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Getting Started



SkillsTutor™ Math provides extensive coverage of the skills students need to improve basic mathematics skills. This coverage is provided through a variety of engaging activities. Each level of *SkillsTutor Math* provides students with basic skills lessons, problem solving lessons, quizzes, tests, and worksheets.

The *SkillsTutor* management system (OTS) provides several important features:

- Test students' skills with pretests and posttests to make initial assessments and to gauge student progress
- Prescribe activities based on students' pretest results
- Monitor student scores and completion of activities
- Produce reports for individual students and classes
- Provide online and print documentation, including printable activity sheets which extend the computer lessons to classroom or home activities

This guide outlines the content and activities of *SkillsTutor Math*. Information on the management system (OTS) is provided under separate cover in the User's Guide.

SkillsTutor Math Lessons

In *SkillsTutor Math*, each lesson has two parts: Warm-Up and Review.

The Warm-Up

The Warm-Up begins with a real-life problem using the skills covered in the lesson. After students read the paragraph, they click **Go On** to continue.

The Warm-Up then uses the problem from the preceding screen as a basis for introducing students to the kinds of activities that will be presented in the Review. Students see the format of the questions and any special manipulatives or tools that will be available to help them answer the questions. Students answer the question and use the tools directly.

The Review

The Review gives students practice problems. Clicking **Hint** provides students with a clue about how to complete the question. Students enter an answer and then click **Check**.

If any question is answered incorrectly, students are given some feedback about why their answer was incorrect. Then they are guided through answering the question.

SkillsTutor Math Problem-Solving Lessons

The Problem-Solving Lessons begin with an overview of the 4-Step Problem-Solving Plan. The steps of the plan are as follows: Understand the Problem, Make a Plan, Solve the Problem, and Look Back. The steps provide a basic structure to the problem-solving process and offer students a methodology for solving application problems.

Each lesson consists of application problems that necessitate the use of the mathematical skills taught in the lessons immediately preceding the Problem-Solving Lesson. The lesson begins with an initial problem presented in a setting that engages the student. Students are guided through the solution of this problem using the 4-Step Problem-Solving Plan. Students are then given the opportunity to review any part of the plan before moving on to the practice problems, where they solve a variety of application problems on their own. In addition to solving the problems, students answer questions that ask them to consider various methods of solution and require them to use critical thinking to extend their understanding of what they've learned. Feedback is provided for all responses.

Quizzes

After finishing a set of lessons, students are given a Quiz. When they answer a question, *SkillsTutor Math* gives feedback. Students must select the correct answer before they can move on to the next question. Click **Next** to see the next question.

Tests

For each level, *SkillsTutor Math* offers content-area pretests and posttests modeled on standardized tests. Like the questions for quizzes, the test questions are presented in multiple choice format to give students practice in answering standardized-test questions. After each test, students have the opportunity to review the questions they missed. Feedback is provided for each missed question.

Worksheets

SkillsTutor Math contains reproducible worksheets for each lesson. The worksheets may be used to extend the computer activity or as a homework assignment.

Each worksheet provides word problems for added practice and challenges students with a creative writing or artistic exercise. The focus is on applications and connections with other areas of the curriculum.

Electronic versions are provided with the online documentation and may be printed from your computer.

Math Lesson Summaries



In this section of the manual, you will find the lesson summaries for each of the lessons in Math A, which includes lessons that are targeted for grades 3 and 4.

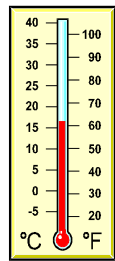
For all levels, lessons are grouped into units that reflect the general concepts covered in the lesson activities. These units appear in the following order:

Math A


- Understanding Numbers
- Using Addition and Subtraction
- Using Multiplication and Division
- Using Geometry
- Using Decimals and Fractions
- Working with Data

The lesson summaries are meant to provide, at a quick glance, a description of the concepts covered in the lesson as well as an example activity from the lesson.

Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
Understanding Numbers			
1	Place Value	<p>Students use a place value chart to learn about place value. Whole numbers contain three or four digits. Decimal numbers go to the hundredths place. The lesson presents three types of questions:</p> <ol style="list-style-type: none"> 1 Students identify a digit in a given place value. 2 Students enter a digit that tells how many of a given place value are in a number. 3 Students enter the value of a specified digit. 	<p>What is the value of 9 in this number? 8907</p> <p>Answer: 900</p>
2	Numbers and Word Names	<p>Students write numerals to represent word names. Whole numbers contain three or four digits. Decimal numbers go to the hundredths place.</p>	<p>What is the word name for this number? 9.02</p> <p>Answer: Nine and two hundredths</p>
3	Comparing and Ordering Numbers	<p>Students compare and order two-digit and three-digit whole numbers using a number line. The lesson presents three types of questions:</p> <ol style="list-style-type: none"> 1 Students enter the correct symbol (<, >, =) to compare two numbers. 2 Students enter a number between two given numbers. 3 Students order numbers from least to greatest value. 	<p>Atos is 230 miles wide. Vars is 410 miles wide. Which asteroid is wider? Answer: Vars. $230 < 410$</p>
4	Temperature	<p>Students use Fahrenheit and Celsius thermometers to measure temperature. The thermometers show temperatures above and below zero.</p> <ol style="list-style-type: none"> 1 Students read the thermometer and determine whether the temperature is higher, lower, or the same as a given temperature. 2 Students place the mercury at a given temperature. 	<p>Set the temperature on this thermometer to 16°C.</p> <p>Answer:</p> 
Using Addition and Subtraction			
1	Basic Addition Facts	<p>Students practice basic addition facts. Any problem can appear in either horizontal or vertical format. The addition includes two addends from 0 to 9 and sums from 0 to 18.</p>	<p>Type the sum. $7 + 5 = 12$</p> $\begin{array}{r} 6 \\ + 4 \\ \hline 10 \end{array}$
2	Basic Subtraction Facts	<p>Students practice basic subtraction facts. Any problem can appear in either horizontal or vertical format. The subtraction includes minuends from 0 to 18 and differences from 0 to 9.</p>	<p>Type the difference. $13 - 9 = 4$</p> $\begin{array}{r} 11 \\ - 5 \\ \hline 8 \end{array}$

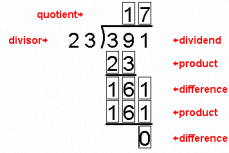
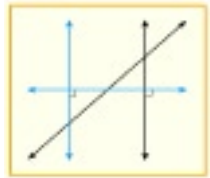
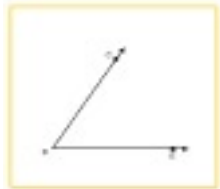
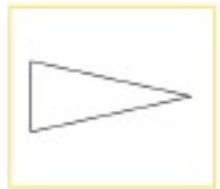
Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
3	Open Sentences	Students solve open sentences. Students are given a basic addition or subtraction sentence with a missing addend or subtrahend. Sometimes the open sentence is an example of the commutative property of addition. Students must type the missing number.	Type the missing number from the number sentence. $5 + \underline{\quad} = 14$
PS1	The Science Project	The guided solution to the initial problem involves solving an open sentence with three addends, one of which is unknown, in a scenario involving the number of leaves in a leaf collection. The practice problems include questions pertaining to selection of the appropriate operation and use of open sentences to model situations, and critical thinking questions in which students extend their understanding of these concepts.	Your science project assignment is to make a leaf collection. You need to find leaves from 12 different kinds of trees. You found 5 different kinds on Wednesday, and 3 different kinds on Thursday. How many more leaves do you need to complete your collection?
4	Estimation by Rounding	Students can use a number line to round numbers to the nearest ten and nearest hundred. Students are given a real-life problem requiring estimation of a sum or difference. They may set up the estimation by entering the rounded numbers. The computer then provides the estimated sum or difference, as well as the exact answer to the problem.	On Monday, 540 girls visited the zoo. On the same day, 730 boys visited. About how many children visited the zoo all together? Set up an equation by rounding each addend to the nearest 100. $500 + 700 = \underline{\hspace{2cm}}$
5	Addition	Students add two-digit, three-digit, and four-digit whole numbers. In some problems, students must line up the addends before finding the sum. The problems consist of two or three addends. Some problems are specifically designed to require no regrouping. Simple regrouping is required for other problems. The sums are two-digit, three-digit, or four-digit whole numbers.	Type the sum. $\begin{array}{r} 3889 \\ + 4984 \\ \hline 8873 \end{array}$
6	Subtraction	Students subtract two-digit, three-digit, and four-digit whole numbers. In some problems, students must line up the numbers before finding the difference. Some problems are specifically designed to require no regrouping. Simple regrouping is required for other problems. The differences range from two-digit to four-digit numbers.	Type the difference. $\begin{array}{r} 632 \\ - 55 \\ \hline 577 \end{array}$
7	Patterns	Students see patterns, some with geometric figures and some with numbers. Each pattern has a missing figure or number. Students must recognize the pattern and identify the missing figure or number. The number sequences are based on rules of addition and subtraction.	Look at the path. The figures on the path form a pattern. One figure is missing. Drag the missing figure into the path. 
PS2	Extra! Extra! Read All About It!	The guided solution to the initial problem involves identifying the arithmetic pattern formed by house numbers on a particular street and applying the pattern to solve the problem. The practice problems require multi-step solutions and include questions pertaining to logical reasoning and interpretation of information, and critical thinking questions requiring students to use creative problem-solving strategies.	Manuel won the Little League raffle. Included in his prize were two tickets to a Major League baseball game and a set of 25 baseball cards. He put the cards in a special baseball-card album with the 68 cards he collected last summer. If the album holds 120 cards, how many more cards will Manuel need to fill the album?



Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
Using Multiplication and Division			
1	Basic Multiplication Facts	Students practice basic multiplication facts. Any problem can appear in either horizontal or vertical format. The multiplication includes factors from 0 to 9 and products from 0 to 81.	Type the product. $9 \times 8 = 72$
2	Basic Division Facts	Students practice basic division facts. The problems are written with both kinds of division symbols. The division includes divisors from 1 to 9 and quotients from 0 to 9.	$28 \div 7 = 4$
3	Open Sentences	Students solve open sentences. Students are given a basic multiplication or division sentence with a missing factor or dividend. They must type the missing number.	$7 \times 4 = 28$
PS1	Let Me See Your Picture	The guided solution to the initial problem involves taking information given about the contents of 4 boxes and using both division and multiplication facts to determine the contents of 9 such boxes. The practice problems include questions pertaining to selection of the appropriate operation and the relationship between multiplication, division and area of a rectangle, and critical thinking questions involving combinations of multiples of different numbers.	The yearbooks have finally arrived! Your job is to manage the sales and distribution of the yearbooks. You have 9 boxes of yearbooks. Each box contains the same number of books. If 4 boxes hold 32 yearbooks, how many yearbooks are there in the 9 boxes?
4	Estimation by Rounding	Students can use a number line to round numbers to the nearest ten and nearest hundred. Students are given a real-life problem requiring estimation of a product. They may set up the estimation by entering the rounded numbers. The computer then provides the estimated product, as well as the exact answer to the problem.	There are 89 homes on your street. This is a typical street. There are 33 streets in your town. Estimate the number of homes in your town. Set up an estimate by rounding each number to the nearest 10. $90 \times 30 = \underline{\quad}$
5	One-Digit Multipliers	Students multiply by one-digit multipliers. Each problem shows a two-digit or three-digit number multiplied by a one-digit multiplier. Some problems are specifically designed to require no regrouping. Simple regrouping is required for other problems. The products are two-digit, three-digit, or four-digit numbers.	Type the product. $\begin{array}{r} 463 \\ \times 9 \\ \hline 4167 \end{array}$
6	One-Digit Divisors	Students divide by one-digit divisors. Each problem shows a two-digit or three-digit number divided by a one-digit divisor. Some problems are specifically designed to require no regrouping. Simple regrouping is required for other problems. The quotients are two-digit or three-digit numbers with no remainders.	Type the quotient. $828 \div 6 = 138$
PS2	The Good Deed	The guided solution to the initial problem uses a picture to help students see how both multiplication and division are needed to solve a problem involving cartons of seed packets. The practice problems include questions pertaining to estimation, interpretation of a remainder, and opportunities to apply the "working backward" and "guess and check" problem-solving strategies.	Your scout troop has decided to plant flower seeds in several different areas of town. The seeds come in packets packed in cartons. There are 24 packets in a carton. You have 6 cartons. There are 9 people in your scout troop. Each scout will plant the same number of seed packets. How many packets should each scout be given to plant?

Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
7	Two-Digit Multipliers	Students multiply by two-digit multipliers. Each problem shows a two-digit number multiplied by either a multiple of ten or any two-digit number. Regrouping is required for some problems. The products are three-digit or four-digit numbers.	Type the product. $35 \times 95 = 3325$
8	Two-Digit Divisors	Students divide by two-digit divisors. Each problem shows a two-digit or three-digit number divided by either a multiple of ten or any two-digit divisor. Regrouping is required for some problems. The quotients are one-digit or two-digit numbers with no remainders.	Type the quotient. 
PS3	Water Wings	The guided solution to the initial problem involves using multiplication to find the number of minutes spent training for a swimming race, and division to convert the result to hours. The practice problems require multi-step solutions, and include questions pertaining to conversion of units, averages, elimination of unnecessary information and the value of a total number of coins.	Daiji's sister also collects coins. She needs an additional \$5.25 in quarters in order to be able to fill 18 quarter rolls. How many quarters does she have?
Using Geometry			
1	Points and Lines	Students identify and draw common geometric terms such as lines, line segments and rays. Students differentiate between intersecting, parallel and perpendicular lines. Correct symbolic notation is instructed.	Select 2 perpendicular lines. 
2	Angles	Students identify four types of angles: right, acute, obtuse and straight. Acute and obtuse angles are presented, and students must identify their relationship to right angles.	Which word best describes this angle? 
3	Plane Geometric Figures	Students identify and classify quadrilaterals and other plane figures by their attributes (vertices/sides).	Which of these figures has 4 vertices? Select the figure that fits the description.
4	Triangles	Students identify and classify triangles based on their angle measures (right/acute/obtuse) and the measures of their sides (isosceles/equilateral/scalene).	Which word best describes this triangle? 

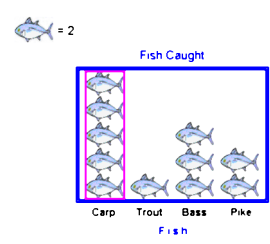
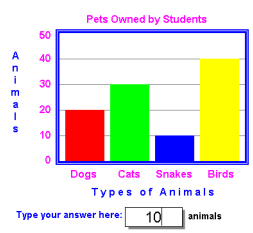
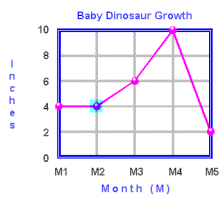
Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
5	Solid Geometric Figures	Students identify and classify common solid geometric figures by their attributes (faces/vertices/edges).	Which of these figures is a cylinder?
6	Symmetry and Congruence	Students identify figures with bilateral symmetry and draw lines of symmetry to verify symmetrical plane shapes. Students identify congruent figures.	Which figure is symmetrical?
Using Decimals and Fractions			
1	Fractions	Students learn the meaning of fractions. Each problem presents a rectangular picture frame and a simple fraction to represent in the frame. Students "cut" the rectangle into equal parts and highlight the appropriate number of parts. The fractions have denominators up to 12.	<div style="text-align: center;"> <p>Show $\frac{1}{3}$</p>  </div>
2	Decimals and Percents	Students learn the meaning of decimals and simple percents. Each problem presents a rectangular picture frame divided into 10 or 100 equal parts. Students type a decimal or percent to represent the shaded region.	<div style="text-align: center;"> <p>0.7</p>  </div>
3	Addition of Decimals	Students add decimal numbers. Students see two to four addends with one or two decimal places in each addend. In some problems, students must line up the addends before finding the sum. Some problems are specifically designed to require no regrouping. Simple regrouping is required for other problems. The sums are decimal numbers to the tenths or hundredths place. Special emphasis is given to problems involving money.	<p>Type the sum. Then drag the decimal point into the sum.</p> $\begin{array}{r} \$79.98 \\ 0.68 \\ + 8.86 \\ \hline \$89.52 \end{array}$
4	Subtraction of Decimals	Students subtract numbers that have one or two decimal places. Some problems require students to align the decimal numbers before finding the difference. All problems require students to place the decimal point in the difference. Students may also be required to regroup one or two times. Special emphasis is given to problems involving money.	<p>Type the difference. Then drag the decimal point into the difference.</p> $\begin{array}{r} 72.54 \\ - 9.80 \\ \hline 62.74 \end{array}$

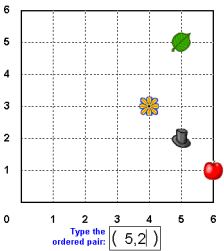
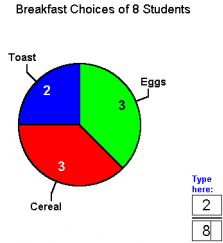
Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
PS1	Puppy's Pen	The guided solution to the initial problem involves determining how much fencing, beyond a given amount, is needed to enclose a rectangular pen whose dimensions are non-integral. The practice problems require multi-step solutions, and include questions pertaining to the calculation of monetary change and the use of a table to organize information.	It's your birthday, and your aunt bought you a puppy! Your mom says you can build a pen for the puppy in the yard. You decide to build a rectangular pen in the corner of the yard. The length of the pen can be 12.4 meters, and the width can be 8.3 meters. You have $\frac{1}{2}$ meters of fencing. Is this enough to fence in the pen? If not, how much more fencing will you need?
5	Multiplication of Decimals	Students multiply a two-digit or three-digit decimal number (tenths or hundredths) by a one-digit whole number. Regrouping is required for some problems. The products are decimal numbers to the tenths or hundredths place. Special emphasis is given to problems involving money.	Type the product. Then drag the decimal point into the product. $\begin{array}{r} \$7.87 \\ \times 9 \\ \hline \$70.83 \end{array}$
6	Division of Decimals	Students divide decimal numbers by whole numbers. Problems show a two-digit or three-digit decimal (to the tenths or hundredths place) divided by a one-digit whole number. The quotients are two-digit or three-digit decimal numbers. Special emphasis is given to problems involving money.	Type the quotient. Then drag the decimal point in the quotient into place. $\begin{array}{r} \$ 80 \\ 7 \overline{) \$560} \\ \underline{56} \\ 00 \end{array}$
7	Equivalent Forms	Students learn about equivalent fractions. Each problem presents two fractions, one with a missing numerator. Students must enter the missing numerator. The fractions have denominators up to 12.	$\frac{1}{4} = \frac{3}{12}$
PS2	School's Out	The guided solution to the initial problem involves using both multiplication and division to solve a problem involving fair shares of the cost of 3 six-packs of soda. The practice problems require multi-step solutions, and include questions pertaining to unit pricing and averages. A critical thinking problem requires students to solve a problem by working backward, reinforcing the concept of multiplication and division as inverse operations.	The school year is over! You and your friends are going to a beach party to celebrate. There will be hotdogs and hamburgers, but you must bring your own soda. You and three friends chip in and buy three 6-packs of soda. Each 6-pack costs \$2.52. How much does each person need to chip in?
8	Addition of Fractions	Students add simple fractions that have the same denominator. The addends are represented on a fraction bar. The sum is always one or less. The fractions have denominators up to 12.	$\frac{4}{7} + \frac{2}{7} = \frac{6}{7}$
9	Subtraction of Fractions	Students subtract simple fractions that have the same denominator. The fractions are represented on a fraction bar. The difference is always less than one. The fractions have denominators up to 12.	$\frac{7}{11} - \frac{3}{11} = \frac{4}{11}$
10	Multiplication of Fractions	Students multiply a simple fraction by a whole number. The first factor is represented on a fraction bar. The product may sometimes be an improper fraction. The fractions have denominators up to 12.	$\frac{2}{9} \times 7 = \frac{14}{9}$

Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
PS3	Lemonade Stand	The guided solution to the initial problem involves working with fractions to find parts of a gallon and multiples of those parts in the context of making iced tea and lemonade. The practice problems include questions pertaining to fractional parts of a whole and comparison of fractions, and critical thinking questions in which students extend their understanding of these concepts.	You've bought all the ingredients, including several cases of one-gallon jugs of water. Each jug contains exactly enough water to make one pitcher of iced tea and one pitcher of lemonade. Each pitcher of iced tea requires $\frac{2}{5}$ gallon of water. How much water do you need for each pitcher of lemonade? How much water will 8 pitchers of lemonade require?
Working with Data			
1	Pictographs	Students cycle through a set of three questions for each pictograph. Pictures on the graphs represent either a small number of units or a number such as 10, 50, or 100. The three types of questions require students to interpret the pictographs: 1 Students click on a label or column of pictures that show a particular value. 2 Students click on a label or column of pictures to indicate "least" or "most." 3 Students enter a number to answer "how many more or fewer?"	Click on the column that has the greatest value. 
2	Bar Graphs	Students cycle through a set of four questions for each bar graph. Bars on the graphs end at a labeled value. No interpolation is required. The four types of questions require students to interpret the bar graphs: 1 Students click on a bar that shows a particular value. 2 Students click on a label or bar to indicate "least" or "most." 3 Students enter a number to answer "how many more or fewer?" 4 Students click on a bar that is x units higher or lower than a given bar.	Type how many more or fewer dogs are showing than cats. 
3	Graphing Ordered Pairs	Students use ordered pairs to find locations on a grid. Images are pictured on the grid. Some problems require students to click on an image representing a given ordered pair. Other problems require students to type the ordered pair for a given image. The x-axis and y-axis increment by 1, from 0 to 6.	Click on a point that has 2 inches more OR fewer than Month 5. 

Level A Lesson Summaries

Lesson #	Lesson Title	Rules/Summary	Example
4	Line Graphs	<p>Students cycle through a set of four questions for each line graph. The y-axis increments by units of 1, 2, and 1000. The four types of questions require students to interpret the line graphs:</p> <ol style="list-style-type: none"> 1 Students click on a point that shows a particular value. 2 Students click on a point to indicate “least” or “greatest” value. 3 Students enter a number to answer “how many more or fewer?” 4 Students click on a point that differs from another point by a certain amount. 	<p>Type the ordered pair that gives the location of the hat.</p> 
5	Circle Graphs	<p>Students work through questions that require them to interpret circle graphs. Each circle graph is divided into three or four sections and represents up to 12 observations. The sections are labeled with whole numbers. Some questions ask students to click on the section of the graph showing “the least” or “the most.” Other questions ask students to type a fraction to indicate “what part” of the circle a given section represents.</p>	<p>Type the fraction that tells what part of the students chose toast.</p> 

Worksheets



This section contains reproducible worksheets for each lesson in *Math A*. These worksheets may be used by students to extend the classroom activity or as a homework assignment. The worksheet provides word problems for added practice and challenges students with a creative writing or artistic exercises. The focus is on applications and connections with other areas of the curriculum.

Place Value Worksheet**Lesson 1**

Use place value to identify the value of a digit.

Bonus Bumper	2 in the thousands place	Laser Lights:	
Double Sign	doubles the hundreds place	Orange	3 in the hundreds place
Target Holes:		Yellow	9 in the ones place
Red	1 in the thousands place	Blue	5 in the tens place
White	2 in the hundreds place	Purple	9 in the hundreds place
Black	9 in the tens place	Green	8 in the tens place

You are playing a pinball game in an arcade. So far, your score is **10,230**. The table above shows the points you can earn. What will your score be if the next ball does the following:

- Spins fast and hits the bonus bumper? _____
- Hits the blue laser light? _____
- Hits the flashing double sign? _____
- Hits the orange laser light? _____
- Bounces into the red target hole? _____
- Hits the yellow laser light? _____
- Drops in the white target hole? _____
- Hits the green laser light? _____
- Hits the purple laser light? _____
- Hits the orange laser light and then drops into the black target hole? _____

Write Idea: You see a sign on another machine. It says you win a free game if you get 8870 points. The bumpers on this machine are worth 1000, 100, 50, and 10. You lose right away if you hit the 1000-point bumper more than 6 times. Explain how you can win.

Numbers and Word Names

Lesson 2

Use place value to identify the name of a number.

