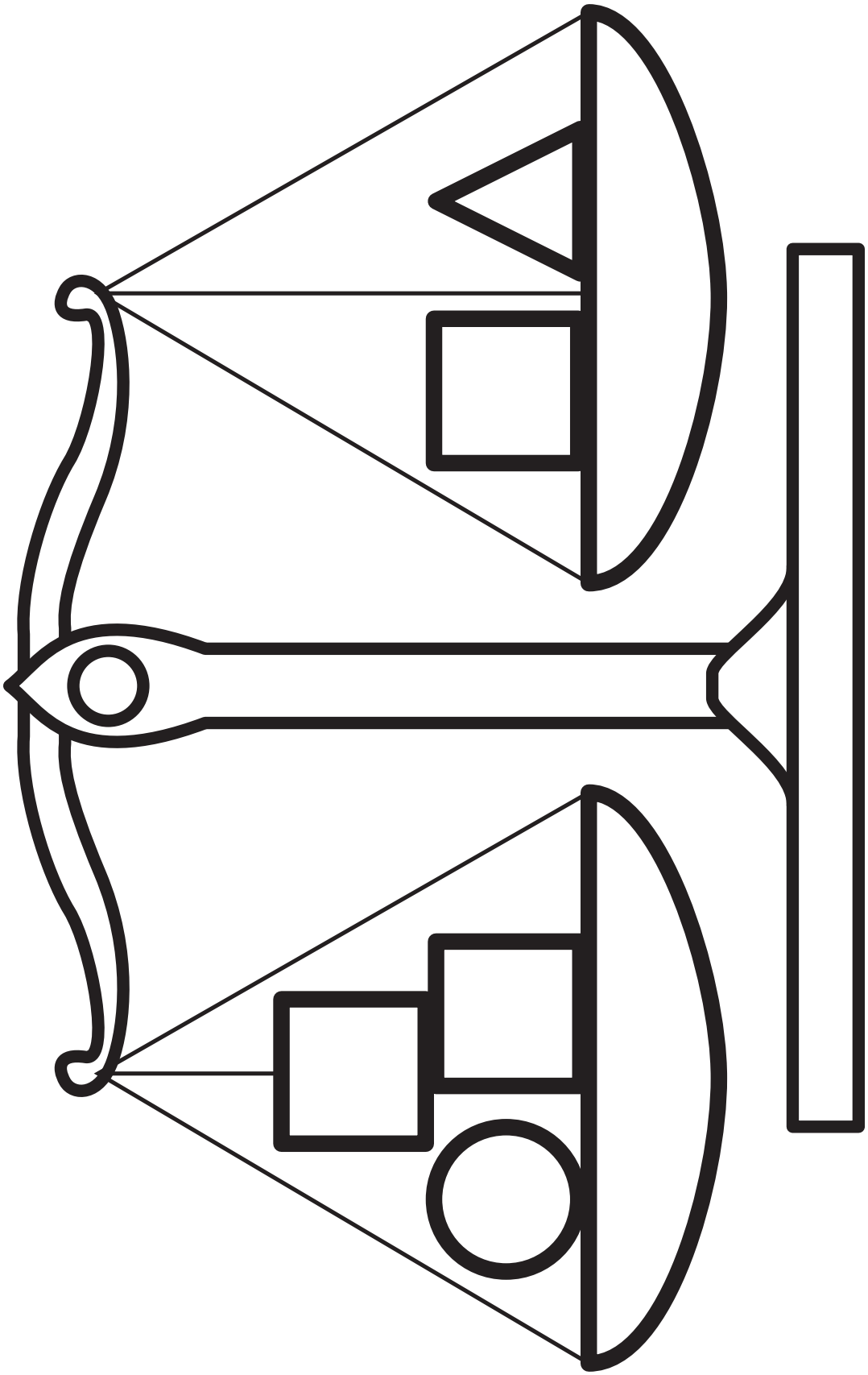
www.americanteachers.com

www.atozteacherstuff.com

www.abcteach.com

www.sitesforteachers.com

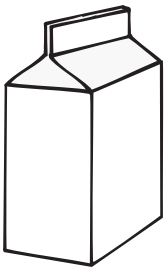
Balance the Beans



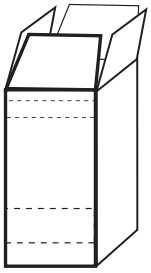
Function Box

Materials

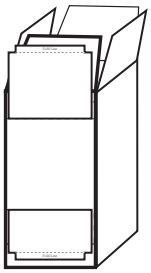
- ❏ 1/2 gallon card board container. (1/2 gallon orange juice or milk carton)
- ❏ Card stock
- ❏ Duct tape



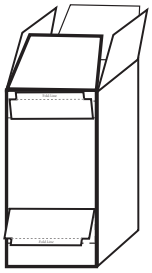
Unfold top fo box.

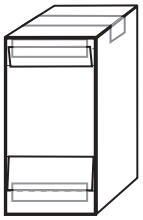


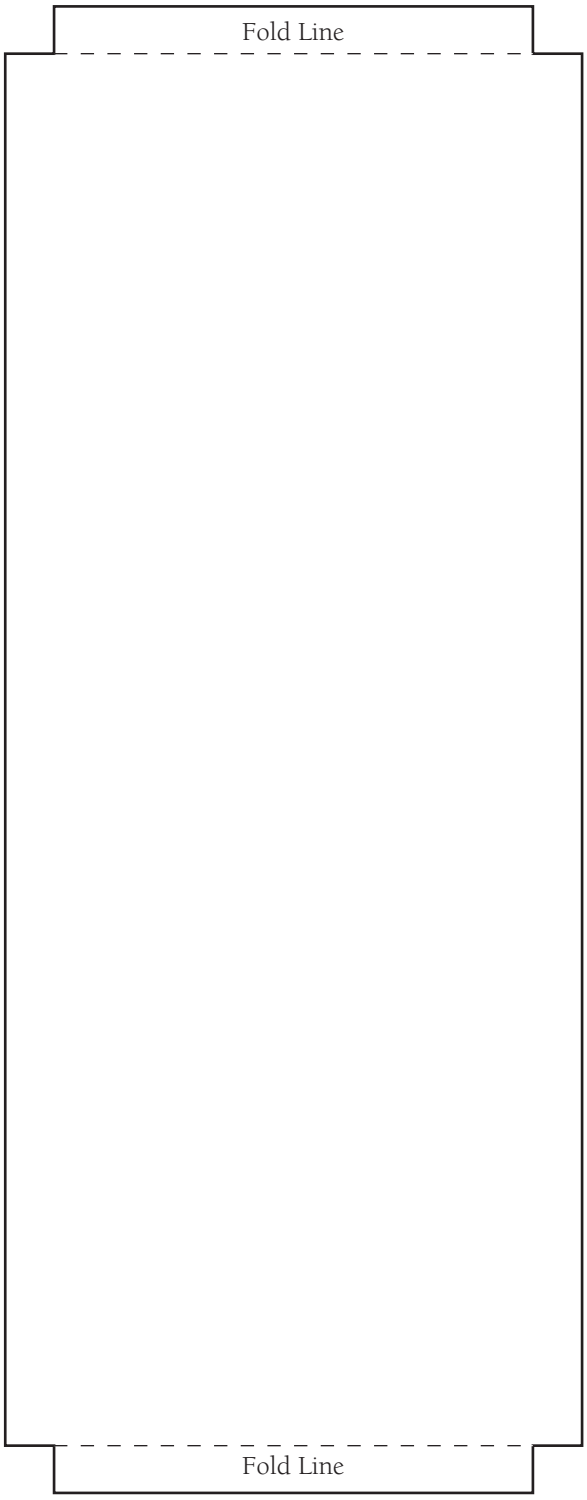
Cut two slits into box. First slit start 1/2 inch from top and is 1/2 inch down and all the way across the box, up then back across. Second slit start 1 inch from bottom and go up 2 inches then all the way across the box, down and back across.



Cut form from card stock. Fold at top and bottom and curve the card stock. Place in top slot feed through to bottom slot, tape to bottom of slit 2 first then push into box, it should curve. Then tape form to top of slit 1 and tape top down flat.







Function Box Cards

Content II-2

Activities

Community & Culture

Where do you live?

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

Objective 3:
Examine important aspects of the community and culture that strengthen relationships.

Intended Learning Outcomes:
1. Compare rural, suburban, and urban communities.

Content Connections:
Math III-3; Collect, organize data, Language Arts I-2; Develop language

Content Standard II

Objective 3

Connections

Background Information

Farms, ranches, large animals, houses spaced far apart, sporadic traffic, and children riding the bus to school often characterize rural communities. Rural communities are often referred to as "the country".

Suburban communities are areas located outside of large cities. They are often characterized by individual homes located in neighborhoods that have yards. There is less traffic than in the city. Children ride buses, bikes, or they may walk to school, while parents often commute to work.

Urban communities are areas of high population density, with people living close together (often apartments), and lots of traffic. They usually boast easy access to movie theaters, restaurants, subways or other forms of mass transportation. Libraries, museums, sports arenas, zoos, and parks are often found there.

Research Basis

Emmer, E.T., Gerwels, M. C., (2002). Cooperative Learning in Elementary Classrooms: Teaching Practices and Lesson Characteristics. Retrieved from *The Elementary School Journal,* Vol. 103 (Number 1) p.75-91

Cooperative Learning opportunities for students allow them to be able to learn as they process information in small group situations. Every student is accountable for their part in the group's final product. This process helps improve student motivation, social skills, and attitudes towards learning.

Collinston, E., (2000). A Survey of Elementary Students' Learning Style Preferences and Academic Success. EBSCO. Retrieved January 20, 2007, from http://ebscohost.com

There are several different learning styles. Learning styles include the ways that students learn, process, retain information, and behave.

Some of these include the following: visual, auditory, and tactile. Catering to a variety of styles ensures that all students will be able to be successful learners. It is especially important for the low achieving students who generally prefer to learn as one or more peers assist them, and as they are provided many hands-on experiences.

Invitation to Learn

Students are invited to cut and sort the *Community Characteristic Cards* into groups. After sorting, students can explain to the class what criteria they used to sort them.

Instructional Procedures

Materials

- ❑ *Large Community Cards*
- ❑ *Community Characteristic Cards*
- ❑ *Through the Community* game board
- ❑ *Through the Community* blank game board
- ❑ Game pieces
- ❑ Dice
- ❑ Hula-hoops

1. Review the differences between urban, suburban, and rural communities.
2. Write the categories on the board. Pass out a *Large Community Card* to each student and have them place their cards under the correct heading.
3. Tell them that some of the cards share the same category. Divide the students into small groups and tell them to choose two types of communities to compare and contrast. (Each small group will need to use one set of the *Small Community Cards* for this activity.) Have them display their work by creating a Venn diagram and labeling each one by placing a name card above each circle. (A Venn diagram may be created by overlapping two hula-hoops.) Tell the students to place pictures in the appropriate categories. Assign one person from each group to explain to the class how they separated the cards while displaying their Venn diagram. The rest of the class will need to gather around their display.
4. Introduce the students to the *Through the Community* game board.
5. Teach the rules of the game and allow them time to play it.
   a. Each player picks a game piece and places it on start.
   b. Players take turns rolling the dice and moving their piece.
   c. Students read the space they land on and follow the directions.
   d. The first student to the finish line wins.
   e. Students can start over after their group has a winner.
6. Divide students into small groups. Give each student a 3x5 card. Students help each other decide which kind of community

each person lives in. As the decisions are made about each one, have them write it down on their card.

7. Using the headings that were previously written on the board, have students place their cards under the appropriate heading.
8. Display each type on a bar graph and generate a class discussion about the results.
9. Play Community Round Up. This game needs to be played in the gym or outside. Choose two students to represent each of the community types. Have these students wear or hold something to help distinguish them as a type of community. Hand cards out with the name of the community they are representing written on them. These students shouldn't let the other students know which card they are holding yet. Divide equal amounts of *Small Community Cards* to represent the three different communities. Designate a location where each of the communities will be located. When the teacher starts the game, the students who are "it" try to catch the other students. When a student is caught, they will need to show their card to their "catcher," and the "catcher" must show their card to the student who is "it." If the cards match together according to the criteria of the community, they are caught and must go to the location assigned for that community. If it doesn't fit, they are free to go. When a community is filled with the designated amount of students who are holding cards that represent that community, the teacher gives the stop signal. Each of the students will need to hold up their cards while telling the rest of the class which cards they have. If all of the cards meet the criteria of that community, that community wins. The teacher chooses different students to represent the communities, and instructs the remaining students to trade their cards and play again.

Assessment Suggestions

- The teacher verbally describes a rural, urban or a suburban community, or holds up some Community Cards to represent one. The students write their responses on their dry erase boards by writing an R for rural, S for suburban, and U for Urban. When they are finished they hold up their board for the teacher to see.
- Using the *Blank Community Game Board,* have students create their own game using situations that are appropriate for the different types of communities. This could be done in small

groups or individually. After creating the game, they could invite others to play it.

Curriculum Extensions/Adaptations/ Integration

- Have students create pop-up cards representing the different community types.
- Create a paper pyramid and label each side as an urban, rural, or suburban community. Have the students sort the *Small Community Cards* and glue them to the appropriate side of the pyramid (Triorama).
- Have students develop a computer presentation about the different community types and have the class present their work to another class or to their parents.

Family Connections

- Students could create a poster with pictures and drawings of their house and family.
- Invite the students to draw or collect pictures with their families to represent each of the three communities.
- Students could take their game, *Through the Community,* home and play it with their family.
- Have the students write a letter to a relative who lives in a different type of community. Have them describe their community to them and ask the relative to write a letter back and describe their community.

Additional Resources

Books

On the Town: A Community Adventure, by Judith Casely; ISBN 0060295848

Community Helpers from A-Z, by Bobbie Kalman and Niki Walker; ISBN 0865054045

Curious George Takes a Job, by H.A. Rey; ISBN 0395186498

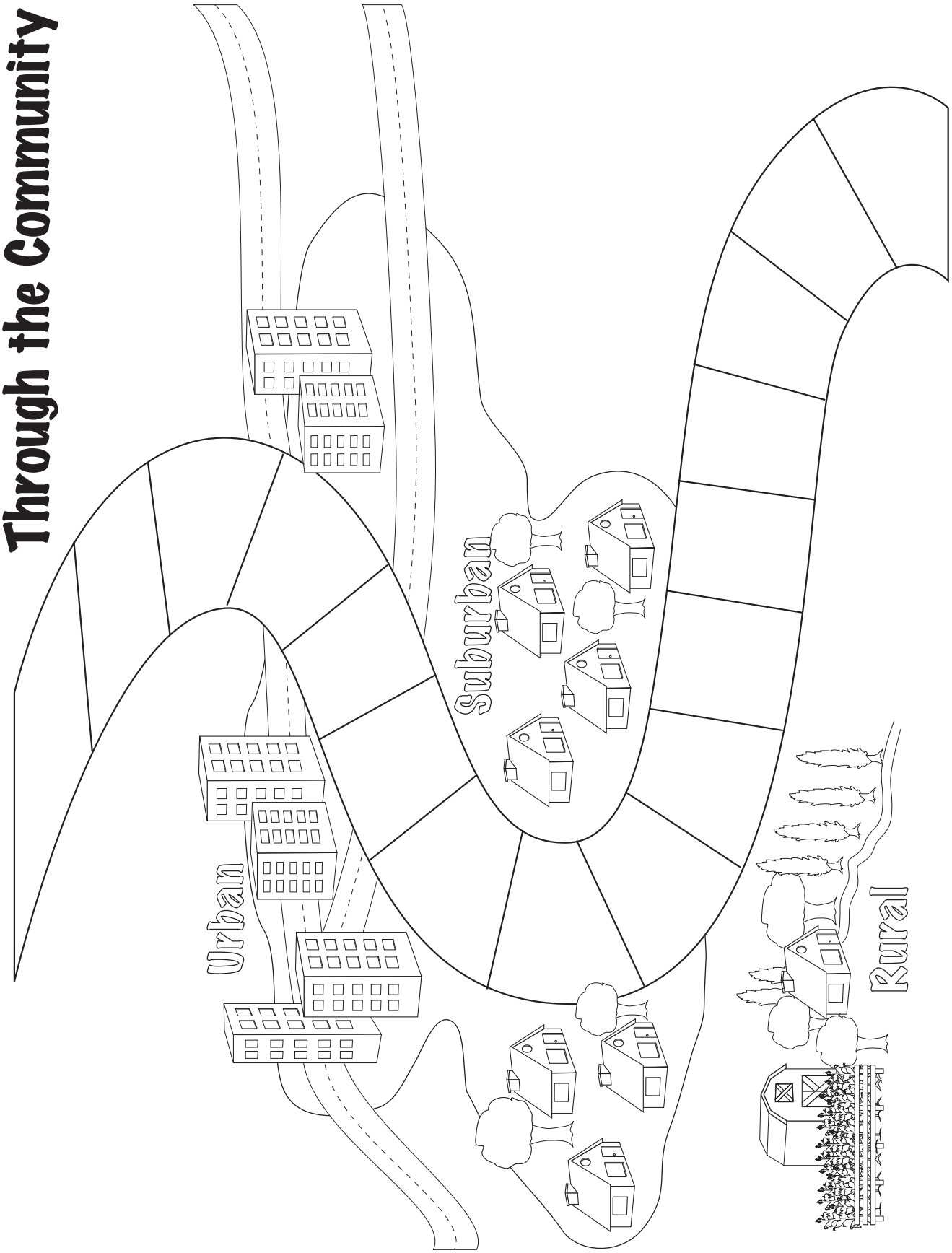
Helping Out, by George Ancona; ISBN 0395547741

Media

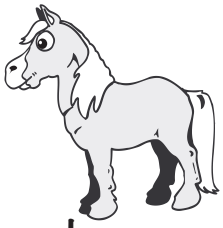
City, Suburb, and Rural Communities, by School Videos: Education in motion; ISBN 1585412007

Through the Community
Finish
Ride bus to school.
Cows had calves move forward one space.
Wind storm ruins wheat. Go back one space.
Dad has to drive 35 minutes to go to work.
Get a new dog. Go ahead one space.
Mom's late for work. Go back one space.
Went to the zoo with your family
Went to a good movie. Go ahead one space.
Yard isn't big enough for a horse. Go back one space.
Won soccer game. Get rootbeer floats with friends.
Got a new bike. Go for a ride with a friend.
Four wheeler gets stuck in the mud.
Spring planting goes well. Move forward one space.
Get a new horse. You live in the country.
Start
Urban
Suburban
Rural

Through the Community



Community Characteristic Cards

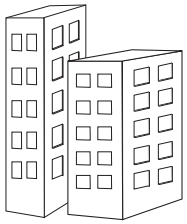


horse

trax train

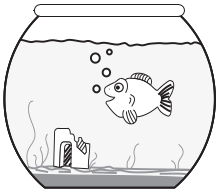
farm house

house



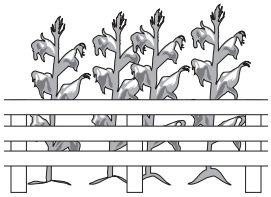
apartment

traffic jam

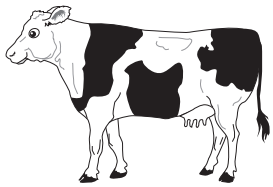


goldfish

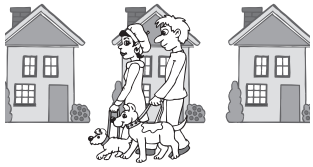
soccer game



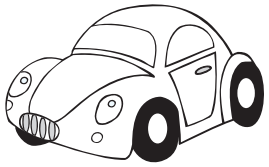
cornfield



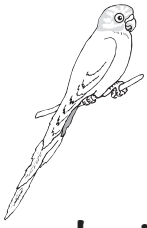
cow



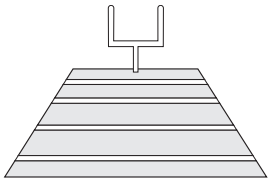
walking dog



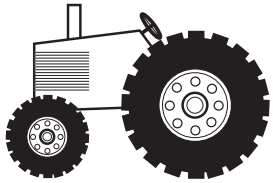
car



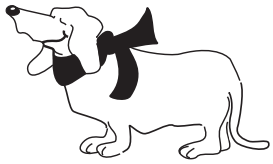
parakeet



football stadium

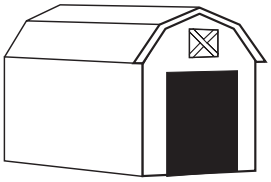


tractor



dog

bike



barn

zoo

cat

Joshua Disobeys!

Content Standard II

Objective 2

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

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

Intended Learning Outcomes:
Explain why families, school, and communities have rules.

Content Connections:
III-3; Sort, organize data; Language Arts I-2; Develop language; Content I-3; Communicate ideas, information

Connections

Background Information

Students often complain about the many rules placed upon them by parents, school and community officials. This lesson is to help them see that rules exist to keep themselves and others safe.

Research Basis

Collinston, E., (2000). A Survey of Elementary Students' Learning Style Preferences and Academic Success. EBSCO. Retrieved January 20, 2007, rom http://ebscohost.com

There are several different learning styles. Learning styles include the ways that students learn, process, retain information, and behave. Some of these include the following: visual, auditory, and tactile. Catering to a variety of these ensures that all students will be able to be successful learners. It is especially important for the low achieving students who generally prefer to learn as one or more peers assist them, and as they are provided many hands-on experiences.

Sheldon, K. L., ((1994). Including Affective and Social Education in the Integrated Curriculum. EBSCO. Retrieved January 20, 2007, from http://web.ebscohost.com

Children's literature is a valuable resource for teachers to turn to as they develop lesson plans to teach students about values. Social skills and effective education can be accomplished through an interdisciplinary approach.

Invitation to Learn

The teacher invites a student to challenge him/her to a game of checkers. The rest of the class gathers to watch the game. The teacher wins by not following the rules of the game. Afterwards, the teacher

encourages and gathers responses about the experience, and uses them to initiate a discussion about how rules benefit everyone.

Review vocabulary words: obey, disobey, consequences

Materials

- ❏ *Joshua Disobeys*
- ❏ Three boxes labeled, Guess What Would Happen If…..
- ❏ Scissors
- ❏ Strips of white paper
- ❏ Scotch tape

Instructional Procedures

1. Share book *Joshua Disobeys* with class.
2. Review the rule that Joshua the whale disobeyed and what the consequences of disobeying were.
3. Discuss with the class how every animal is taught rules by their parents. Model some examples such as the following:
   - The mother hen teaches her baby chicks to hide under her wings when there is danger because she can keep them safe.
4. Tell the students to think of an animal and what its mother would teach it. Tell them to display their thinking by finishing the sentence listed as follows: The mother _____ teaches her baby _____ because _____. When they have completed their writing, tell them to illustrate it so that it will be ready to be shared in a class book.
5. Students are invited to share their pages with the class.
6. Tell the students that rules are designed to keep us happy and safe. Tell them that we have rules at home, at school, and in the community. Have students help come up with one rule for each area as a class.
7. Show the students the boxes labeled, "What would happen if…."
8. Divide students into small groups and assign each one a specific location to write down the rules for (school, home, community etc.) Distribute the labeled boxes, and instruct them to write 10 rules on strips of paper that can be placed in the box.
9. When completed, invite students in their small groups to take turns picking a rule out of the box and collaborating with each other as they guess what would happen if we didn't have that rule. For example, if they chose the strip of paper with "No running in the halls," they could guess that if we didn't have that rule, students would always be getting run over in the halls and would get hurt.
10. When completed, have the small groups trade their boxes and do the same activity with the different set of rules. Continue

doing this until every group has been able to work with every set of rules.

11. Instruct the students to remain in their small groups and have each person write their name on other strips of paper. Tell them to use the strips of paper from the rule box and alternate a rule with a name as they create a paper chain.
12. When the small groups have completed their chain, guide them as they connect all of the small chains together to form a big one. Have two students stretch the chain across the room. Tell them that when everyone follows the rules, the chain stays intact, but when someone breaks a rule the chain is broken and it affects everyone. (Cut the chain.)
13. Tell the students that when rules are broken a consequence follows, and a price needs to be paid to try and repair the damage that has been done.
14. Read the rule that was cut from the chain to the class, and ask the students to come up with the solution to help repair the damage of the rule being broken.
15. Repair the link that was cut off with a Band-Aid to help represent the repair.
16. Continue this activity with other rules being cut from the chain.

Assessment Suggestions

- Distribute paper and art supplies and have the students finish the sentence, "My (parent/teacher/community) taught me _____ __ because _____". When their sentences are complete, have them illustrate their work. Invite the students to share their work. Collect them to make another class book.
- Have students create a list of five rules they are expected to obey at home, at school, or in the community. Then have them write what would happen without that rule.

Curriculum Extensions/Adaptations/ Integration

- Invite a local law enforcement officer to your classroom to discuss how rules keep us safe and the consequences for breaking rules.

- Invite a legislator or mayor to your classroom to discuss how laws for our cities, our state, and our country are created.
- Introduce school or classroom rules.
- Students make brochures of laws or rules for the community, the classroom, or their homes.
- Accommodations can be made for students by adjusting the amount of writing required. This can be accomplished by having them tell the teacher or another student what he/she would like to have written.
- Have the students play a P.E. activity called Joshua Disobeys. Divide half of the students to be whales and the other half to be the parents. Tell them that the objective of the game is to keep the whales from going into the shallow water and becoming beached. Designate a location that represents the shallow and the deep water. Tell the students that this is the area that they are supposed to keep the whales from going to. Tell the students that when a student representing a parent touches a whale, they have to go back to the deep water before they can "swim" again. Set the timer for five minutes. When the time is up, count how many whales were beached. Play again to see if the parents can keep fewer whales from becoming beached.

Family Connections

- Invite families to create and display a list of family rules. These could be general rules or rules specific to a particular activity such as cooking.
- Have each family member write their name on a strip of paper and a family rule on another strip of paper. Use all of the strips to create a paper chain. When the chain is complete hold it up and admire it before ripping one of the rule strips and watching the chain fall to the floor. Encourage families to discuss how when one person breaks a rule it weakens the chain and causes disruption for every member of the family.

Additional Resources

Books

Joshua Disobeys, by Dennis Vollmer; ISBN 0933849125

Free to Be…a Family, by Marlo Thomas; ISBN 0553345591

Teaching Children to Care: Management in the Responsive Classroom, by Ruth Charney; ISBN 0961863617

Web sites

http://www.utahchiefs.org

Appendix

It Makes $ense to Trade Money Chart

It Makes Sense to Trade Recording Sheet

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

It Makes Sense to Trade Recording Sheet

1.
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3.
4.
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10.