When writing a check you must write the amount in two ways. One way is to write the word name of the number. Another way is to write the numeral. Look at this example:

John Smith
401 North Carolina Ave.
Anywhere, USA 12231

0891
June 3 1996

Pay To: **Nancy Green** \$ **427.38**

Four hundred twenty seven and $\frac{38}{100}$ Dollars

Supplies
Memo
09 00032 7890

John Smith
Signature

Look at the checks below. Notice that one way of writing the amount is missing on each check. Fill in the missing information.

Linda Washington
1215 Meadow View Road
Anywhere, USA 12231

089
July 29 1996

Pay To: **Durable Hardware** \$

Six hundred eighty-three and $\frac{00}{100}$ Dollars

Garden tools
Memo
02 07732 4490

Linda Washington
Signature

Margaret Evans
81 Orange Avenue
Anywhere, USA 22231

091
May 21 1996

Pay To: **Computer World** \$

One thousand fifty-nine and $\frac{00}{100}$ Dollars

Computer
Memo
07 00029 1210

Margaret Evans
Signature

Marcus Jefferson
67-A Steel Street
Anywhere, USA 72231

1212
April 15 1996

Pay To: **Appliances Plus** \$

Nine hundred forty-six and $\frac{00}{100}$ Dollars

Washer and dryer
Memo
10 00065 9890

Marcus Jefferson
Signature

Joseph Michaels
Cypress Street
Anywhere, USA 55231

002
March 27 1996

Pay To: **Power Auto** \$

Four thousand five hundred fifty-three and $\frac{00}{100}$ Dollars

Car
Memo
10 55532 5790

Joseph Michaels
Signature

Karen Jacobs
Snow Hill Road
Anywhere, USA 92231

052
July 8 1996

Pay To: **Express Travel** \$ **7,026.00**

Dollars

Vacation
Memo
15 55590 5090

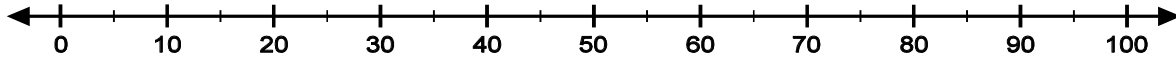
Karen Jacobs
Signature

smART Idea: Pretend it is 15 years in the future. Your boss has just given you a special bonus check for \$1,976.00. Draw a picture of the check and fill it in. Tell what kind of job you have. What did you do to earn the bonus? How will you spend this extra money?

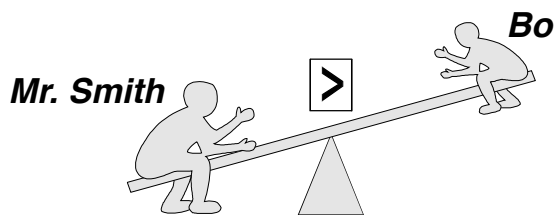
Comparing and Ordering Numbers

Lesson 3

Use a number line to compare and order numbers.

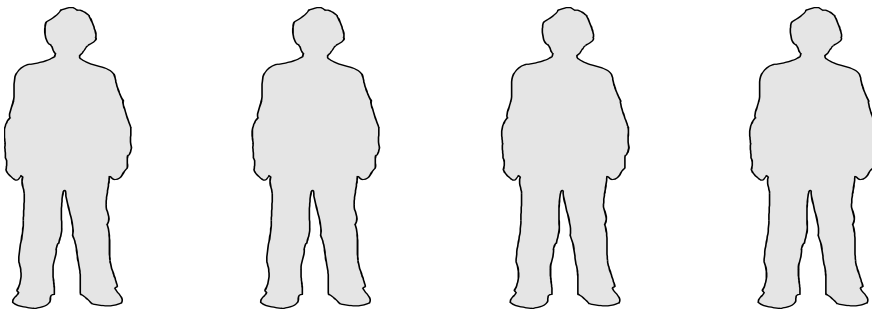


Mr. Smith divided his class into two teams. Team 1 used a seesaw to compare their weights. You can see in the drawing that Mr. Smith's weight is *greater than* ($>$) Bo's. In questions 1-4, compare the weights of the team members. Use the information in the table to put the correct symbol ($<$ or $>$) between each pair of names:



Name	Weight
Bo	96 pounds
Shandra	57 pounds
Karen	69 pounds
Eric	72 pounds

- Bo Shandra
 - Karen Shandra
 - Eric Karen
 - Eric Bo
5. Team 2 had a different task. First, they each weighed themselves on a scale. Then, they stood in order, starting with the person who weighed the least. Use the information in the table to label the students in the correct order:



Name	Weight
Zack	87 pounds
Sukey	79 pounds
Elsa	85 pounds
Drew	92 pounds

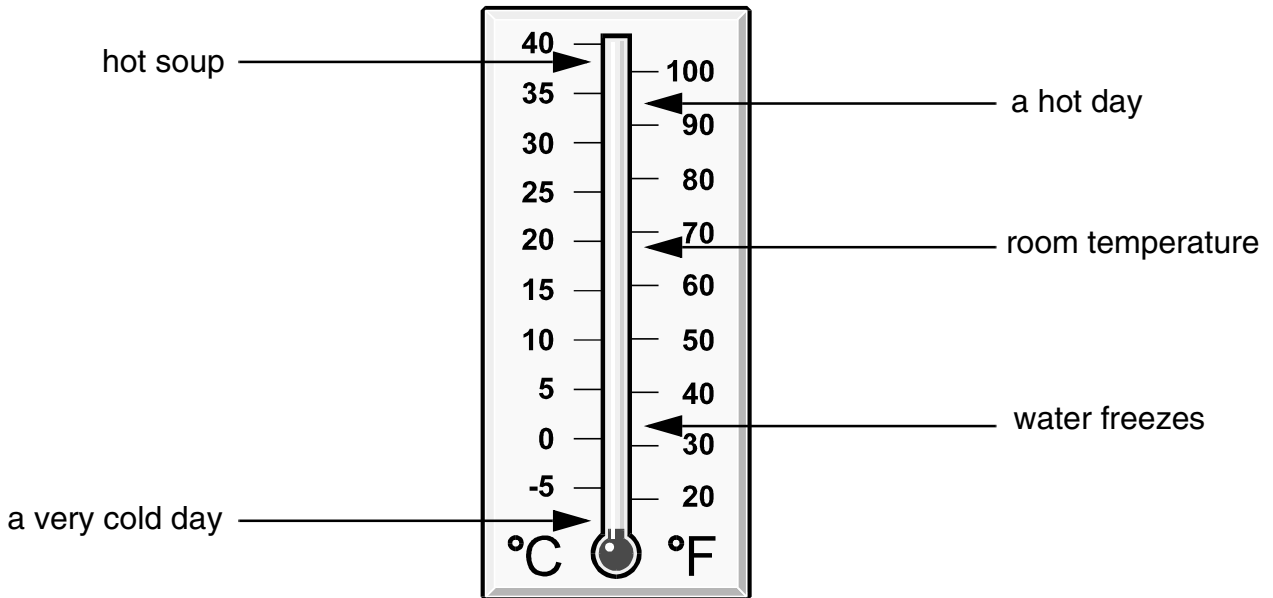
Write Idea: Pretend you went to a fair that had a big playground. While you were playing on the seesaw, an elephant came and sat on the other end! Write a letter to a friend describing what happened. Include words like *less than*, *greater than*, and *weight* in your letter.

Temperature

Lesson 4

Use a thermometer to measure temperature.

This thermometer shows degrees in Celsius (°C) and Fahrenheit (°F). The labels point to some common temperatures. For each of the temperatures below, list as many items as you can think of (such as food, clothing, things found outside, games or sports, etc.). The first list is started for you.



20°F

35°C

70°F

ice on sidewalks _____

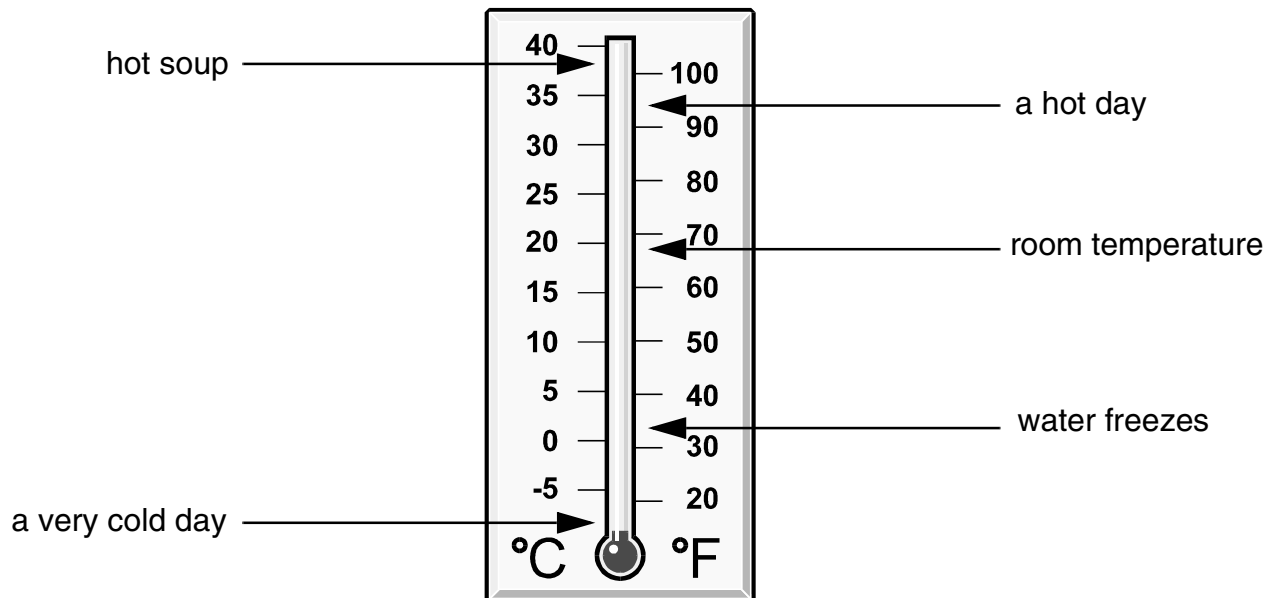
make a snowman _____

Write Idea: Write about your day and the temperatures you felt. Were you at home? In school? Outside? On the bus? Someplace else? What would you guess the temperature of each place was? What about the things you had to eat or drink? Were these things hot? Cold? Warm? Icy? What temperature might the thermometer show for each of these?

Temperature**Lesson 4**

Use a thermometer to measure temperature.

This thermometer shows degrees in Celsius ($^{\circ}\text{C}$) and Fahrenheit ($^{\circ}\text{F}$). The labels point to some common temperatures. For each of the temperatures below, list as many items as you can think of (such as food, clothing, things found outside, games or sports, etc.). The first list is started for you.

**20°F****35°C****70°F**

ice on sidewalks _____

make a snowman _____

Write Idea: Write about your day and the temperatures you felt. Were you at home? In school? Outside? On the bus? Somewhere else? What would you guess the temperature of each place was? What about the things you had to eat or drink? Were these things hot? Cold? Warm? Icy? What temperature might the thermometer show for each of these?

Basic Addition Facts**Lesson 1**

Use addition to find the total.

Dr. Spotts and Dr. Strypes are busy veterinarians. They are well-liked by their four-legged patients. The following table shows the number of dogs and cats they treated last week. Use the table to answer the questions below. Be sure to show your addition.

NUMBER OF ANIMALS TREATED IN ONE WEEK

DAY	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
DOGS	6	3	5	4	7	9
CATS	5	4	2	3	8	9

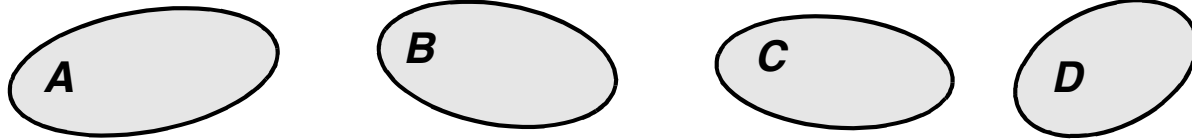
1. What is the total number of dogs treated on Monday and Tuesday?
2. What is the total number of cats treated on Tuesday and Thursday?
3. What is the total number of dogs treated on Wednesday and Saturday?
4. What two days have the greatest total of dogs treated? What is the total?
5. What two days have the greatest total of cats treated? What is the total?
6. What is the busiest day? Why?

Write Idea: Describe your favorite type of animal. Pretend that it's your pet, and it's time to see Dr. Spotts or Dr. Strypes for a checkup. Look at the table above. Which day would you want for your pet's visit? Explain why. Which day would be your least favorite choice? Explain why.

Basic Subtraction Facts**Lesson 2**

Use subtraction to find the difference.

Kirsten, Logan, Elijah, and Danny went fishing together at four small ponds. The first thing they did was to see how many fish were in each pond.



1. In pond A, the number of fish was the same as 3 less than 12. How many fish was that? Label pond A with the number.
 2. In pond B, the number of fish was the same as 8 less than 15. How many fish was that? Label pond B with the number.
 3. In pond C, the number of fish was the same as 9 less than 17. How many fish was that? Label pond C with the number.
 4. In pond D, the number of fish was the same as 5 less than 11. How many fish was that? Label pond D with the number.
- They each decided to fish at a different pond. Can you tell who fished where?
5. After Kirsten caught 2 fish, 5 fish were left in the pond. At which pond was she fishing?
 6. After Logan caught 5 fish, 3 fish were left in the pond. At which pond was she fishing?
 7. After Elijah caught 6 fish, 3 fish were left in the pond. At which pond was he fishing?
 8. After Danny caught 4 fish, 2 fish were left in the pond. At which pond was he fishing?

Write Idea: Think of some friends you'd like to take fishing. Create some of your own subtraction riddles about fishing with your friends.

Open Sentences**Lesson 3**

Use basic facts to solve open sentences.

Four friends are playing a card game, using the cards from ace (1 point) through ten (10 points). During each round, everyone gets two cards, one at a time. To win a round, the two cards must add up to a specific total.

- In the table below, look at the total needed to win each round. (For example, 10 points are needed to win Round 1.) Fill in the second card that each player would need in order to win. (For example, on Lizzy's Round 1, think " $4 + \square = 10$.") Complete the table for all four rounds.

Player	Round 1 (needed: 10 points)		Round 2 (needed: 8 points)		Round 3 (needed: 12 points)		Round 4 (needed: 14 points)	
	First Card	Second Card	First Card	Second Card	First Card	Second Card	First Card	Second Card
Lizzy	4		2		9		8	
Jake	8		4		6		7	
Deanne	3		5		4		9	
Alberto	5		7		7		6	

- What are two odd-numbered cards that could be added to get a sum of 14?

What are two even-numbered cards that could be added to get a sum of 14?

- What are two odd-numbered cards that could be added to get a sum of 12?

What are two even-numbered cards that could be added to get a sum of 12?

Write Idea: Think of a game you've played in which you used basic addition facts, or make up such a game. Explain how the game is played. Remember to state the rules.

Estimation by Rounding**Lesson 4**

Use rounding to estimate sums and differences.

Kerrie works in a pet store. The store owner wants to know how many fish they now have. She asks Kerrie to estimate the number of each type of fish. Kerrie counts the fish in each tank as best she can. Then, she rounds each number to the nearest ten.

1. Complete Kerrie's tally sheet below. In the TOTAL column, write addition sentences that show the rounded addends from each tank. The first one has been done for you.

Type of Fish	Tank A	Tank B	Tank C	Tank D	TOTAL
Mollies	58	0	74	0	$60 + 70 = 130$
Angelfish	91	0	0	25	
Catfish	72	231	0	0	
Plain Guppies	251	0	0	41	
Algae Eaters	0	0	111	39	
Red Swordtails	0	264	153	0	
Fancy Guppies	0	82	85	0	
Orange Swordtails	0	75	0	18	

2. At the start of the year, there were 225 mollies. Use the total in Kerrie's tally sheet to estimate the number of mollies that have been sold.
3. At the start of the year, there were 526 catfish. Use the total in Kerrie's tally sheet to estimate the number of catfish that have been sold.

Write Idea: Imagine you're starting an aquarium. What types of fish would you like to have in your tank? Where can you find out more about these fish? What are some of the things you find out? What kinds of supplies will you need? Find the cost of the fish and any other items you want for your tank. What will it cost to set up the aquarium?

Addition**Lesson 5**

Use addition to find the total.

Scientists at the National Bird-a-Rarium have been raising rare birds. They are about to release them to the wild. For just a short time, the birds are being kept in cages labeled A through F. This drawing shows the number of birds in each cage:

A	73	B	228	C	172
D	156	E	71	F	85

Imagine that the cages have gates between them. By opening the gates, the scientists can put together birds from different cages. For example, when the gate between cage A and cage B is opened, the birds from the two cages are combined into one larger cage. Find the number of birds that would be in the combined cages below. For each set of combined cages, (1) set up the addition problem, and (2) find the sum.

1. A and D

2. E and F

3. D and E and F

4. C and B and E

5. Now choose and solve some cage combinations of your own:

Write Idea: Think about this problem. “A group of snow geese flew south to their winter home. They flew 675 miles on the first day and 592 miles on the second day. They reached their winter home on the third day. What was the total number of miles the geese flew?” What more information is needed to solve this problem? How would you solve the problem if you had all the information?

Subtraction**Lesson 6**

Use subtraction to find the difference.

You have a summer job at a horse ranch. First, complete the table below to show the number of horses on the ranch this summer. Then, answer the questions that follow.

Horses on the Ranch			
Types	Last Summer	Sold	This Summer
Mares	2987	798	
Stallions	622	265	
Colts	1087	288	
Fillies	790	335	

1. How many more mares are on the ranch this summer than stallions?

2. Are there more fillies or more colts this summer? How many more?

3. What is the total number of horses on the ranch this summer?

smART Idea: If the ranch sells the same number of each type of horse this summer as it sold last summer, how many horses will be left? Create your own table to show the data.

Patterns**Lesson 7**

Use patterns in numbers to find values.

1. Clark's reading club had a contest to see who spent the most time reading. They were surprised to see the different patterns in how people spent their time. Complete the table below by continuing each reader's pattern.

Reader	Minutes Read Each Day						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Clark	20	15	20	15			
Nina	12	17	22	27			
Erica	34	30	26	22			
Otis	14	16	18	20			

Name the winner:

Tell how you found the winner:

2. Noelle has Karate practice every day. On Monday through Friday, she practices 30 minutes a day. On Saturday and Sunday, she practices 60 minutes a day. Make a table below to show Noelle's practice schedule for two weeks. Then show how many minutes Noelle practices in one week.

smART Idea: Your family needs a new kitchen floor. They are letting you design the pattern. You can use tiles of different shapes and different colors. Before buying all the tiles, your family wants to see what the floor will look like. Draw them a sample of the new floor, repeating the pattern at least 3 times.

Basic Multiplication Facts**Lesson 1**

Use multiplication to combine groups of the same size.

You've invited your friend Meg over to play a game of darts. You each get two darts. You keep score in the table below. First, you throw your two darts and write the numbers under "You." Then, you multiply those two numbers together to get "Your Score." Meg repeats the same process. That completes one round.

Round	You	Your Score	Meg	Meg's Score
1	6,0	$6 \times 0 = \underline{\quad}$	5,3	$5 \times 3 = \underline{\quad}$
2	7,4		2,9	
3	3,8		6,7	
4	9,4		1,8	
5	7	$7 \times 7 = \underline{\quad}$	9	$9 \times 9 = \underline{\quad}$
6	5		5	
7	4		1	
8	2		6	

1. Fill in the table for rounds 1-4.
2. Meg has to leave soon. You decide to throw one dart each for four more rounds, then multiply the one number times itself. Complete the table for rounds 5-8.
3. What was your total score for all eight rounds? What was Meg's total score? Who won the game?

smART Idea: The game above is an example of a game that could help you learn multiplication facts. Design another game that you and your friends could play to help learn your facts. Be sure to describe the rules.

Basic Division Facts**Lesson 2**

Use division to make groups of equal size.

It's a beautiful day for gardening. You are ready to plant some vegetables. For each kind of vegetable, you want the same number of plants in each row. (For example, you want all the rows of tomatoes to have 5 plants each.) *Complete the table below.* For each vegetable, show the number of rows you will plant and how many plants you will put in each row. After you have completed the table, use it to answer the questions below.

Vegetable	Number of Plants	Plants per Row	Number of Rows
Tomatoes	15	5	
String Beans	48		6
Peas	54		6
Corn	36		
Lettuce	64		
Cabbage	72		
Squash	35		
Carrots	32		

1. Which vegetable plants could you place evenly into 6 rows?
2. Which vegetable plants could you place evenly into 8 rows?
3. Someone gives you 15 more tomato plants. How many rows would you put the tomatoes in now? How many plants would be in each row?

smART Idea: Design your own garden. It could contain flowers, as well as vegetables. Draw the rows of the garden. Show the number and kind of plant in each row. Under your drawing, list each kind of plant. Show the total number of each kind.

Open Sentences**Lesson 3**

Use basic facts to solve open sentences.

Derrick and Angie were playing a game. They rolled two number cubes and multiplied the numbers that appeared on the tops. Look at the chart below and fill in the missing numbers. For example, on Derrick's Round 1, think " $4 \times \square = 12$."

Round	Player	1st Cube	2nd Cube	Total
1	Derrick	4		12
	Angie	3		12
2	Derrick		5	10
	Angie	1		6
3	Derrick	6		12
	Angie		3	9
4	Derrick		2	8
	Angie	5		20
5	Derrick		6	36
	Angie	5		15
6	Derrick		3	9
	Angie		4	24
7	Derrick	2		6
	Angie	4		16

Find Derrick's total score for all seven rounds of the game. Find Angie's total score. If the highest total wins, who won the game?

Write Idea: Lionel got a 6 on one number cube and a 4 on the second. Molly got a 4 on her first number cube. After she rolled the second one, she yelled "24." Explain how this could happen. Do you know of a math principle that could help you explain this?

Estimation by Rounding**Lesson 4**

Use rounding to estimate products.

1. Jim has a fruit orchard. The fruit trees are planted in rows. Complete this table. First, round the number of *trees in each row*. Then, use the rounded number in a multiplication sentence to find the *estimated total number of trees*.

Type of Tree	Trees in Each Row	Number of Rows	Estimated Total Number of Trees
Cherry	12	8	$10 \times 8 = 80$
Pear	18	3	
Peach	23	2	
Apple	32	5	
Orange	26	2	
Grapefruit	44	3	

2. Jim has picked fruit to sell at his produce stand. He sells the fruit by the bag. This table shows how many pieces of fruit he puts in each bag. For each type of fruit, round the *number of pieces* to the nearest ten. Then, use the rounded number in a division sentence to find the *estimated total number of bags* needed.

Type of Fruit	Number of Pieces	Pieces in Each Bag	Estimated Total Number of Bags
Cherries	403	10	$400 \div 10 = 40$
Pears	243	6	
Peaches	97	5	
Apples	135	7	
Oranges	196	4	
Grapefruit	89	3	

Write Idea: Do some research to find out more about the fruit orchard business. Make a list of at least three other math skills needed in this type of business. List the skills and how they would be used. For example, *measuring* would be needed to place trees a proper distance from each other when they are planted.

One-Digit Multipliers**Lesson 5**

Use multiplication to combine groups of the same size.

Your teacher, Ms. Wing, asked everyone in your class who has a bug collection to bring it to school. The table below shows all the bugs collected by your class.

Number of Bugs Collected in Ms. Wing's Class			
Butterflies	32	Crickets	44
Moths	50	Beetles	112

Two other classes in your school have also been collecting bugs. Suppose that each of the other classes collected the same number of insects as your class.

1. What is the total collected by all 3 classes?

butterflies _____ crickets _____
moths _____ beetles _____

2. The bugs will be put in showcases for "Parents' Night." Each showcase has 8 sections. Each section holds 25 bugs. How many bugs can be shown in one case?

3. Do you think 2 showcases will hold all the bugs collected by the 3 classes? Why or why not?

4. One of your classmates, Tanya, collects butterflies. She has an album for her collection. The album has 16 pages. Each page will hold 9 butterflies. How many butterflies can Tanya put in her album?

smART Idea: Draw your favorite bug. Is it one of the bugs in the table above? Which bug was collected most by the students in Ms. Wing's class? Why do you think students collected more of this bug than any other? Discuss your ideas with a partner.

One-Digit Divisors**Lesson 6**

Use division to make groups of equal size.