It Makes Sense to Trade Recording Sheet

1.
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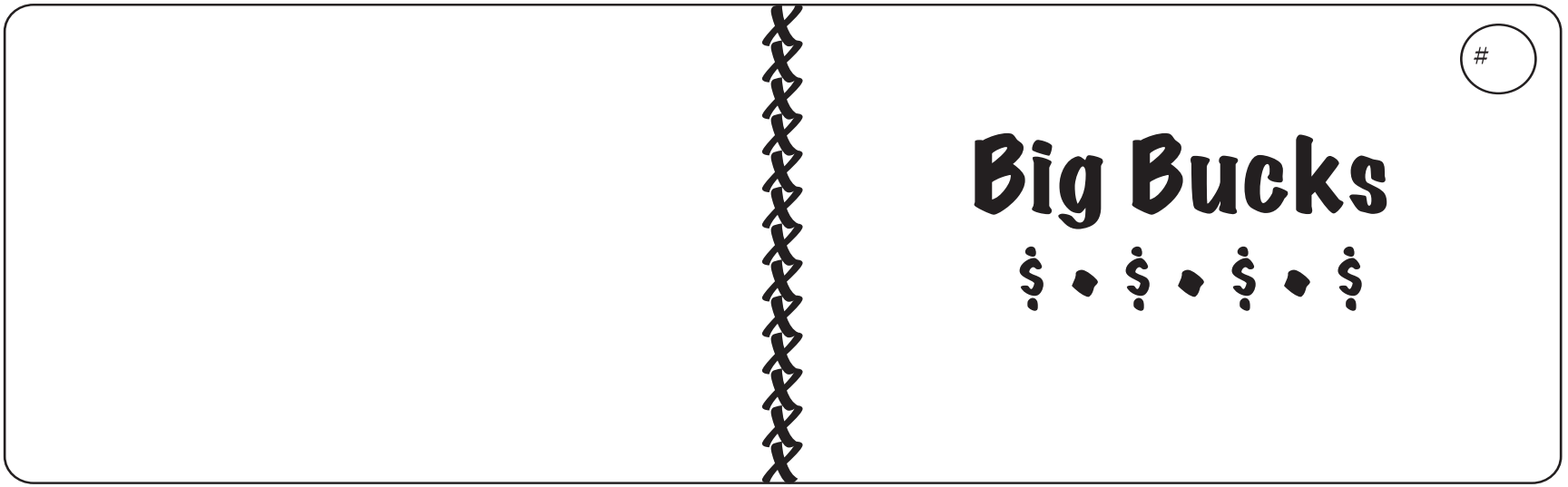
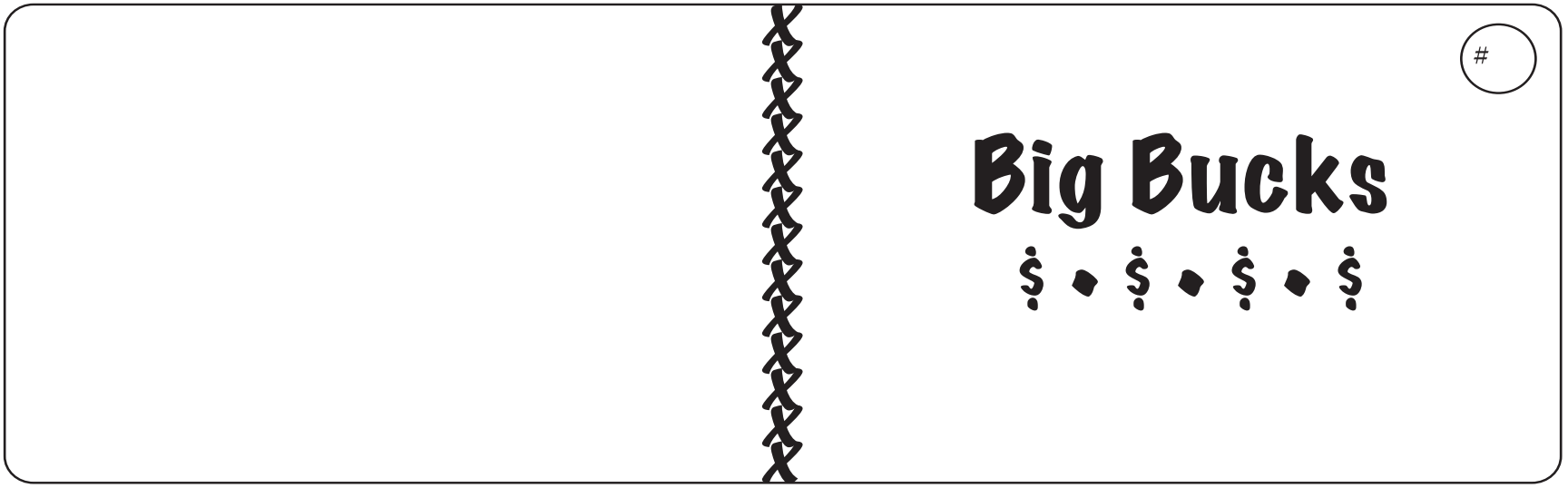
10.

Big Bucks Money Wallets



Big Bucks Money Wallets



Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

Passing the Buck Recording Sheet

Wallet Number	Total Amount

My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

My Great Detective Notebook

By _____

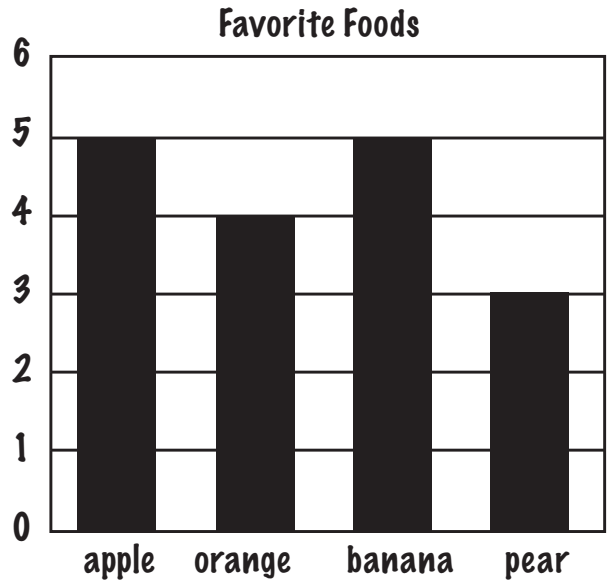
Detective Notebook Page

Graph Name

Type of Graph used _____

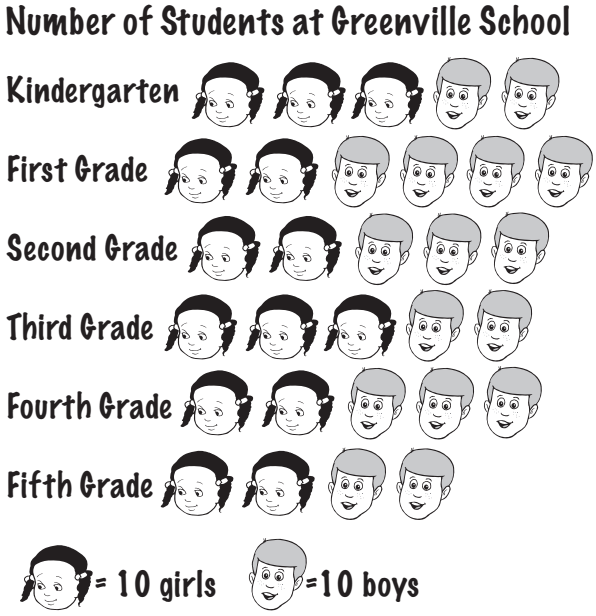
Clue Graphs

Bar Graph



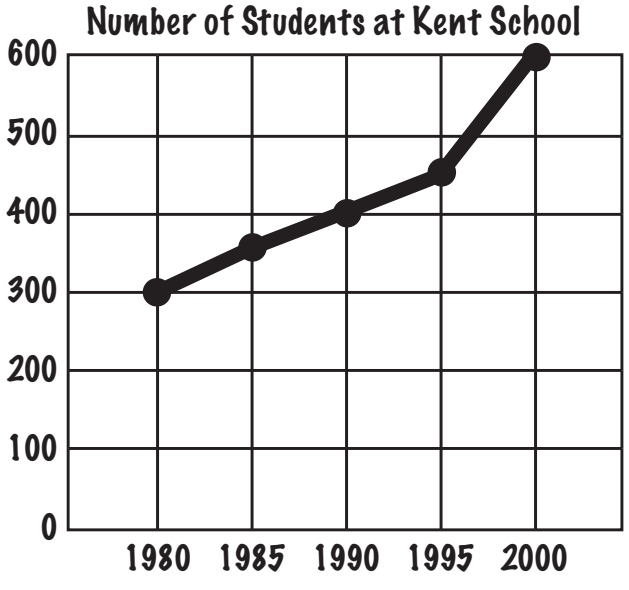
In a bar graph, the length of a bar tells how much or how many.

Pictograph



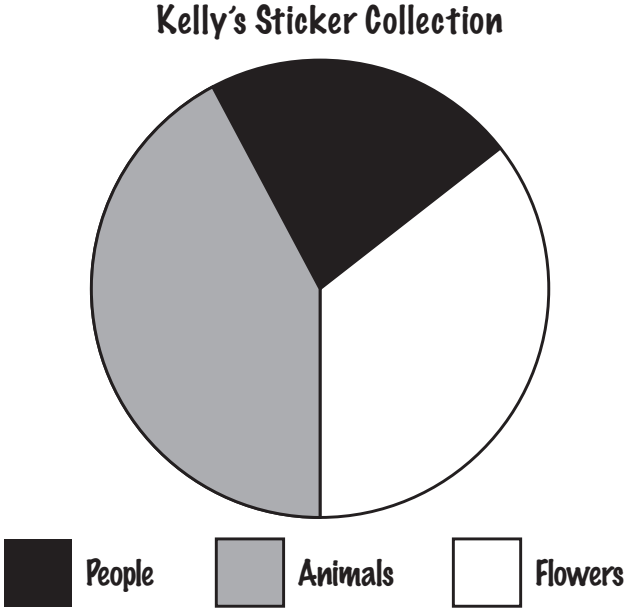
In a pictograph, each picture stands for a certain amount

Line Graph



In a line graph, a line shows how something changes over a period of time.

Circle Graph



In a circle graph, the parts of a circle tell how much or how many.

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

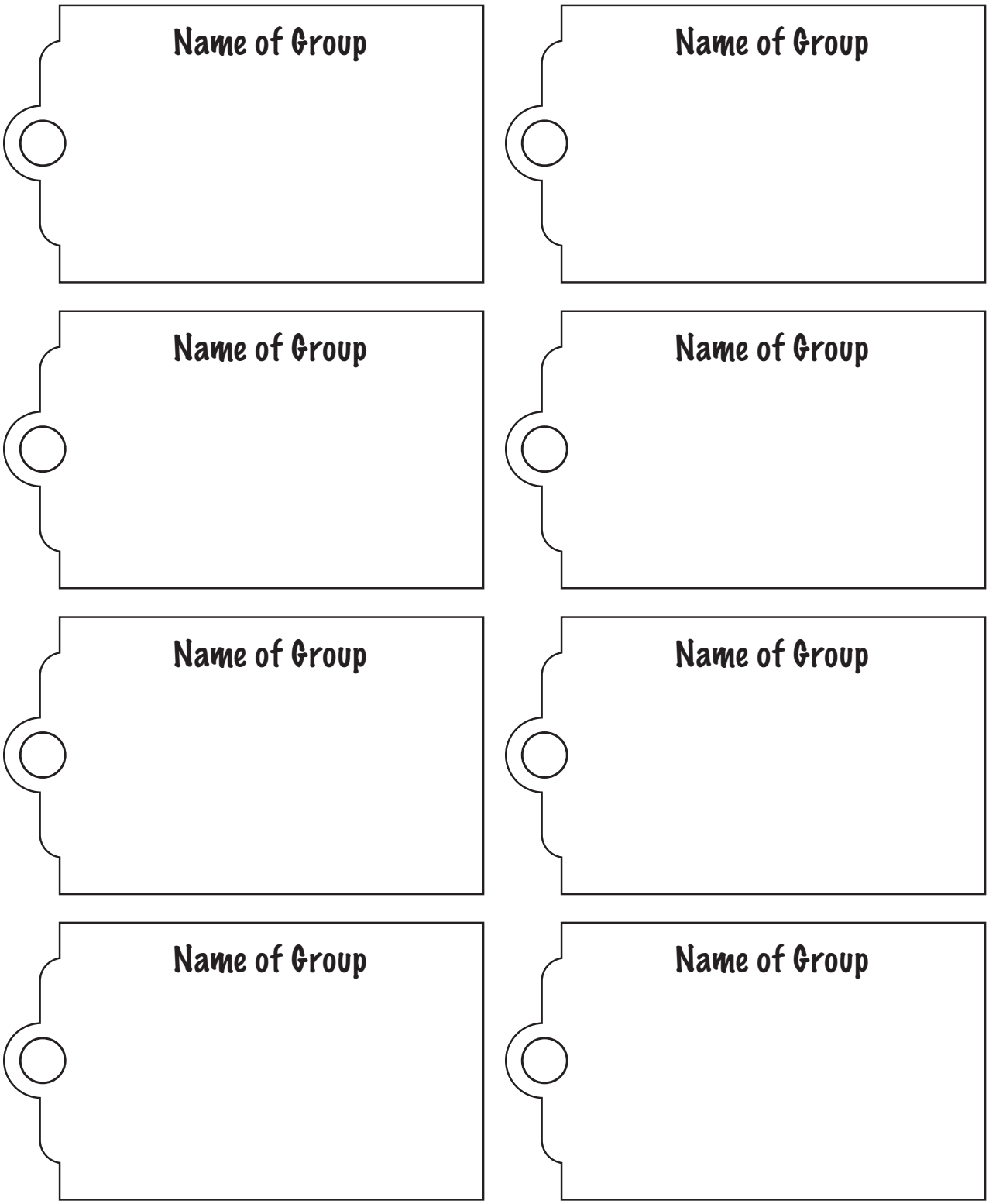
Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Fact Sheet

Evidence/Fact	Number of Facts

Evidence Mystery Tags



Detective Badges

Seven Centers with Nineteen Cases

Center One: Plants

Materials: 1/4 sheet of paper for them to draw plants on. Seeds to grow a classroom plant.

Case #1: Provide paper for them to draw pictures of any plants we eat. Graph plants according to what part of the plant we eat, the top or the bottom, or the middle.

Case #2: Provide paper for them to draw a picture of their favorite plant they like to eat. Graph the results.

Case #3: Grow a plant as a class and graph the growth of that plant over a time determined by the class. Compare the growth spurts of the plant over time.

Center two: Animals

Materials: 1/4 sheet of paper for them to draw on.