You are in charge of setting up party tables in a restaurant. There are four dining rooms. Each has a set of tables, with supplies that match the color of the room. Every table needs candles, flowers, and mints. For each room, show how many items go on each table.

1. The blue dining room has 8 tables and these supplies:

Item	Total	Per Table
Flowers	96	
Candles	56	
Mints	304	

3. The red dining room has 7 tables and these supplies:

Item	Total	Per Table
Flowers	126	
Candles	63	
Mints	252	

2. The green dining room has 5 tables and these supplies:

Item	Total	Per Table
Flowers	80	
Candles	55	
Mints	260	

4. The yellow dining room has 9 tables and these supplies:

Item	Total	Per Table
Flowers	180	
Candles	63	
Mints	405	

5. On Saturday, there is a party in every dining room. Show how many people are at each table in each dining room.

Dining Room	Tables	People	Per Table
Blue	8	80	
Green	5	60	
Red	7	98	
Yellow	9	99	

Write Idea: Pretend you are the new owner of a restaurant. Describe how you would use mathematics to help you with your job. Give at least one example each of how these operations would help you: addition, subtraction, multiplication, and division.

Two-Digit Multipliers**Lesson 7**

Use multiplication to combine groups of the same size.

The third and fourth grade classes at your school wanted to know how many sheets of paper they use. The information they collected for one month is in the table below.

Class	Students in Class	Sheets Per Student	Estimate (sheets per class)	Total (sheets per class)
A	25	32	600	800
B	31	29		
C	15	18		
D	24	26		
E	27	21		

1. Complete the table for Classes B through E. First, estimate the number of sheets used by each class, and write it in the column marked “Estimate.” Then, multiply to find the actual total for each class, and write it under “Total.”

Class A has been done for you: Front-End **Estimate** for Class A: $20 \times 30 = 600$

Actual **Total** for Class A: $25 \times 32 = 800$

2. How many sheets of paper would be used by Class A in 10 months of school?
3. What is the total number of sheets of paper used by all five classes in one month?
4. A carton contains 12 packs of paper. There are 500 sheets in each pack. Does a carton have enough paper to last all five classes for a month? Explain your answer.

Write Idea: Describe the steps you would take to complete a multiplication problem such as “ 21×27 .”

Two-Digit Divisors**Lesson 8**

Use division to make groups of equal size.

Albert is a truck driver. He reports in at the office only once a month. Since he spends most of his time on the road, he must keep a log of his trips.

1. Complete his log sheet below. For the first four trips, find the number of hours Albert spent driving. For the last four trips, find his average speed in miles per hour (mph).

Trip	Total Miles	Hours Driven	Average Speed (mph)
1	300		60
2	300		50
3	660		55
4	513		57
5	540	10	
6	945	15	
7	754	13	
8	630	14	

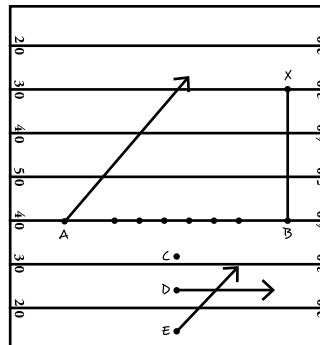
2. Compare Trip #1 with Trip #2. What do you notice about these two trips?
3. Albert can travel about 650 miles on a full tank of fuel. If he always filled his tank before leaving, on which trips did he need to stop for fuel?

Write Idea: Joan is also a truck driver. She leaves for a trip around 6:30 a.m. If Joan lived near you, which of Albert's trips could she make in complete daylight? Why? Would the time of year affect your answer? How?

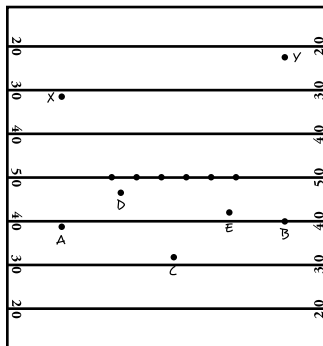
Points and Lines

Lesson 1

The diagram below is from the playbook of a football coach. The coach uses points to show players, rays to show passes and line segments to show where players should run. The coach also uses parallel, perpendicular and intersecting lines to show what direction the players should run.

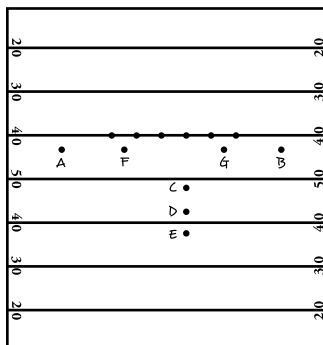


Read the plays next to each of the football fields below. Use line segments, points and rays to diagram the plays.



Play 1:

Player A runs to point X, and player B runs to point Y to form parallel line segments. Player C throws the ball to player B to form intersecting line segments BY and CY. Players D and E should run parallel to the yard lines to block opposing players. Player D should run left, and player E should run right.



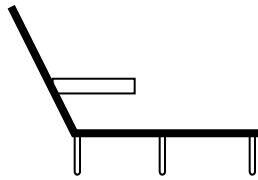
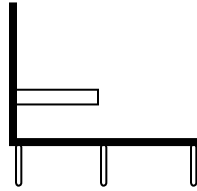
Play 2:

Players A and B should run perpendicular to the yard lines. Player F should intersect with the ray formed by player A. Player G should intersect with the ray formed by player B. Player C passes the ball to player D forming line segment CD. Player D runs to the right side of the field. Then Player E runs parallel to the yard lines.

SmART Idea: Using the activity you just completed as a guide, create your own sports play. Not familiar with football? Try creating a play for soccer, hockey, lacrosse or another team sport. Try to involve as many of the players as you can!

Angles**Lesson 2**

Your deck chair folds to many different angles:

**obtuse angle****right angle****acute angle**

Use the name of an angle to describe which position you would put the chair in for the most comfort during the following activities. If it helps, you can sketch the chair above the activity name to determine the angle.

Relaxing by the pool

Eating lunch

Carrying the chair to the beach

Playing cards

Taking a nap

Putting the chair away in the shed

Stacking the chair in car

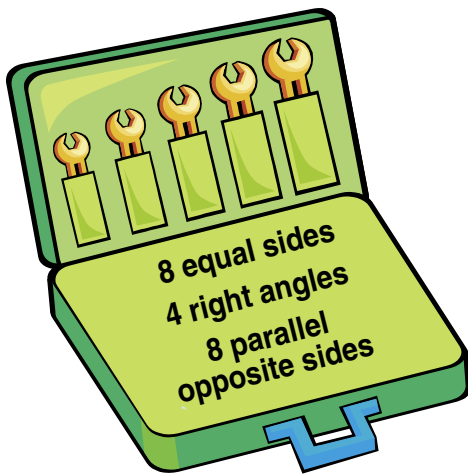
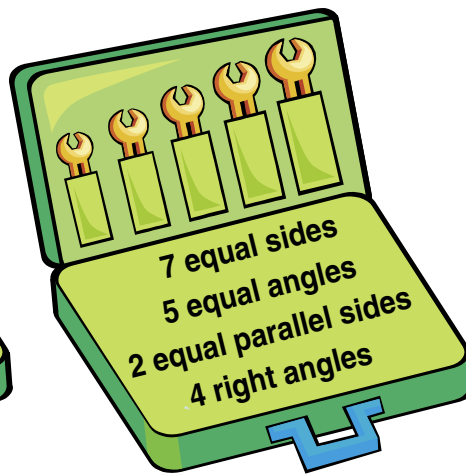
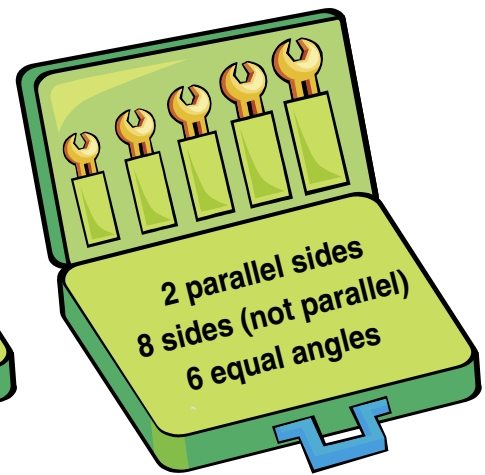
Sketching a sea gull

Counting the stars

Write Idea: Write a paragraph describing how you identify whether an angle is acute or obtuse. How do right angles fit into your method? Which types of angles are easiest for you to identify? Why?

Plane Geometric Figures**Lesson 3**

A plane geometric figure is described by the number and length of its sides and the measure of its angles. Below are several Geometry Toolboxes. Use the number of sides and angles listed in the boxes to form plane geometric figures. Woops! This isn't as easy as it sounds. Unfortunately, two different plane geometric figures have gotten mixed up in each toolbox. In the space under each toolbox, list the names of BOTH plane geometric figures in the box. Don't forget to use ALL of the parts.

Toolbox 1**Toolbox 2****Toolbox 3**

SmART Idea: Many simple drawings are created from combinations of plane geometric figures. One example is a map that you might draw to show your friend how to get from school to your house. Create a map from your school to your house. Use plane geometric figures to represent your school, houses, businesses, hills, woods and more. Include a key with your map to explain what each figure represents.

Triangles**Lesson 4**

The villain TrianguLarry is destroying the city of Geometropolis! Help the citizens of Geometropolis capture TrianguLarry. Create a “WANTED” poster using the following description of the villain:

1. His head and nose are equilateral triangles.
2. His body is an isosceles triangle.
3. His powerful legs are obtuse triangles.
4. His arms are right triangles.
5. His evil smile is an acute triangle.
6. His eyes and giant feet are scalene triangles.



SMART Idea: Now draw a picture of the city of Geometropolis. What do you think the buildings look like? How about the citizens of the city? What are their cars shaped like? Have fun!

Solid Geometric Figures**Lesson 5****Geometry Mad Libs™**

Mad Libs™ are a fun activity where you fill in the blanks of a story with words. What makes this funny is that you don't know what the story is about when you're filling in the blanks. Usually, you play Mad Libs with a friend, but here's a chance to play on your own.

Read the names of each of the solid geometric figures listed below. Next to each figure's name, write the name of a real-life object that fits that shape. Don't just write down the first object that comes to mind. Be creative! We've done one for you, but you can change it!

Square prism (cube) _____ jack-in-the-box _____

Square pyramid (plural) _____

Cone (plural) _____

Cylinder _____

Triangular prism (plural) _____

Rectangular prism _____

Sphere _____

Now, fill in the blanks in the story below with the names of the objects you listed above. Don't change your object to fit the story—the funnier the better! Share your story with a partner.

The Dinner Party

You sent out invitations to all of your best friends. It was finally the day of your big dinner party. What on _____ (**sphere**) were you going to serve? To make it exciting, you decided to roll a _____ (**cube**) to decide. Oh boy, this was going to be easy. All you had to do was open a _____ (**cylinder**) of tuna, a _____ (**rectangular prism**) of crackers, and serve ice cream _____ (**cones**) for dessert. You set a beautiful table with the guests names written on _____ (**triangular prism**) and napkins folded like _____ (**square pyramid**). This was going to be a dinner party to remember!

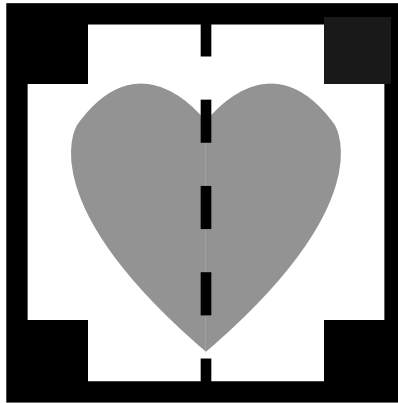
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SmART Idea: How did your dinner party turn out? Were there some wacky things on your table? Draw a picture of the dinner party you described in the story above. Don't forget to include your solid geometric figures.