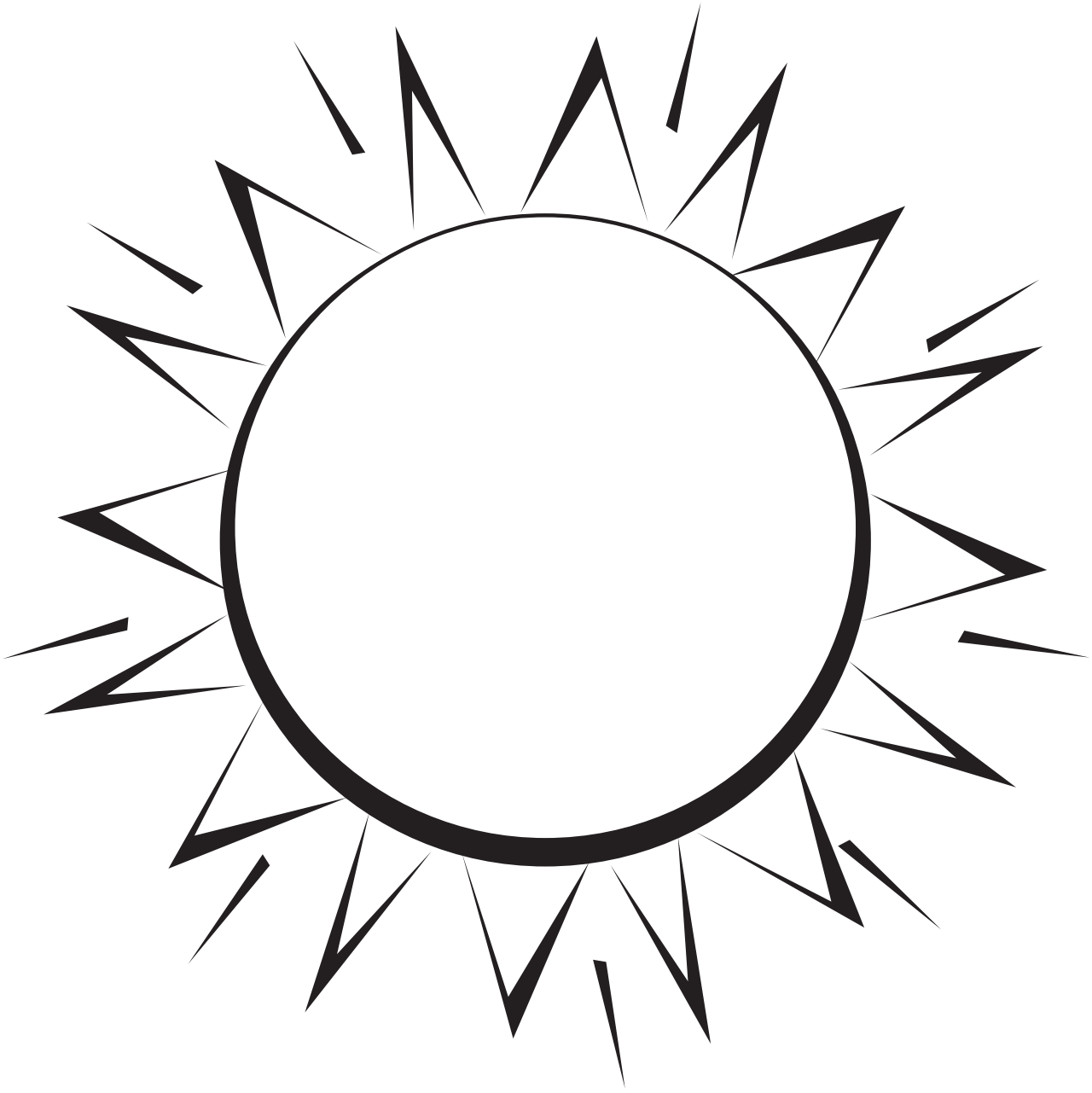
Case #4: Provide paper for them to draw a picture of their favorite animal. Graph the results.

Case #5: Provide paper to draw one animal they have at their home. Graph results.

Case #6: Provide paper to draw an animal and sort according to how they act in the winter: hibernate, hide, migrate, or stay active.

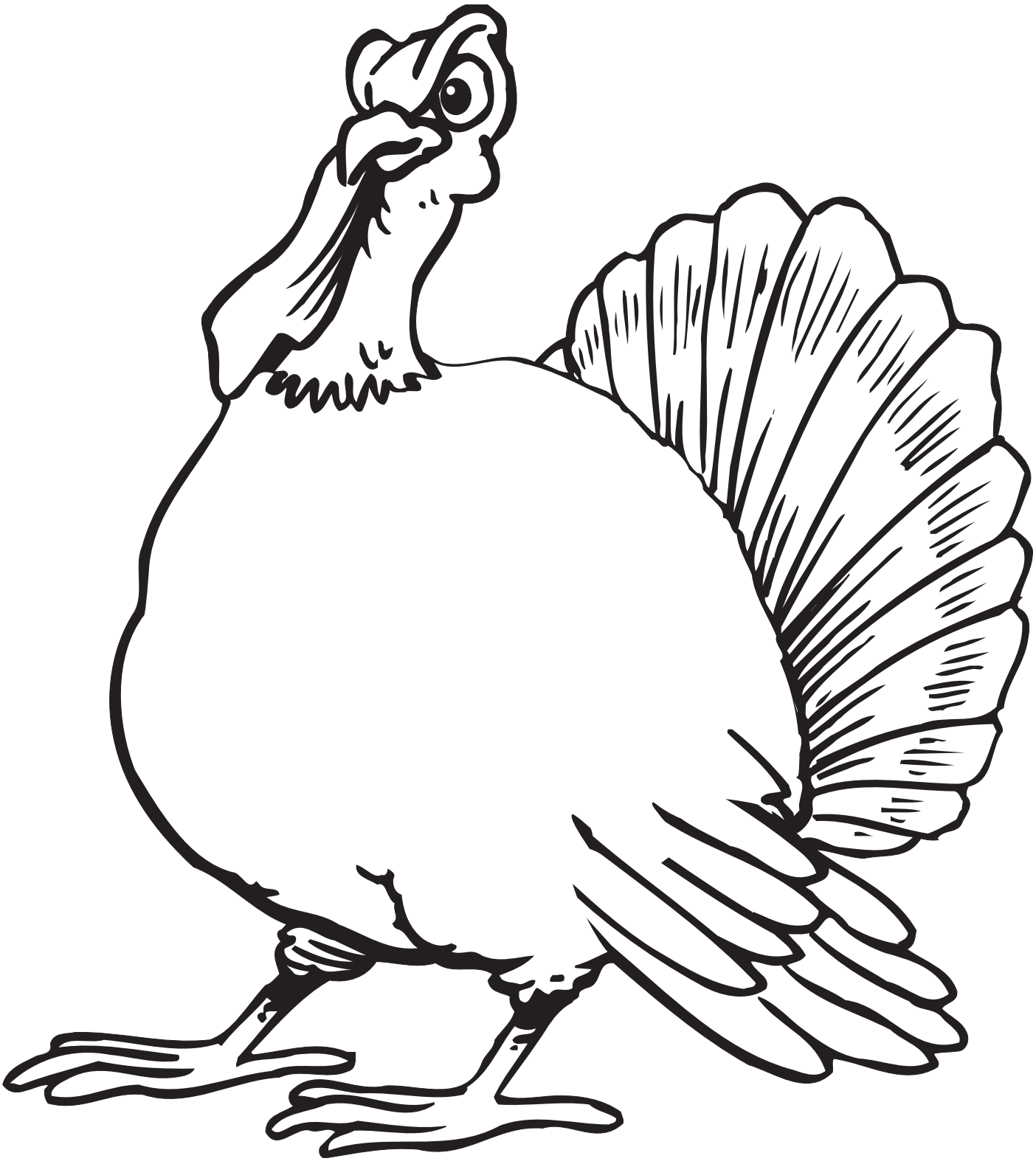
Monthly Integrated Graph

August



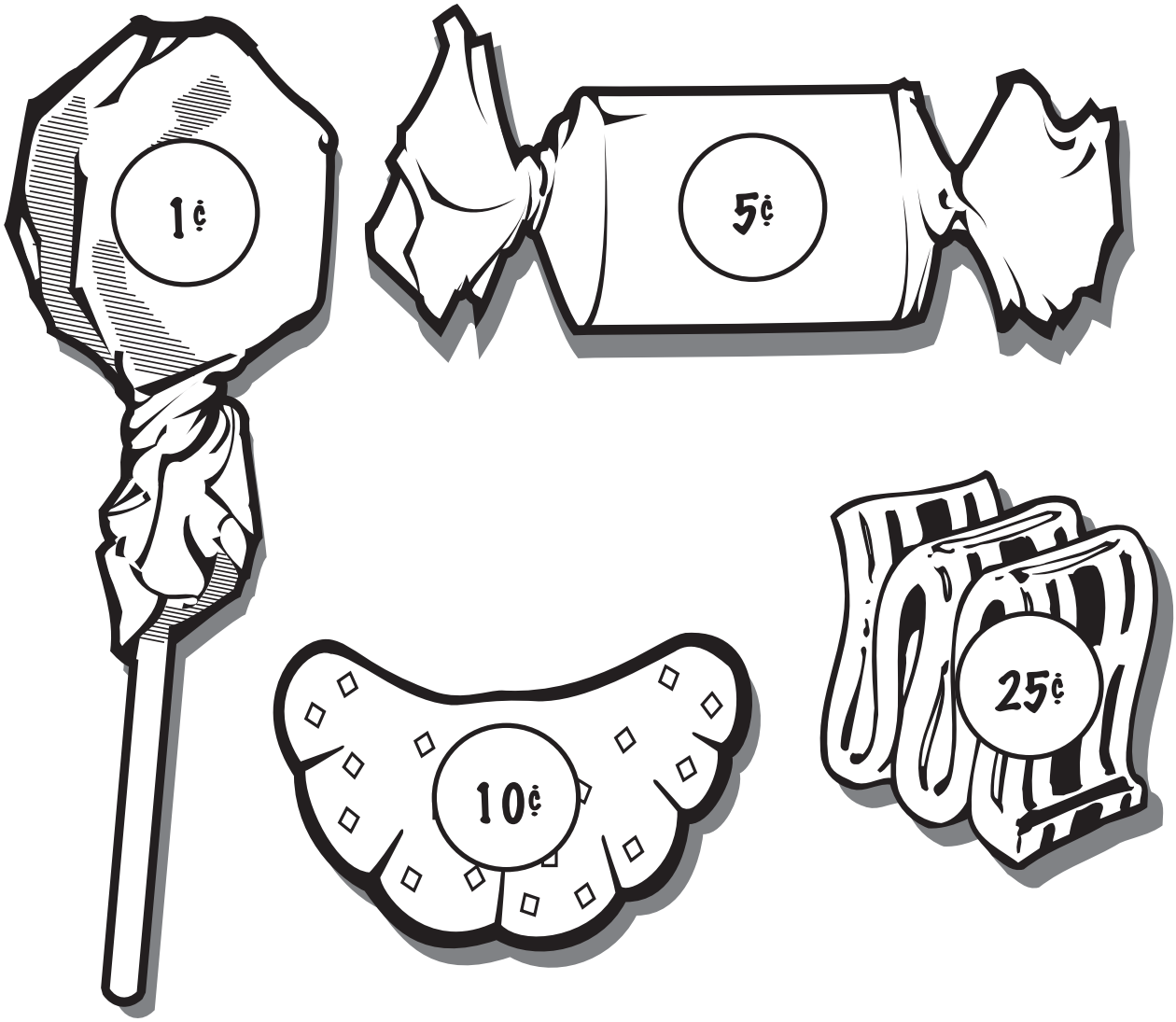
Monthly Integrated Graph

November



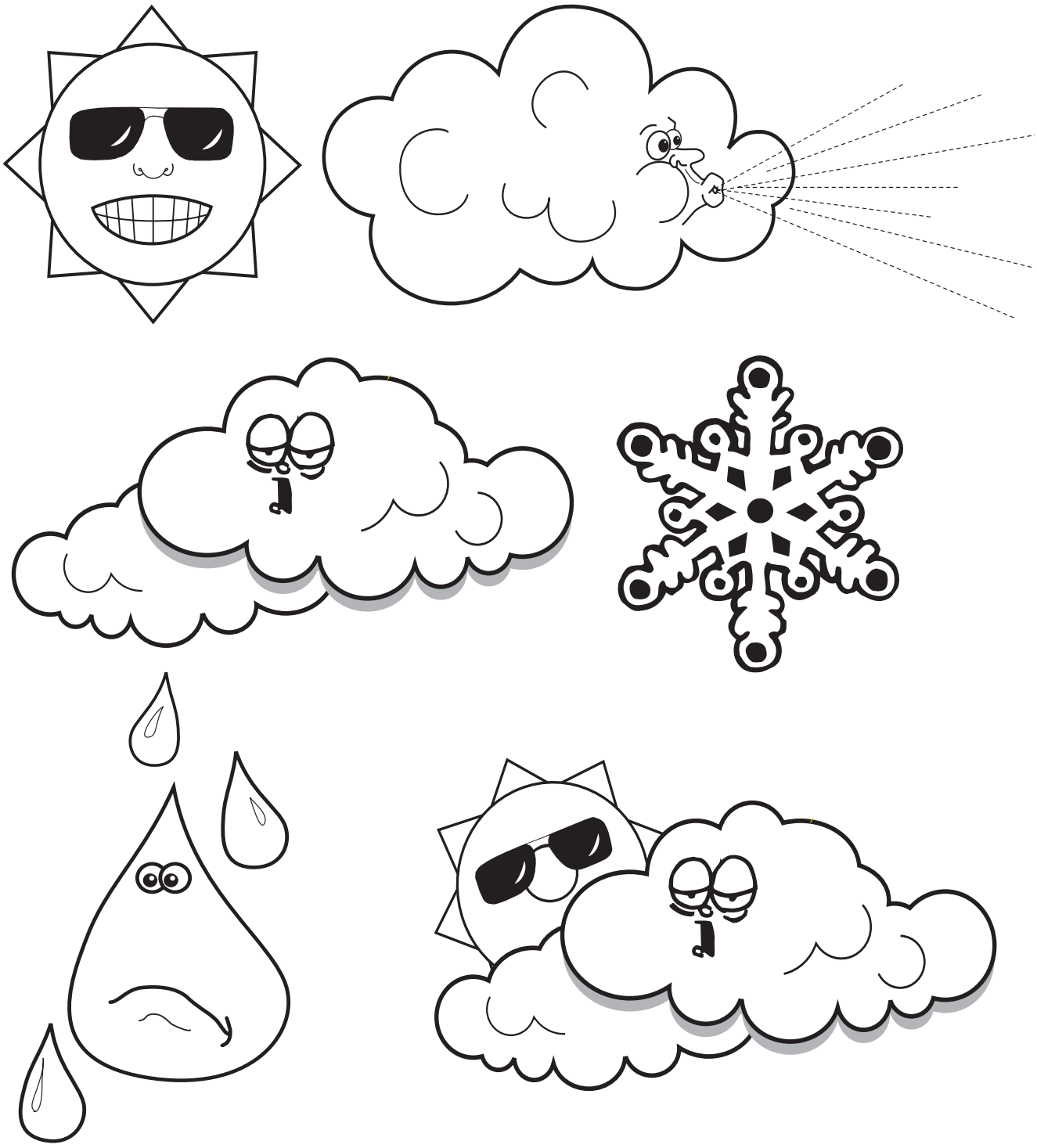
Monthly Integrated Graph

December



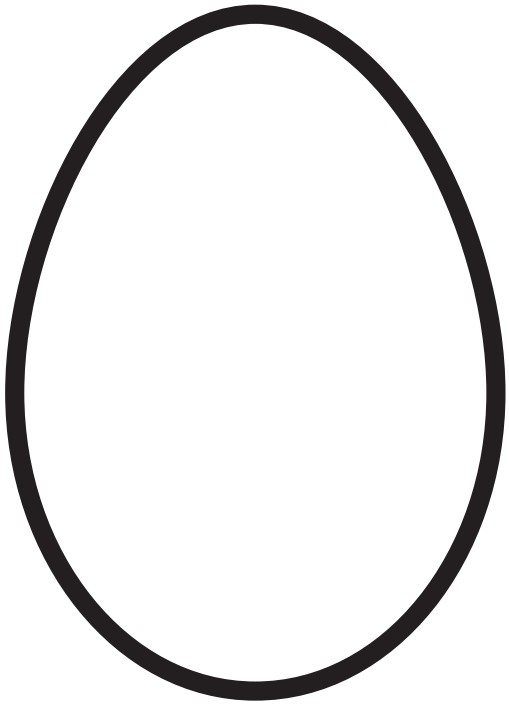
Monthly Integrated Graph

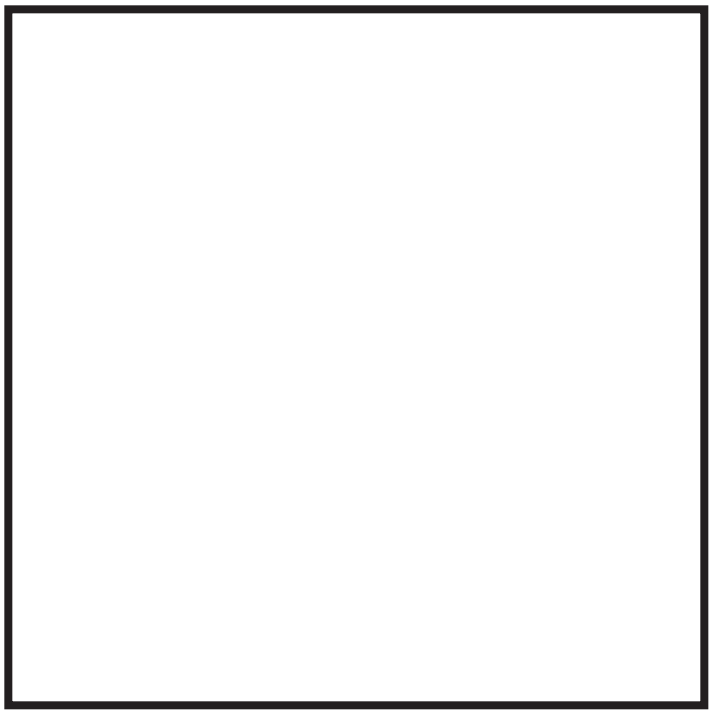
March



Monthly Integrated Graph

April





How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

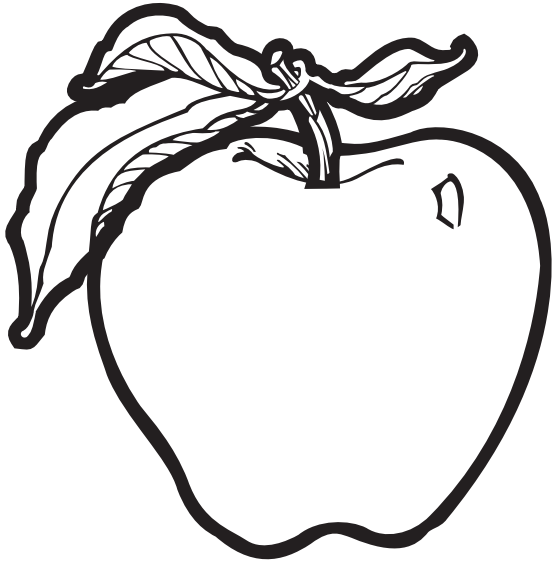
How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

How Does Fur Help Animals?
Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

The Apple Tree Community



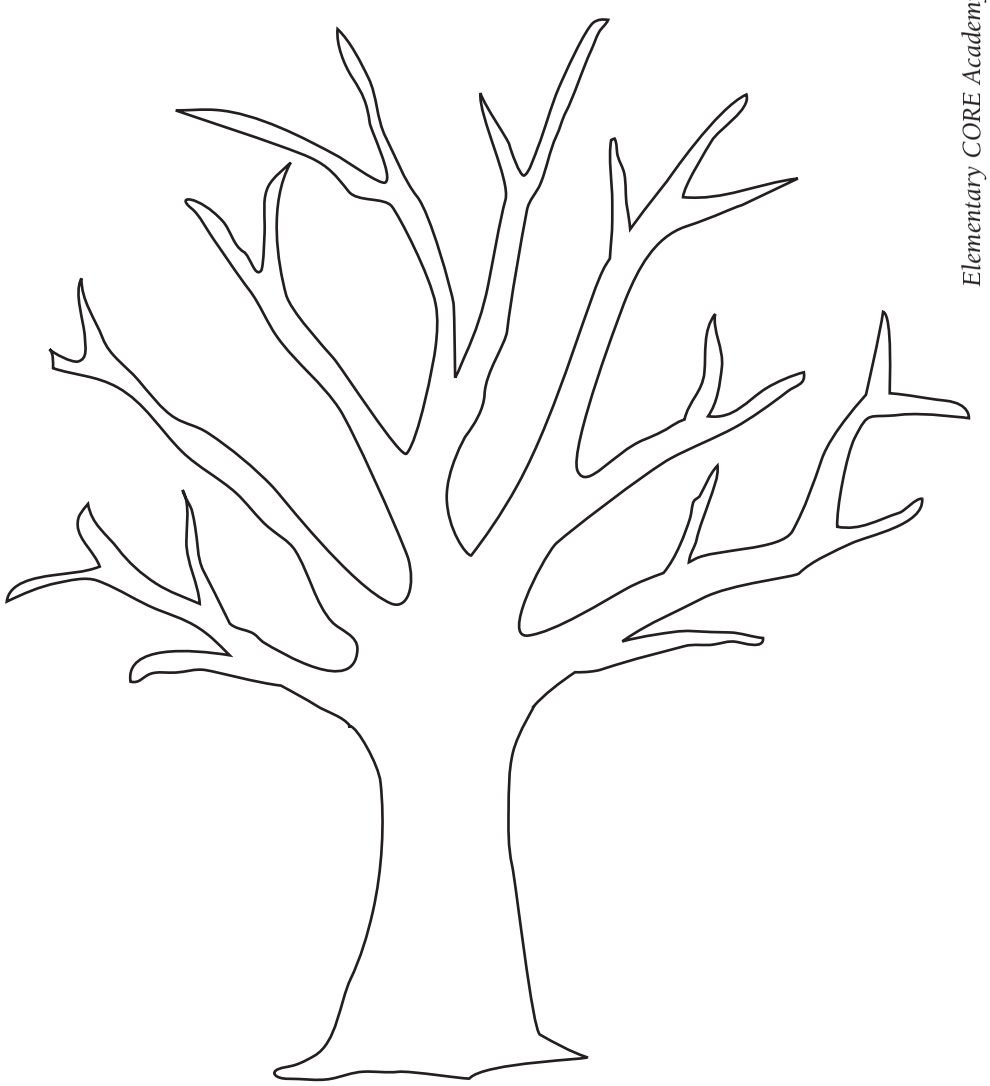
Name _____

In late fall, almost all of the apples are gone. Squirrels collect apples from the ground to hide and eat during the winter. All of the animals that eat the apples will help to scatter the seeds through their droppings. This helps other apple trees to grow. New apple trees will provide food and homes for more animals.

Have you ever thought of an apple tree as a community? Well, it is!

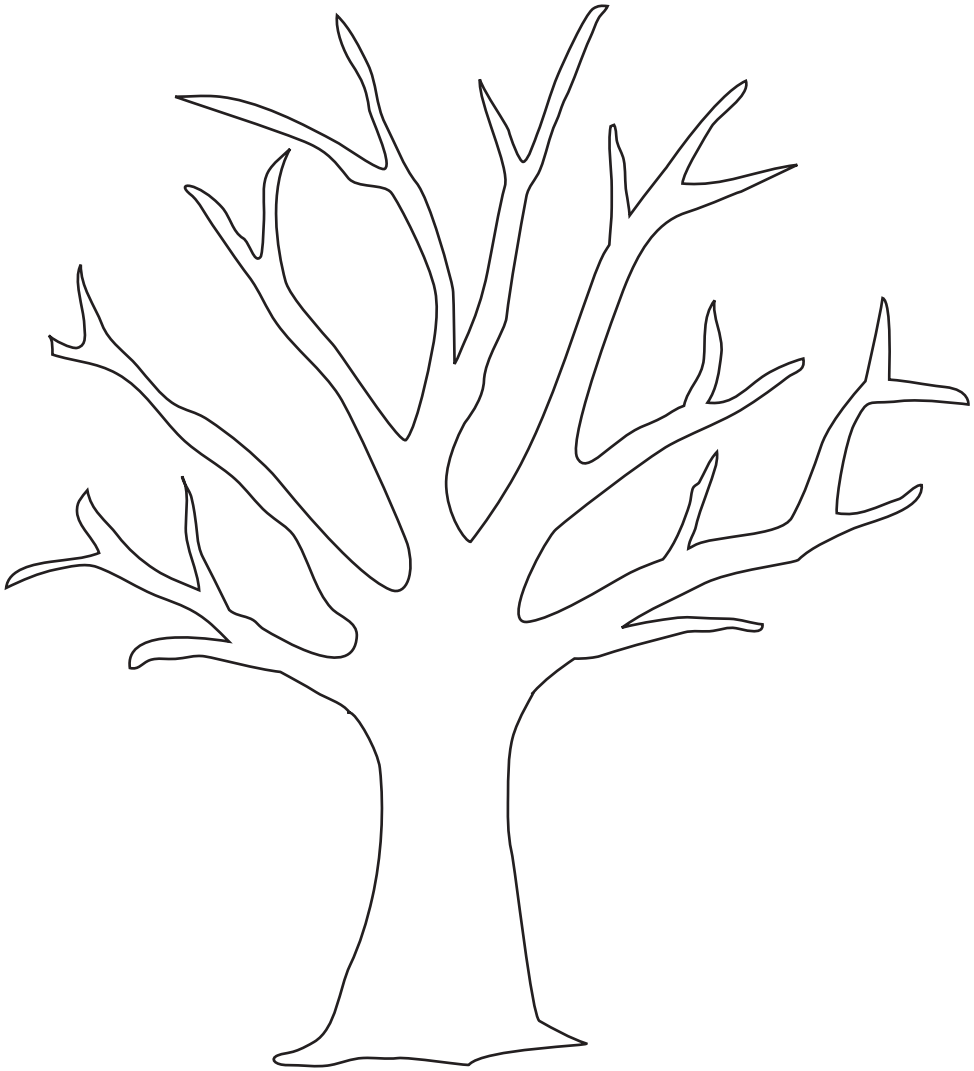
Insects, birds, and other animals make their homes and find food in the apple tree. The apple tree helps the animals and the animals help the tree. They help each other.

In the spring the apple tree is covered with blossoms. Insects drinknectar from the blossoms. As the insects drink nectar, pollen sticks to their bodies and is spread from blossom to blossom. This helps the tree to make apples.



In early fall, the apples are ripe. Birds, insects, deer, squirrels and other animals come to eat the apples.

The animals are getting ready for winter by eating lots. There won't be much food when the weather turns cold.



In the summer the apple tree's leaves are green and apples are startomg to grow. Many animals make their homes in or around the tree.

A **mouse** makes a nest by the tree's roots.

Hornets build a nest in the branches.