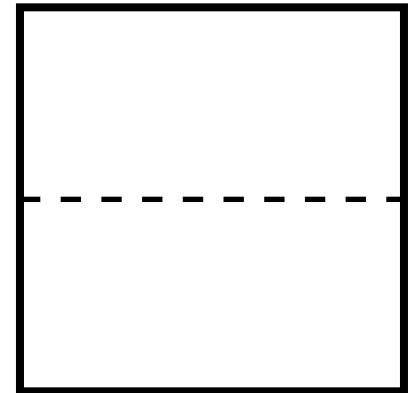
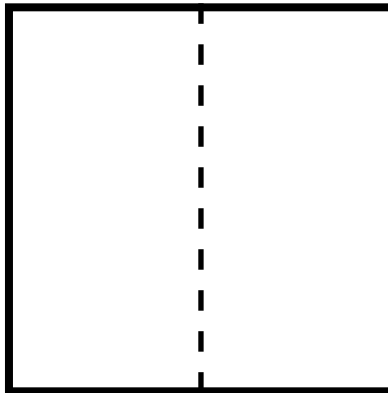
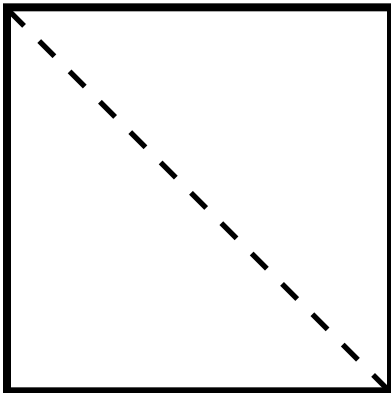
Symmetry and Congruence

Lesson 6

In this lesson, you learned that many decorative quilts are made from patterns featuring symmetrical figures. The example below has a symmetrical figure in the center and congruent figures in the corners. If you folded this quilt along the dotted line of symmetry, both sides would match.



Below are three blank quilts with dotted lines of symmetry. Create symmetrical designs for each of the quilts. Remember that when each quilt is folded along its line of symmetry, both sides of the quilt should match.

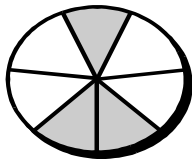


Write Idea: There are many examples of symmetry in nature. A perfect example is a butterfly. If one wing of a butterfly is folded over the other, they match! Think of several other natural examples of symmetry. List your examples. Describe how each is symmetrical.

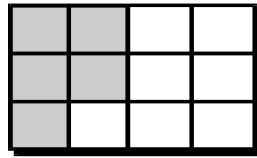
Fractions**Lesson 1**

Use a fraction to name an equal part of a whole or a group.

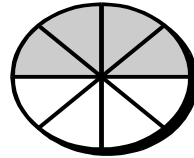
Your class is having a holiday party. The parents have been asked to send in cakes. Look at the cakes below. *The shaded sections show the pieces of cake already eaten.*



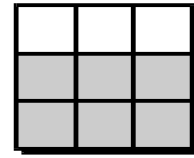
Mrs. Bowen's
Cake



Mr. Hirt's
Cake



Mrs. Green's
Cake



Mr. Smith's
Cake

1. What fraction of each cake is left?

_____ Mrs. Bowen's cake _____ Mr. Hirt's cake

_____ Mrs. Green's cake _____ Mr. Smith's cake

2. What fraction of each cake has been eaten?

_____ Mrs. Bowen's cake _____ Mr. Hirt's cake

_____ Mrs. Green's cake _____ Mr. Smith's cake

3. Which cake can serve the most people? Explain.

4. Below are fractions that show the amount of cake that has been eaten. Draw a cake next to each fraction. Cut the cake into the correct number of total pieces. Shade in the amount that has been eaten.

$$\frac{4}{6}$$

$$\frac{3}{10}$$

$$\frac{1}{4}$$

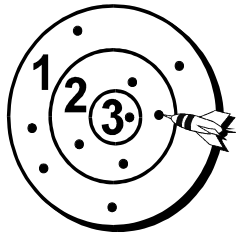
Write Idea: You attend a birthday party where there are two cakes of equal size. The chocolate cake is cut into 8 equal pieces. The yellow cake is divided into 12 equal pieces. Which cake would you like a piece of? Why?

Decimals and Percents**Lesson 2**

Use a decimal to show a fraction that has a denominator of 10 or 100.

In math class, your teacher paired you with a friend. You each threw 10 darts at a bull's-eye. The two bull's-eyes below are marked with dots to show where the darts landed.

- Count the number of darts that landed in rings 1, 2, and 3 of each bull's-eye. Color in a box for each dart. Then, write the score as a fraction. You will be using decimals to compare your scores with other classmates. So change each fraction to a decimal. Your scores for ring 1 have already been done for you:

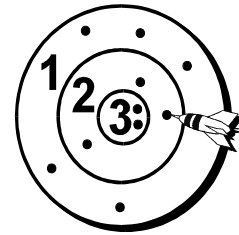
Your Bull's-Eye

Color a box for each dart represented.

1 = $\frac{5}{10}$ = 0.5

2 = _____ = _____

3 = _____ = _____

Your Friend's Bull's-Eye

Color a box for each dart represented.

1 = _____ = _____

2 = _____ = _____

3 = _____ = _____

- Your teacher has asked the class to compare scores in decimal form. Change these scores to decimals:

$$\frac{7}{10} = \underline{\hspace{2cm}}$$

$$\frac{2}{10} = \underline{\hspace{2cm}}$$

$$\frac{1}{10} = \underline{\hspace{2cm}}$$

- A group of ten students threw a total of 100 darts. The group's scores are shown below as decimals. Change each to a fraction and a percent.

$$0.50 = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}\%$$

$$0.31 = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}\%$$

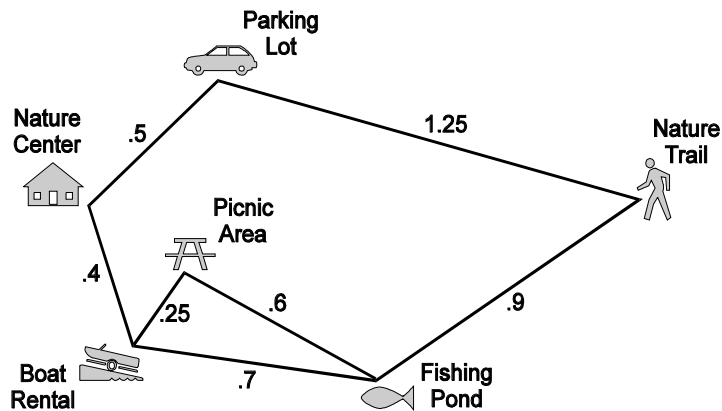
$$0.19 = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}\%$$

Write Idea: Write a letter to a friend. Describe how decimals and fractions are alike and how they are different. You could use a Venn Diagram to help organize your thoughts.

Addition of Decimals**Lesson 3**

Use addition to find the total.

Your family is about to hike around Piney Run Park. In the parking lot, you stop to look at this map and plan your course for the day. The numbers on the map represent miles.



Use the map to find the distances you would hike on the following trips (show your addition below each question):

1. From the **parking lot** to the **nature center** to the **boat rental**
2. From the **parking lot** to the **boat rental** to the **picnic area** to the **fishing pond**
3. From the **parking lot** to the **fishing pond** to the **nature trail** to the **parking lot** again

smART Idea: Design your own park. Label the activity areas and the distances between them. Use such areas as a pond, a picnic area, or a petting zoo. Create a few questions about your park, and give them to a friend to solve. (Be sure you know the right answers to your own questions.)

Subtraction of Decimals**Lesson 4**

Use subtraction to find the difference.

In a car, the *odometer* shows the total number of miles the car has been driven. Answer the questions below about odometer readings.

1. When Elena returned home from a visit to her aunt, the odometer on her truck read 7042.1 miles. Her aunt lives 367.4 miles away. **(a)** What did the odometer read when Elena left her aunt's house to return home? **(b)** What did the odometer read when Elena first left her house to visit her aunt?
2. Stan likes to keep his car running smoothly. Last week, the service station reminded him to bring his car in for an oil change at 5000 miles. Stan checked his odometer. It read 4204.6 miles. How much farther can Stan drive before the oil should be changed?
3. James, who lives in City U, bought a new car. When he got the car home, it had 15.3 miles on it. The next morning, James left for vacation and headed for City A. Several hours later the odometer read 212.9 miles. James checked his distance chart:

City	Miles from City U
City A	277.5
City B	319.7
City C	611.9

- (a)** How much farther does James have to drive to get to City A? **(b)** How much farther to City B? **(c)** How much farther to City C?

Write Idea: Look at a map of the United States and Canada, and choose a city that you would like to visit. Research the city. How far is it from where you live? How long would it take to get there by car? Why did you select this city? Discuss your plans for a trip there and the things you'd like to do.

Multiplication of Decimals**Lesson 5**

Use multiplication to combine groups of the same size.

You and your friends usually buy your lunches in the school cafeteria. The following chart is on the cafeteria wall:

	A La Carte Menu	
Regular School Lunch \$1.65	Hamburger	\$0.85
	Pizza	\$1.10
	Milk	\$0.28
	Fruit	\$0.29
	Ice Cream	\$0.55

1. Yesterday, you and four friends each bought a Regular School Lunch. What was the total cost of all 5 lunches?
2. Today, you and your four friends decided to buy food from the “A La Carte” menu. Find the total amount spent on each item below.
2 students bought hamburgers: _____
3 students bought pizza: _____
5 students bought milk: _____
2 students bought fruit: _____
4 students bought ice cream: _____
3. What is the total amount you and your friends spent for your “A La Carte” lunches?
4. Compare the total cost of the Regular School Lunches in question 1 with the total cost of the “A La Carte” lunches in question 3. Which cost more? How much more?

Write Idea: Pretend you are writing a letter to a friend in England. Ask if they have hamburgers and pizza for lunch. How much do they cost? What would you need to know to decide if they cost more (or less) in the United States than in England?

Division of Decimals**Lesson 6**

Use division to make groups of equal size.

You are planning a party. Your budget for the party is small, so you want to compare prices to keep your costs down.

Look at the shopping list below. For each item, find the “cost of one” at *both* prices. Then circle the price that gives you the *lower* “cost of one.” For example, which price gives you the lower cost of one cup: 9 cups for \$1.35 or 8 cups for \$1.28?

Item	Price	Cost of One	Work Space
cups	9 cups for \$1.35	_____ per cup	
	8 cups for \$1.28	_____ per cup	
plates	7 plates for \$2.10	_____ per plate	
	8 plates for \$2.80	_____ per plate	
napkins	3 packs for \$4.68	_____ per pack	
	4 packs for \$5.68	_____ per pack	
sodas	3 cases for \$17.97	_____ per case	
	5 cases for \$29.45	_____ per case	
ground beef	3 pounds for \$11.97	_____ per pound	
	6 pounds for \$23.94	_____ per pound	
rolls	4 packs for \$7.32	_____ per pack	
	6 packs for \$11.70	_____ per pack	
catsup	2 bottles for \$3.84	_____ bottle	
	3 bottles for \$4.80	_____ bottle	

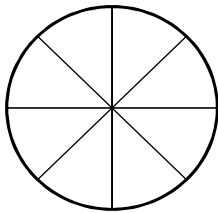
Write Idea: You will be making hamburgers for your party. Think about all the steps involved in preparing a hamburger to be cooked. For example, are there things that need to be measured or sliced? Also, think about what you would put on the hamburger after it’s cooked. Write out step-by-step directions for a friend, telling how to prepare the hamburgers.

Equivalent Forms**Lesson 7**

Use different forms to represent the same value.

Read the problems below. Begin each one by shading in the pieces of the pizza. First, shade your slices completely. Then, use stripes for your brother, dots for your sister, and diagonal lines for your friend. Another way is to use a different color for each person.

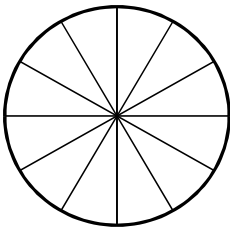
1. Your mom orders a pizza for you to share with your little brother and sister. Your mom says you can have half the pizza. Your brother and sister, being younger, can each have one fourth. The pizza is cut into 8 equal slices. How many slices will each of you get?



You: $\frac{1}{2}$ of pizza = $\frac{\square}{8}$ _____ slices

Brother
& Sister: $\frac{1}{4}$ of pizza each = $\frac{\square}{8}$ each _____ slices each

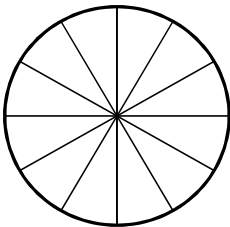
2. The pizza arrives. Instead of 8 slices, there are 12 slices. How many slices will you each get now?



You: $\frac{1}{2}$ of pizza = $\frac{\square}{12}$ _____ slices

Brother
& Sister: $\frac{1}{4}$ of pizza each = $\frac{\square}{12}$ each _____ slices each

3. Before you begin eating, a friend arrives. You decide to take only one third of the pizza for yourself and give one fourth to your brother, one fourth to your sister, and one sixth to your friend. How many slices do you each get?



You: $\frac{1}{3}$ of pizza = $\frac{\square}{12}$ _____ slices

Brother
& Sister: $\frac{1}{4}$ of pizza each = $\frac{\square}{12}$ each _____ slices each

Friend: $\frac{1}{6}$ of pizza = $\frac{\square}{12}$ _____ slices

smART Idea: You're a member of a school club. To raise money, your club runs a dart game at a local carnival. You have three sizes of prizes for the winners. The shelf for the prizes can hold twelve at a time if $\frac{1}{2}$ of them are small prizes, $\frac{1}{3}$ are medium prizes, and $\frac{1}{6}$ are large prizes. Draw a picture of the shelf with all twelve prizes.

Addition of Fractions**Lesson 8**

Use addition to find the total.

Read each problem carefully. Under each question, write an addition sentence and solve it. The first one is started for you.

1. You have a pack of 8 baseball cards. It has 3 Oriole players, 4 Dodger players, and 1 Blue Jay player.

- a. What fraction of the pack is Orioles or Blue Jays?

$$\frac{3}{8} + \frac{1}{8} =$$

- b. What fraction of the pack of cards is Dodgers or Orioles?

2. In a classroom of 11 students, 5 children have pet cats, 3 children have pet dogs, and 3 other children have goldfish.

- a. What fraction of the class has goldfish or cats?

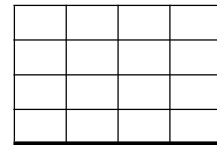
- b. What fraction of the class has dogs or goldfish?

3. The class aquarium has 4 swordfish, 1 catfish, 3 angelfish, and 2 guppies.

- a. What fraction of the tank is made up of swordfish or angelfish?

- b. What fraction of the tank is made up of guppies or catfish?

4. In the box below, color the squares: 3 purple, 3 orange, 2 green, and 4 blue.



- a. About $\frac{5}{12}$ of the picture is shaded by which 2 colors?

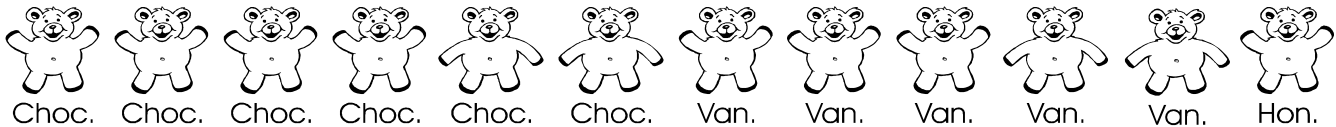
- b. The sum of which 2 colors would be $\frac{7}{12}$?

Write Idea: You get to choose the next player for your neighborhood soccer team. You watch the players in the practice game carefully. Joelle shoots 11 times and scores 3 goals. Nicole shoots 11 times and scores 6 goals. Who would you select for your team? Explain your answer.

Subtraction of Fractions**Lesson 9**

Use subtraction to find the difference.

You just got a box of Teddi Gram cookies to have as a snack. There are 12 bear-shaped cookies in the box. Some have their arms up, and others have their arms down. The bears come in three flavors: chocolate, vanilla, and honey. Use this diagram to answer the questions below. For each question, write a subtraction sentence (in fractions) and solve it. The first one is started for you.



1. How much more of your snack is chocolate than vanilla?

$$\frac{6}{12} - \frac{5}{12} =$$

5. How much more of your snack is bears with their arms down than bears that are honey-flavored?

2. How much more of your snack is vanilla than honey-flavored?

6. What part of your snack is not chocolate?

3. How much more of your snack is chocolate than honey-flavored?

7. What part of your snack is not vanilla?

4. How much more of your snack is bears with their arms up than bears with their arms down?

8. What part of your snack is not honey-flavored?

Write Idea: Imagine you open a pack of 11 gumdrops. You notice that 5 are grape, 2 are cherry, 3 are orange, and 1 is lemon. Write three word problems about the gumdrops, where subtraction of fractions is used to find the answers. Trade word problems with a friend in your class. Try to solve each other's problems.

Multiplication of Fractions**Lesson 10**

Use multiplication to combine parts of the same size.

Imagine you are baking some snacks for a party. Look at the table below. The first column tells how much you need for one person. The second column tells how many people you need to serve. The third column tells how much you need for that many people. Fill in the third column. Use the last column as your work space.

Amount for One Person	Number of People	Total Amount Needed	Work Space
$\frac{1}{8}$ cup of flour	6	$\frac{6}{8}$ or $\frac{3}{4}$ cup of flour	$6 \times \frac{1}{8} = \frac{6}{8}$ or $\frac{3}{4}$
$\frac{1}{6}$ tsp. of salt	7		
$\frac{2}{5}$ jar of honey	2		
$\frac{3}{8}$ stick of butter	3		
$\frac{3}{4}$ cup of sugar	4		
$\frac{2}{3}$ tsp. of cinnamon	5		
$\frac{5}{6}$ cup of jelly	2		
$\frac{1}{2}$ tsp. of ginger	4		
$\frac{5}{8}$ cup of milk	3		

Write Idea: Look at this number sentence: $\frac{7}{18} \times 2 = \frac{14}{18}$






Describe, in writing, the steps you would use to solve this problem.

Pictographs**Lesson 1**

Use pictographs to compare sets of data.

Marvin asked 100 students for their favorite day of the week. Then he made a pictograph:

Favorite Day

Days Of The Week	Number Of Votes
Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	  = 5 Students

- Complete the graph by showing that 25 students said Friday was their favorite day.
- Which day was the most popular? _____
- Which day was the least popular? _____
- How many students liked Saturday the best? _____
- How many students liked Thursday the best? _____
- How many more students liked Friday than Sunday? _____
- How many more students liked Saturday than Sunday? _____
- List the days in order from the least favorite to the most favorite:

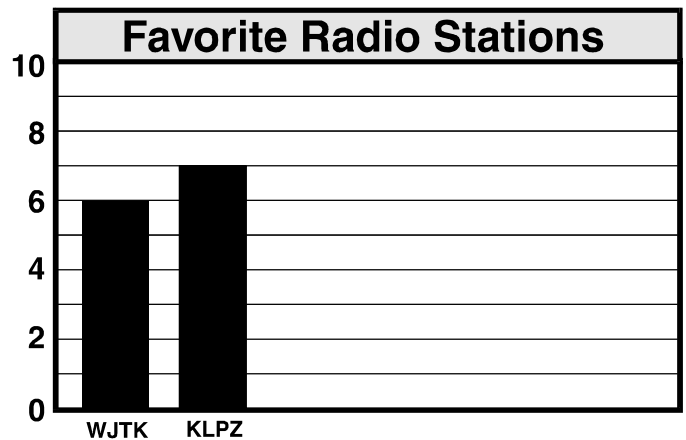
smART Idea: Make a pictograph showing the number of each type of pet for sale at Paula's Pet Shop. The store has 18 dogs, 15 cats, 27 fish, 9 birds, and 21 hamsters. Use different symbols for each animal. Let each symbol equal 3 pets.

Bar Graphs**Lesson 2**

Use bar graphs to compare sets of data.

Lionel asked his classmates to vote for the radio station they listened to the most. He then used the data to create a bar graph.

Favorite Radio Stations		
Type of Music	Station Name	Number of Votes
Jazz	WJTK	6
Rock	KLPZ	7
Country	WRBX	9
Rap	WNVG	7
Classical	KWUV	8
Rap	KMAK	5



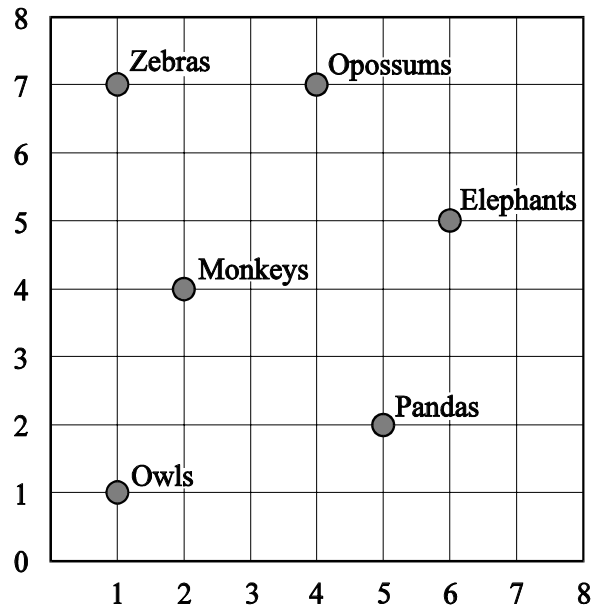
1. Use the data from the table to complete the bar graph.
2. How tall did you make the bar for WRBX? Why?
3. What does the tallest bar on the graph tell you?
4. Suppose WRBX had 14 votes instead of 9. How would you change the graph?
5. Which station had the least votes?
6. Which station had the most votes?

smART Idea: Ask 10 of your classmates to tell you their favorite type of music. Create a bar graph to show your classmates' favorites.

Graphing Ordered Pairs**Lesson 3**

Use ordered pairs of numbers to find locations.

It's the last day of your trip to a big city. You decide to visit the zoo. Below is a map of the zoo on a numbered grid.



1. Use the grid to find the animals listed below. Write the pair of numbers that shows where each animal can be found. The first one is already done for you.

Monkeys 2,4 Pandas _____ Owls _____

Elephants _____ Zebras _____ Opossums _____

2. At the zoo, you see a sign about some new animals. Below are the names of the new animals and where they will be placed in the zoo. In the grid above, show where these new animals will be.

Muskrats (3,1)

Box Turtles (2,8)

Kangaroos (8,4)

Write Idea: Plan your day at the zoo. Make a list of the animals you want to see, in the order you'd like to see them. For each animal, include the pair of numbers that shows where it is located. If an animal you'd like to visit is not already on the map, add it to the grid. Tell why you chose to see the animals in this order.

Line Graphs**Lesson 4**

Use line graphs to show change over time.

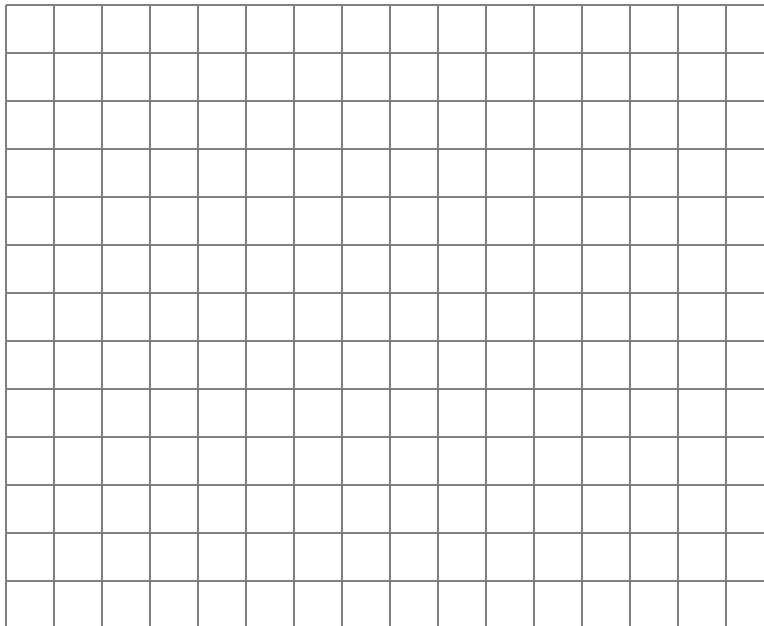
Math homework sometimes seems to take forever, especially on Fridays. So you decide to time yourself. Each day for a week, you write down how long it actually takes you. To your surprise, here's what you find:

TIME SPENT ON MATH HOMEWORK

Day	Mon.	Tues.	Wed.	Thurs.	Fri.
Minutes	16	14	18	18	12

Follow these steps to show the data as a line graph on the grid below:

- Step 1: Decide on a scale for the side of the graph. Write the numbers on the left side. Add a label.
- Step 2: Write the numbers at the bottom of the graph and add a label.
- Step 3: Place the point for each day.
- Step 4: Connect the points in order.
- Step 5: Write a title above the graph.