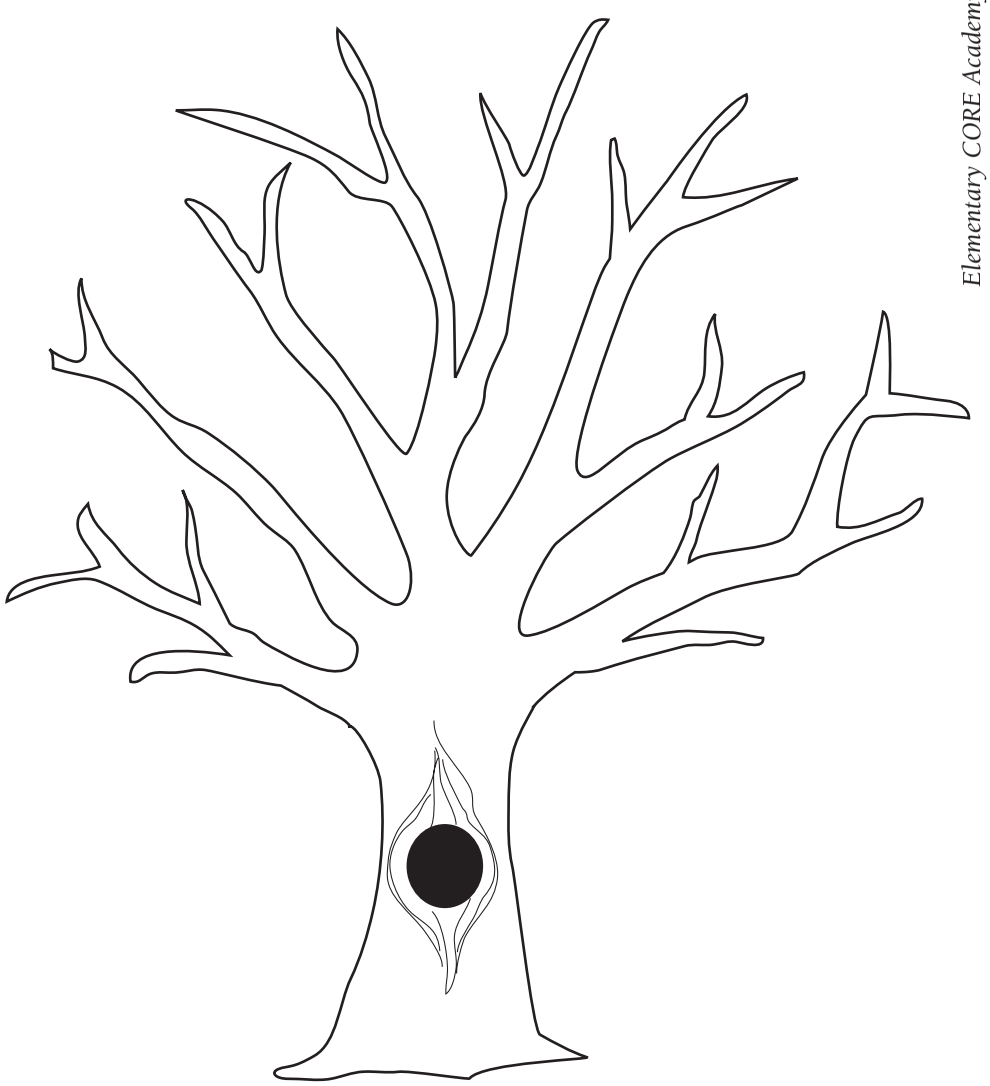
Birds make nests ourt of sticks in the branches and come to eat insects in the tree.

A **woodpecker** makes a hole in the trunk to live in.

A **moth** lays her eggs on a leaf.

Beetles lay eggs on the bark.

A **porcupine** eats the bark.



Food Foldable Inserts

cut

HEALTHY

Non-Examples:

calories

Non-Examples:

oils

cut

Examples:

The usual foods and drinks a person or animal eats

Examples:

Parts of food that your body uses to do its work

Examples:

cut

Roots, leaves, stems, flowers, or pods that are used as food

GRAINS

draw yourself doing two activities that burn calories.

FRUITS

Food made from milk, sometimes called dairy foods

Mineral Vitamins Proteins

Answer _____ nutrients

Draw four foods that have alot of oil.

MEAT AND BEANS

cut

Food Foldable

VOCABULARY

cut

diet

cut

Draw four foods that are in your diet.

cut

energy found in food

cut

Count the types of nutrients:

Carbohydrates Fat Water

cut

How many types of nutrients are there?

cut

fat found in some foods

cut

nutrients

cut

fold

Name _____

Food Groups

Foods made from the seeds of wheat, corn, rice, or other cereal plants

cut

Examples:

cut

Part of a flowering plant that contains seeds

cut

Examples:

cut

Part of an animal that can be eaten as food or beans from a plant

fold

Non-Examples:

cut

VEGETABLES

cut

Non-Examples:

cut

MILK

cut

Non-Examples:

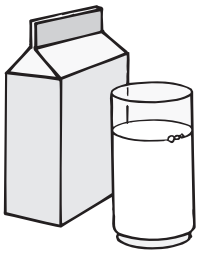
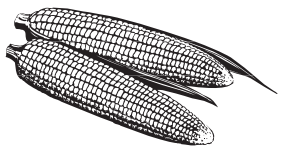
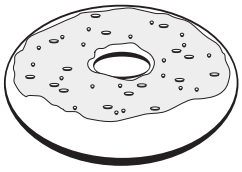
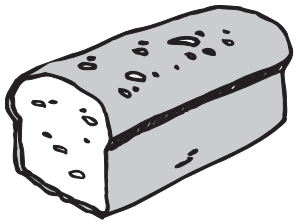
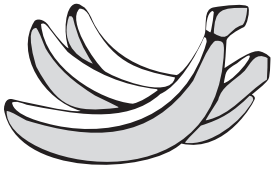
Food Foldable

Name _____

Calories Count

Cut out the 8 foods at the bottom of the page. Glue the kinds of foods we can eat every day in the low calorie box. Glue the kinds of foods we should only eat once in a while in the high calorie box.

Low Calorie Foods		High Calorie Foods	

Name _____

Predictions

1. Answer:

_____ steps

2. Answer:

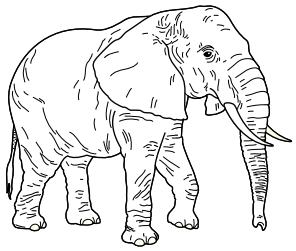
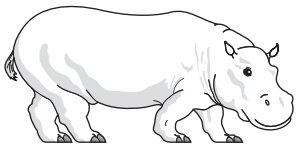
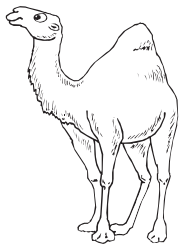
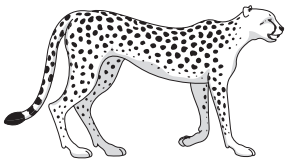
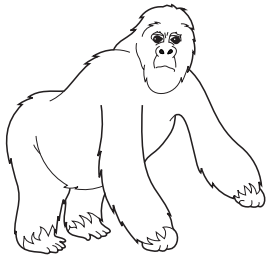
_____ steps

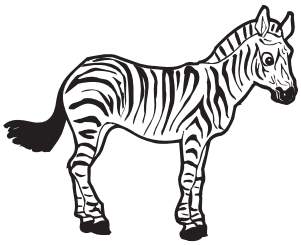
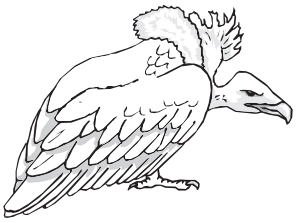
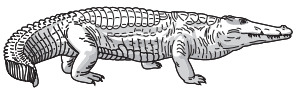
3. Answer:

_____ steps

Name _____

Anticipation Guide

	Is this true? Yes No	It is safe to take off your life jacket if the boat you are in is not moving.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	It is safe to swim alone if the water is not very deep.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should always wear a seat belt even if you are just driving down one street.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	A second grader should not sit in the front seat of a car.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Some poisons look like drinks or candy.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You should not wear a bicycle helmet if you are in your own driveway.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

	Is this true? Yes No	You should never tie any ropes or strings around your neck.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If a stranger tells you to get in a car you should listen to the stranger.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	Children should call 911 if their pet is lost.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If you find matches you should always give them to a grown-up.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	You can cross the street anywhere you want if you run quickly.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		
	Is this true? Yes No	If your ball goes in the street you should chase the ball.	Was your answer correct? Yes No
	Why was your answer correct or incorrect?		

Name _____

Water Safety Anticipation Guide for Parents

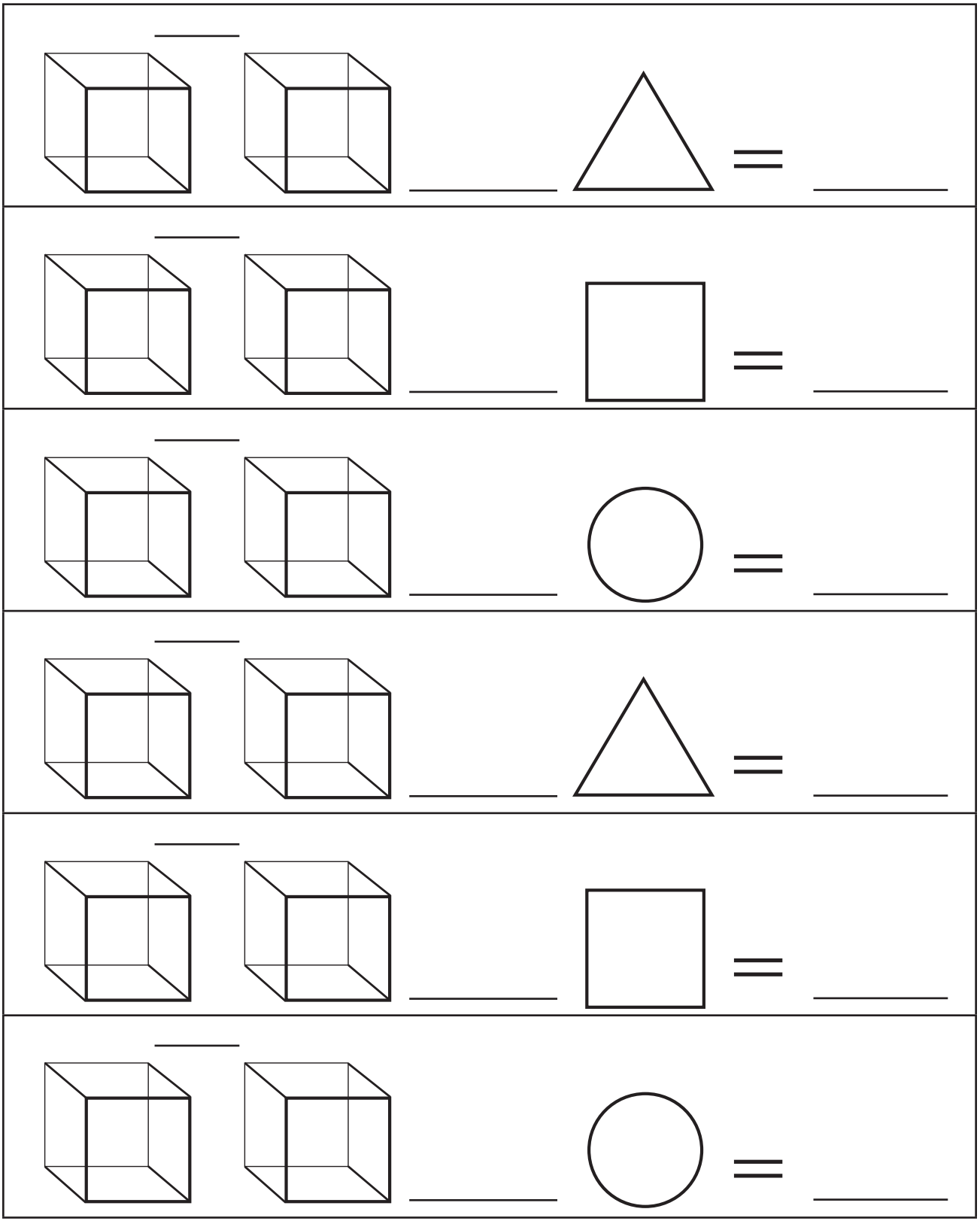
Read each statement. If you think the statement is true put an X on the word yes. If you think that the statement is not true put an X on the word no.

Yes	No	1. Drowning is the fourth leading cause of death among children ages 1 to 14.
Yes	No	2. Nearly 90% of drowning deaths happen while a child is being supervised.
Yes	No	3. Drowning that occurs in the bathtub accounts for more than 10% of all childhood drowning deaths.
Yes	No	4. Most children who drown in pools had been missing from sight for fewer than 10 minutes.
Yes	No	5. Since 1980 less than 50 children have drowned in pools and spas.
Yes	No	6. Children can drown in as little as one inch of water. Children drown in bathtubs, wading pools, diaper pails, toilets, and buckets. It is estimated that 30 children drown each year in buckets.

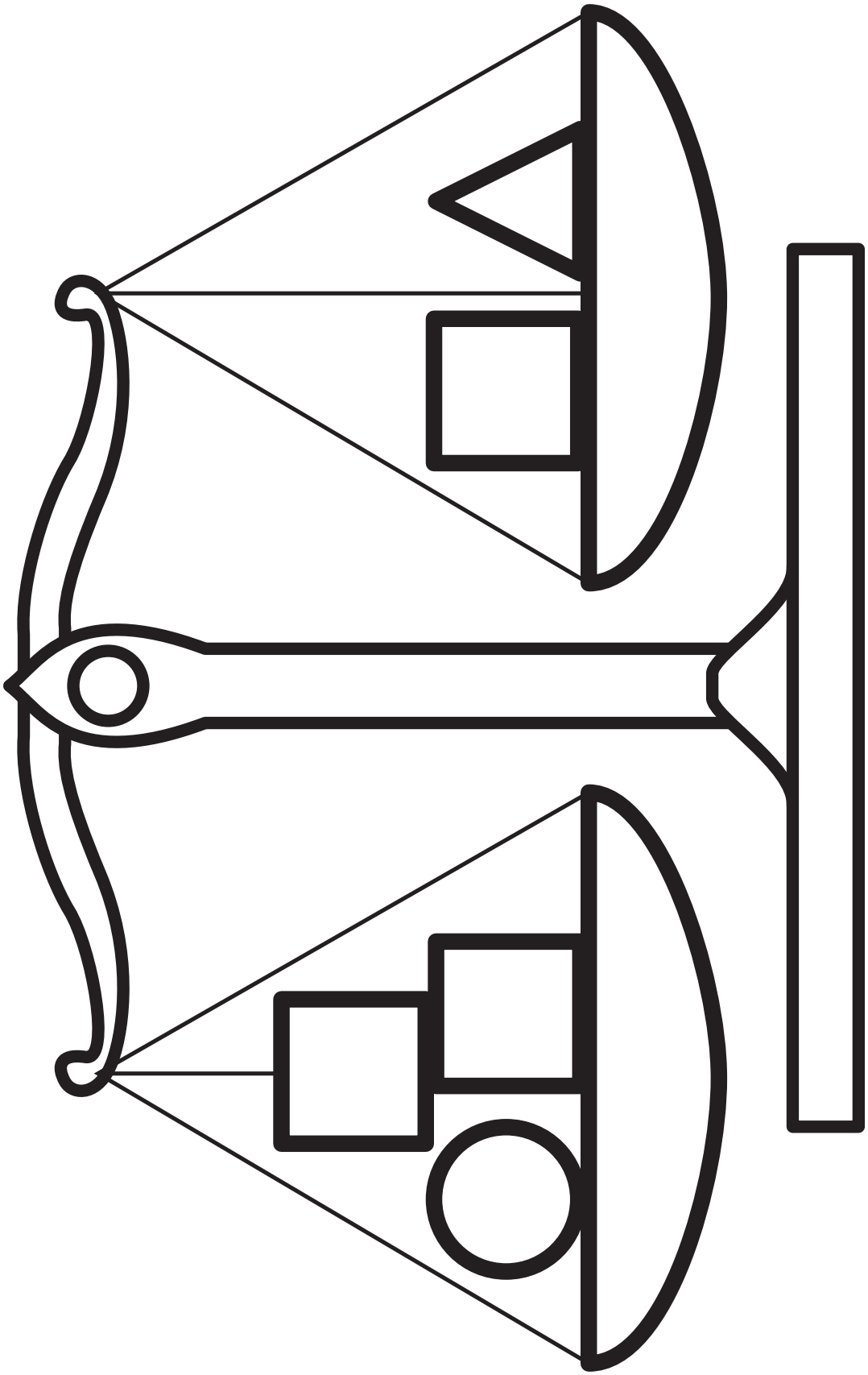
Answers:

1. No: Drowning is the second leading cause of death.
2. Yes
3. Yes
4. No: Most children had been missing less than 5 minutes.
5. No: More than 230 children have drowned in pool and spas.
6. Yes

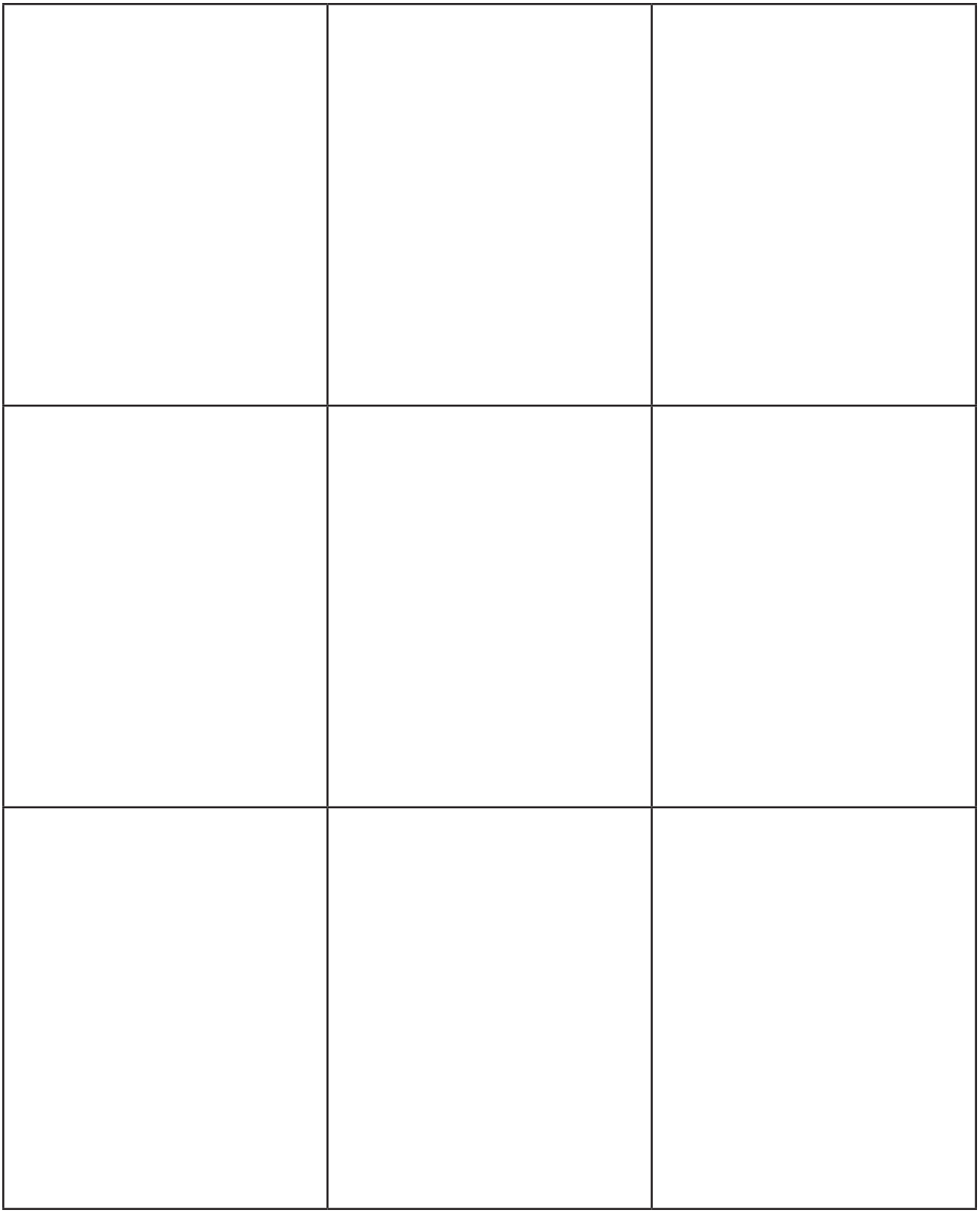
Missing Addend - Dice



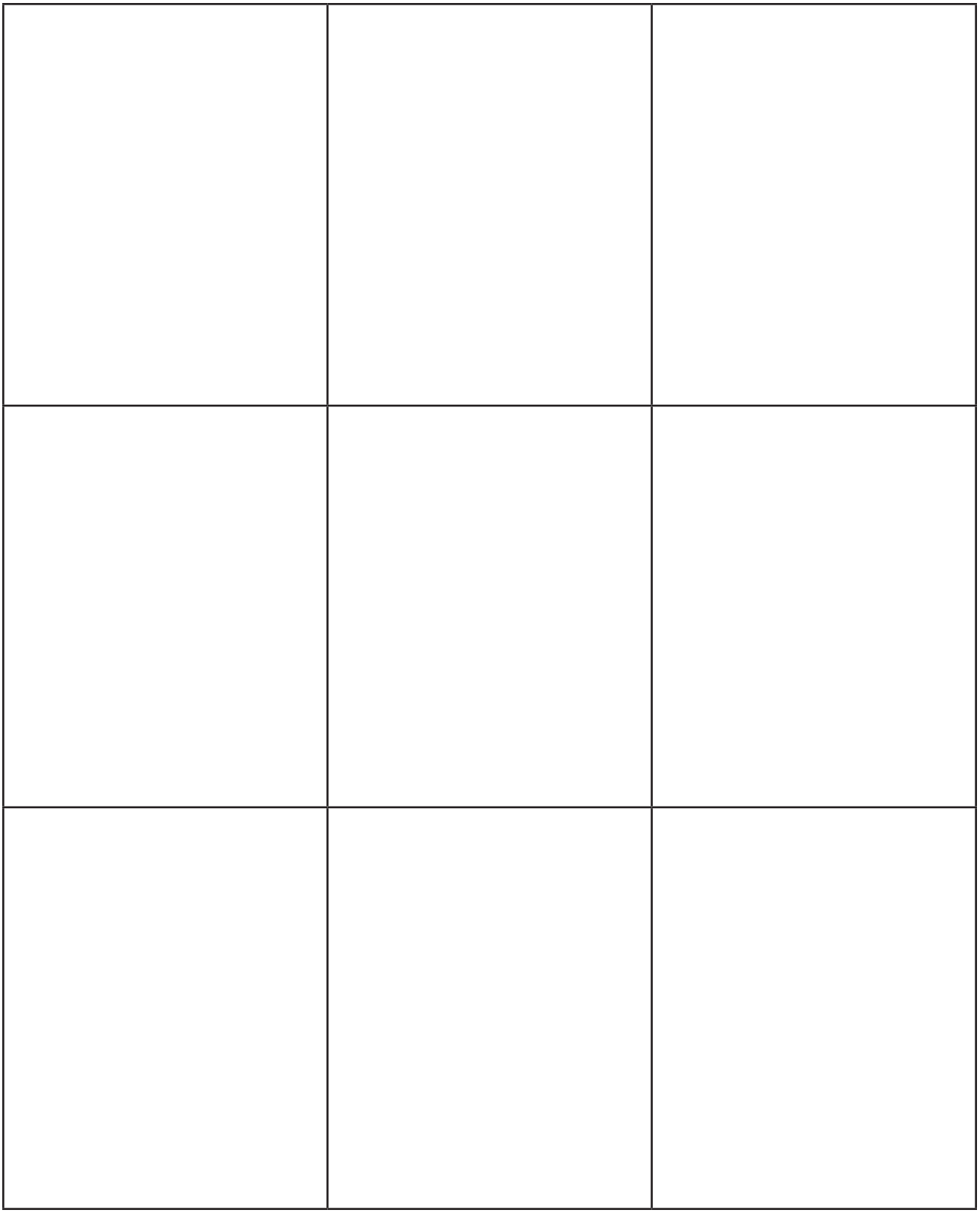
Balance the Beans



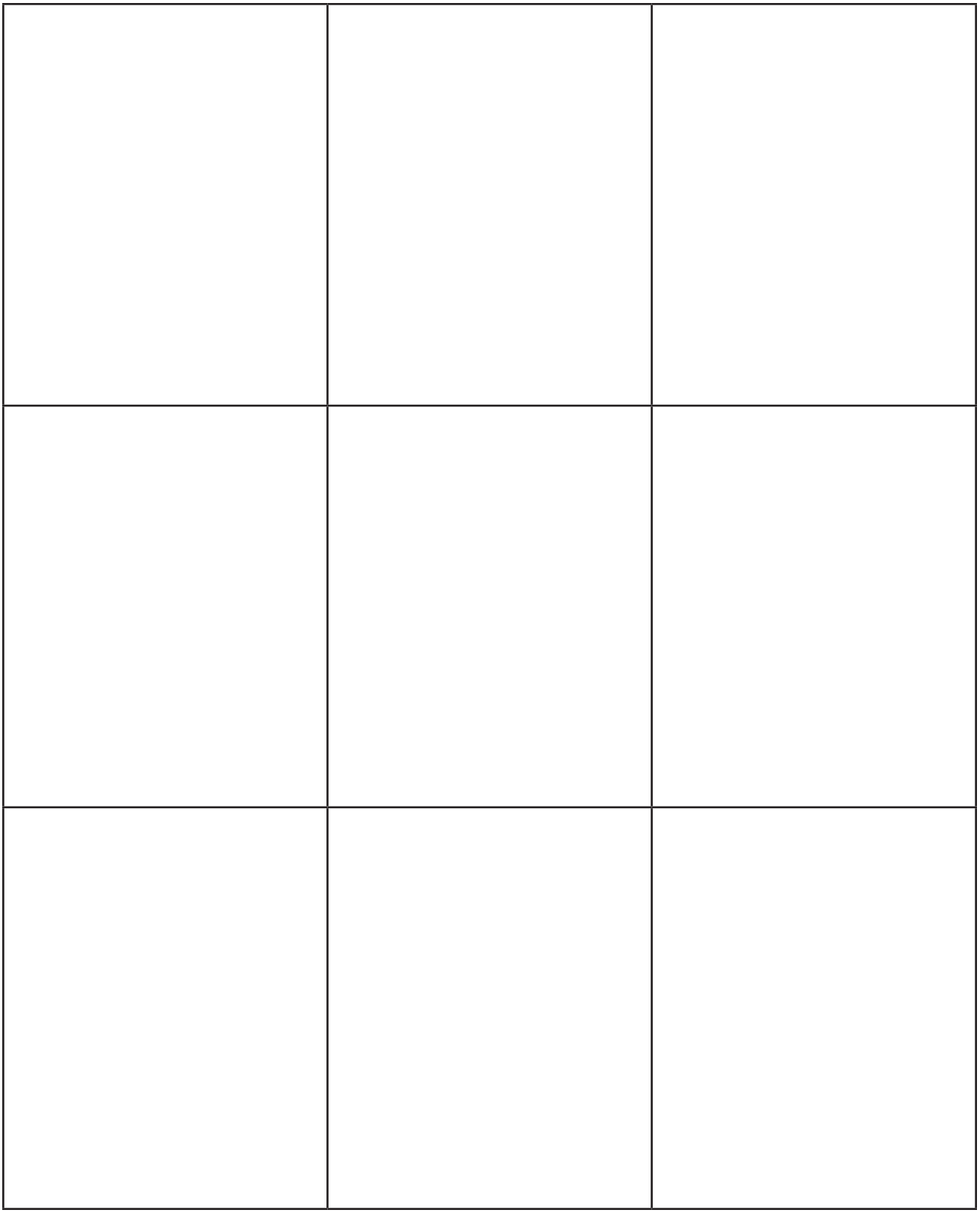
Function Box Cards



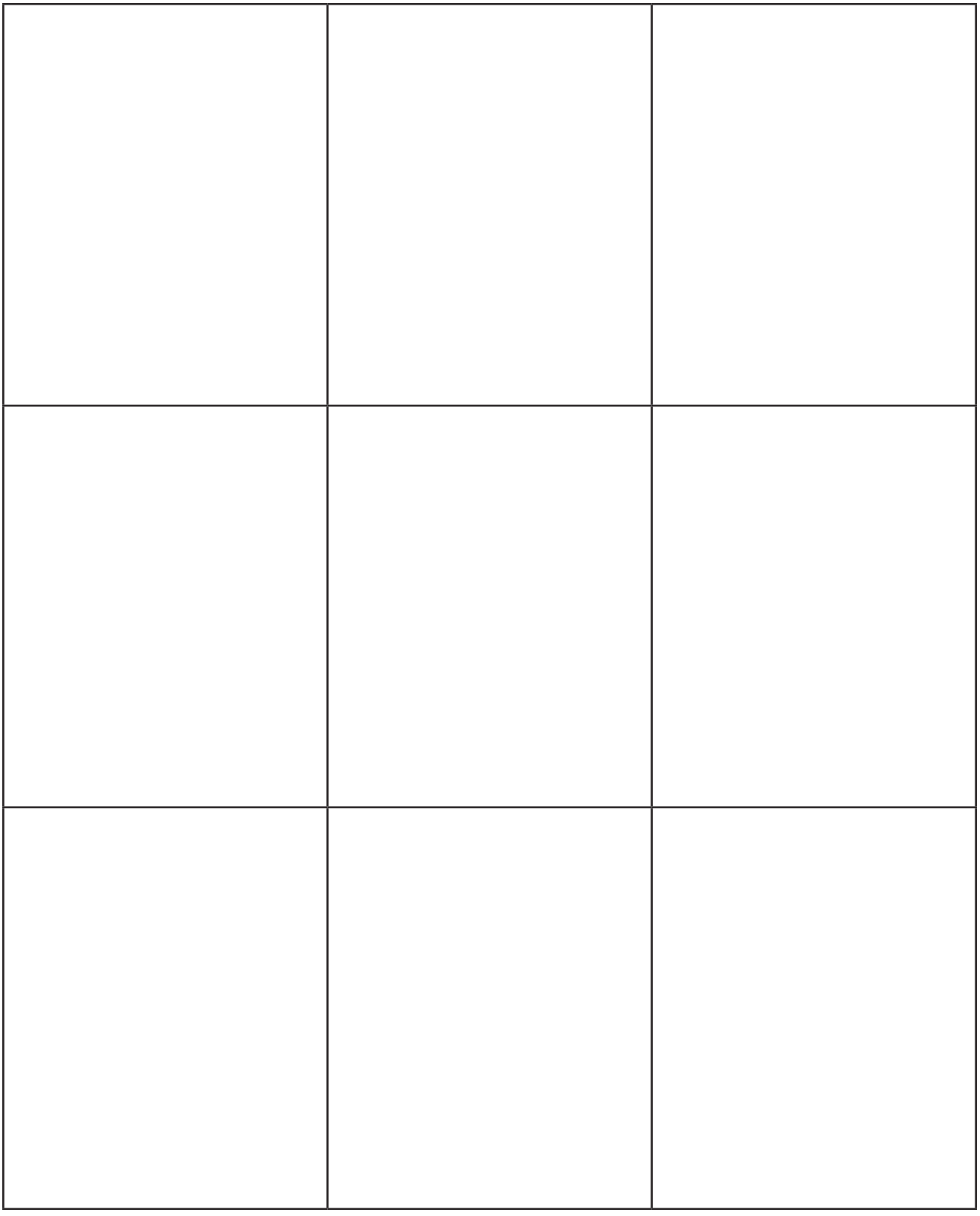
Function Box Cards



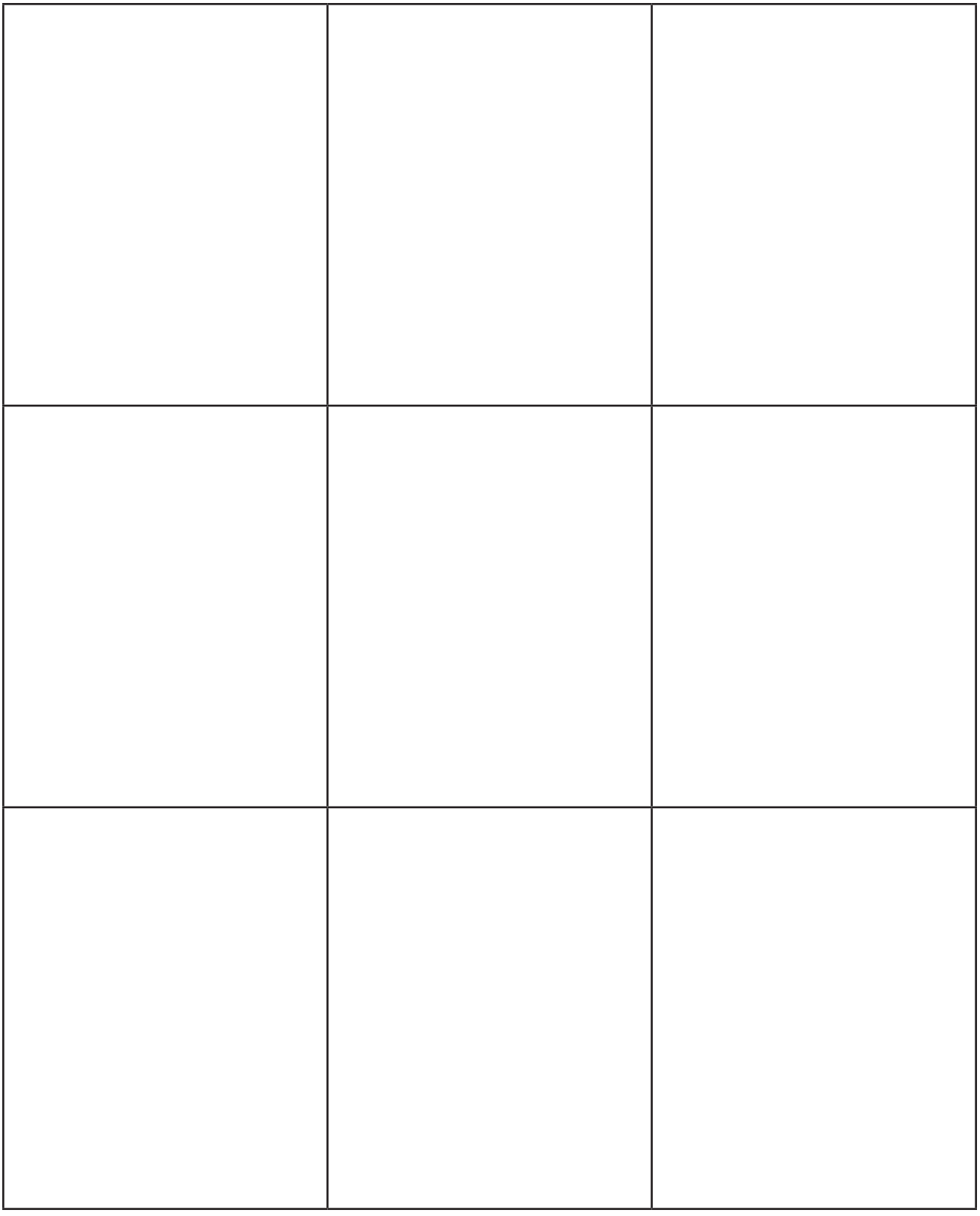
Function Box Cards



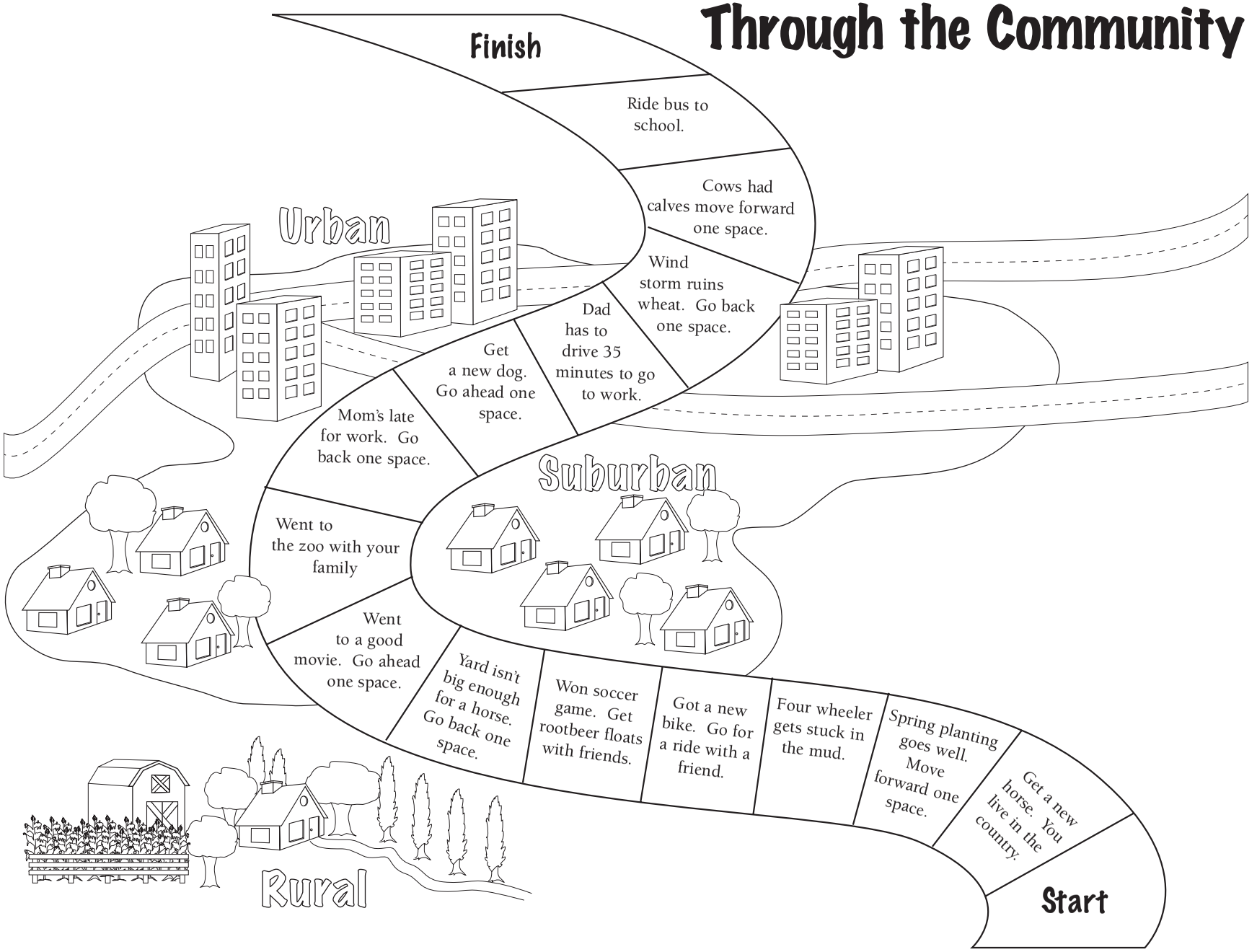
Function Box Cards



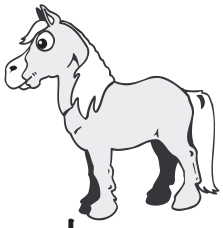
Function Box Cards



Through the Community



Community Characteristic Cards

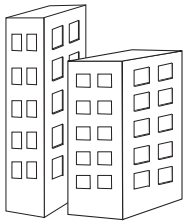


horse

trax train

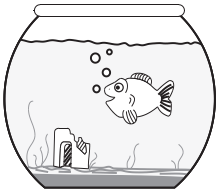
farm house

house



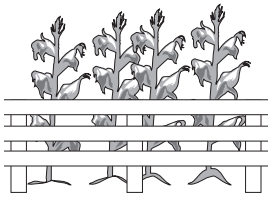
apartment

traffic jam

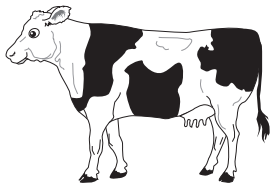


goldfish

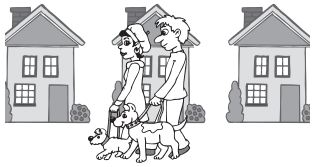
soccer game



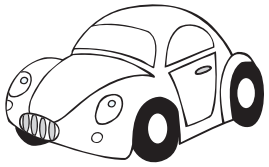
cornfield



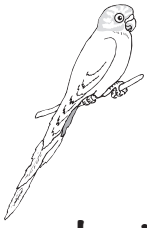
cow



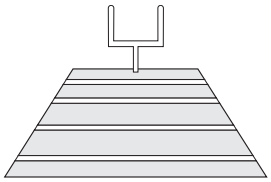
walking dog



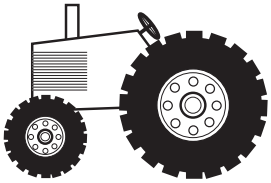
car



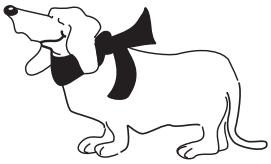
parakeet



football stadium

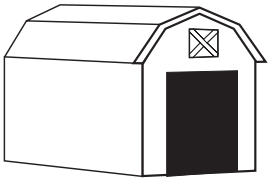


tractor



dog

bike



barn

zoo

cat