Write Idea: List some other things that change from day to day that you could show on a line graph. For example, you might count the red cars you see on your way home from school each day. Next, list some things that might change from month to month. One example might be the time between sunrise and sunset on the first day of each month. What other ideas do you have? Write them down.

Circle Graphs

Lesson 5

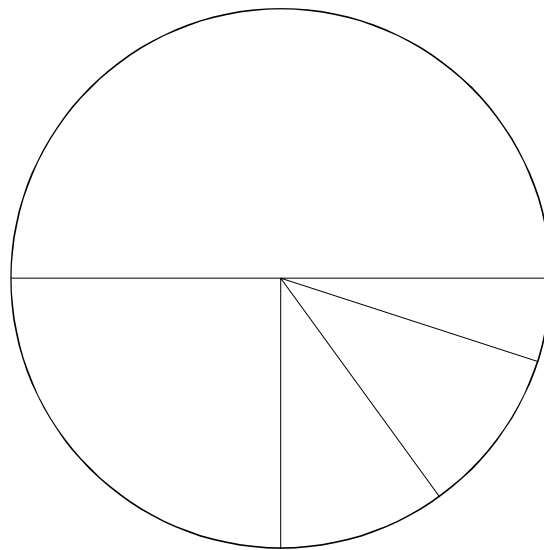
Use a circle graph to compare parts of a whole.

Adam is a fourth-grader who really enjoys karate. He asks the physical education teacher, Ms. Kelly, to teach a karate class after school. She tells Adam to find out how many other students like karate. Adam asks his 20 classmates to name their favorite after-school activity. He gets the following results:

FAVORITE AFTER-SCHOOL ACTIVITIES

Favorite Activity	Number of Students
Team sports	10
Karate lessons	5
Ballet lessons	2
Music lessons	2
Skateboarding	1

Complete the circle graph below. Label each section to show Adam's teacher what part of his class favors each activity. Write a title for the graph.



smART Idea: The favorite activities at your school may be the same as in Adam's class, or they may be very different. Ask eight students in your class what they like to do best after school. Create a circle graph showing the favorite activities of these eight students.

Answer Keys



This section contains the answer keys for the *Math A* worksheets. The content areas follow the same order as the lesson summaries.

Understanding Numbers

Lesson 1: Place Value

1. $10,230 + 2,000 = 12,230$
2. $10,230 + 50 = 10,280$
3. $10,230 + 200 = 10,430$
4. $10,230 + 300 = 10,530$
5. $10,230 + 1,000 = 11,230$
6. $10,230 + 9 = 10,239$
7. $10,230 + 200 = 10,430$
8. $10,230 + 80 = 10,310$
9. $10,230 + 900 = 11,130$
10. $10,230 + 300 + 90 = 10,620$

Lesson 2: Numbers and Word Names

Linda Washington: \$683.00
 Margaret Evans: \$1059.00 or \$1,059.00
 Marcus Jefferson: \$946.00
 Joseph Michaels: \$4553.00 or \$4,553.00
 Karen Jacobs: Seven thousand twenty six and 00/100 Dollars

Lesson 3: Comparing and Ordering Numbers

1. Bo > Shandra
2. Karen > Shandra
3. Eric > Karen
4. Eric < Bo
5. Sukey, Elsa, Zack, Drew

Lesson 4: Temperature

Some examples:

20° F

ice on sidewalks
 make a snowman
 wear a coat
 ice skate
 go sledding

35° C

swim at the beach
 wear shorts
 stay in air conditioning
 eat ice cream
 go fishing

70° F

flowers bloom
 go on a picnic
 fly kites
 play baseball
 ride a bike

Using Addition and Subtraction

Lesson 1: Basic Addition Facts

1. $6 + 3 = 9$ dogs
2. $4 + 3 = 7$ cats
3. $5 + 9 = 14$ dogs
4. Saturday and Friday: $9 + 7 = 16$ dogs
5. Saturday and Friday: $9 + 8 = 17$ cats
6. Saturday. There were 18 pets treated, more than on any other day of the week.

Lesson 2: Basic Subtraction Facts

1. Pond A: $12 - 3 = 9$ fish
2. Pond B: $15 - 8 = 7$ fish
3. Pond C: $17 - 9 = 8$ fish
4. Pond D: $11 - 5 = 6$ fish
5. Pond B because $7 - 2 = 5$
6. Pond C because $8 - 5 = 3$
7. Pond A because $9 - 6 = 3$
8. Pond D because $6 - 4 = 2$

Lesson 3: Open Sentences

1.

Player	Round 1 (needed: 10 points)		Round 2 (needed: 8 points)		Round 3 (needed: 12 points)		Round 4 (needed: 14 points)	
	First Card	Second Card	First Card	Second Card	First Card	Second Card	First Card	Second Card
Lizzy	4	6	2	6	9	3	8	6
Jake	8	2	4	4	6	6	7	7
Deanne	3	7	5	3	4	8	9	5
Alberto	5	5	7	1	7	5	6	8

2. Odd-numbered: $5 + 9 = 14$ or $7 + 7 = 14$
Even-numbered: $6 + 8 = 14$ or $10 + 4 = 14$
3. Odd-numbered: $3 + 9 = 12$ or $5 + 7 = 12$
Even-numbered: $4 + 8 = 12$ or $6 + 6 = 12$ or $2 + 10 = 12$

Lesson 4: Estimation by Rounding

- Mollies: $60 + 70 = 130$
Angelfish: $90 + 30 = 120$
Catfish: $70 + 230 = 300$
Plain Guppies: $250 + 40 = 290$
Algae Eaters: $110 + 40 = 150$
Red Swordtails: $260 + 150 = 410$
Fancy Guppies: $80 + 90 = 170$
Orange Swordtails: $80 + 20 = 100$
- $230 - 130 = 100$ mollies
- $530 - 300 = 230$ catfish

Lesson 5: Addition

- $73 + 156 = 229$ birds
- $71 + 85 = 156$ birds
- $156 + 71 + 85 = 312$ birds
- $172 + 228 + 71 = 471$ birds
- Answers will vary.

Lesson 6: Subtraction**“This Summer” column of table:**

Mares:	$2987 - 798 = 2189$
Stallions:	$622 - 265 = 357$
Colts:	$1087 - 288 = 799$
Fillies:	$790 - 335 = 455$

- $2189 - 357 = 1832$ more mares than stallions
- More colts: $799 - 455 = 344$ more colts than fillies
- $2189 + 357 + 799 + 455 = 3800$ horses

Lesson 7: Patterns

1.

Reader	Minutes Read Each Day						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Clark	20	15	20	15	20	15	20
Nina	12	17	22	27	32	37	42
Erica	34	30	26	22	18	14	12
Otis	14	16	18	20	22	24	26

Nina is the winner. Adding each reader's scores shows that Nina's total of 189 minutes is the highest score. The reader with the highest number of minutes won the contest.

2.

Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
30	30	30	30	30	60	60	30	30	30	30	30	60	60

To find the number of minutes Noelle practices in one week, add:

$$30 + 30 + 30 + 30 + 30 + 60 + 60 = 270 \text{ minutes}$$

Using Multiplication and Division

Lesson 1: Basic Multiplication Facts

1.-2.

Round	You	Your Score	Meg	Meg's Score
1	6,0	$6 \times 0 = 0$	5,3	$5 \times 3 = 15$
2	7,4	$7 \times 4 = 28$	2,9	$2 \times 9 = 18$
3	3,8	$3 \times 8 = 24$	6,7	$6 \times 7 = 42$
4	9,4	$9 \times 4 = 36$	1,8	$1 \times 8 = 8$
5	7	$7 \times 7 = 49$	9	$9 \times 9 = 81$
6	5	$5 \times 5 = 25$	5	$5 \times 5 = 25$
7	4	$4 \times 4 = 16$	1	$1 \times 1 = 1$
8	2	$2 \times 2 = 4$	6	$6 \times 6 = 36$

3. Your score: $0 + 28 + 24 + 36 + 49 + 25 + 16 + 4 = 182$
 Meg's score: $15 + 18 + 42 + 8 + 81 + 25 + 1 + 36 = 226$
 Meg won the game.

Lesson 2: Basic Division Facts

Table:

Answers for the first three vegetables:

- Tomatoes: 3 rows
 String Beans: 8 plants
 Peas: 9 plants

The remaining answers can include any combination of the basic facts, including the answers below:

- Corn: 4 plants \times 9 rows, 6 plants \times 6 rows, 9 plants \times 4 rows
 Lettuce: 8 plants \times 8 rows
 Cabbage: 8 plants \times 9 rows, 9 plants \times 8 rows
 Squash: 5 plants \times 7 rows, 7 plants \times 5 rows
 Carrots: 4 plants \times 8 rows, 8 plants \times 4 rows

- String Beans, Peas, Corn, and Cabbage can be in 6 rows.
- String Beans, Lettuce, Cabbage, and Carrots can be in 8 rows.
- Acceptable configurations for 30 tomato plants: 3 rows \times 0 plants, 5 rows \times 6 plants, 6 rows \times 5 plants, 10 rows \times 3 plants, 15 rows \times 2 plants, 2 rows \times 15 plants

Lesson 3: Open Sentences

Round	Player	1st Cube	2nd Cube	Total
1	Derrick	4	3	12
	Angie	3	4	12
2	Derrick	2	5	10
	Angie	1	6	6
3	Derrick	6	2	12
	Angie	3	3	9
4	Derrick	4	2	8
	Angie	5	4	20
5	Derrick	6	6	36
	Angie	5	3	15
6	Derrick	3	3	9
	Angie	6	4	24
7	Derrick	2	3	6
	Angie	4	4	16

Totals:

Derrick: $12 + 10 + 12 + 8 + 36 + 9 + 6 = 93$

Angie: $12 + 6 + 9 + 20 + 15 + 24 + 16 = 102$

Angie won the game.

Lesson 4: Estimation by Rounding

- Cherry: $10 \times 8 = 80$ trees

Pear: $20 \times 3 = 60$ trees

Peach: $20 \times 2 = 40$ trees

Apple: $30 \times 5 = 150$ trees

Orange: $30 \times 2 = 60$ trees

Grapefruit: $40 \times 3 = 120$ trees
- Cherries: $400 \div 10 = 40$ bags

Pears: $240 \div 6 = 40$ bags

Peaches: $100 \div 5 = 20$ bags

Apples: $140 \div 7 = 20$ bags

Oranges: $200 \div 4 = 50$ bags

Grapefruit: $90 \div 3 = 30$ bags

Lesson 5: One-Digit Multipliers

1. Butterflies: $3 \times 32 = 96$ Crickets: $3 \times 44 = 132$
Moths: $3 \times 50 = 150$ Beetles: $3 \times 112 = 336$
2. $8 \times 25 = 200$ bugs
3. No. There are 714 bugs all together, and two showcases will hold only 400 bugs.
4. $9 \times 16 = 144$ butterflies

Lesson 6: One-Digit Divisors

1. Flowers: $96 \div 8 = 12$
Candles: $56 \div 8 = 7$
Mints: $304 \div 8 = 38$
2. Flowers: $80 \div 5 = 16$
Candles: $55 \div 5 = 11$
Mints: $260 \div 5 = 52$
3. Flowers: $126 \div 7 = 18$
Candles: $63 \div 7 = 9$
Mints: $252 \div 7 = 36$
4. Flowers: $180 \div 9 = 20$
Candles: $63 \div 9 = 7$
Mints: $405 \div 9 = 45$
5. Blue: $80 \div 8 = 10$
Green: $60 \div 5 = 12$
Red: $98 \div 7 = 14$
Yellow: $99 \div 9 = 11$

Lesson 7: Two-Digit Multipliers

These estimates use the front-end method. Students may use other methods; estimates may vary.

1. Class **B** Estimate: $30 \times 20 = 600$ sheets Total: $31 \times 29 = 899$ sheets
Class **C** Estimate: $10 \times 10 = 100$ sheets Total: $15 \times 18 = 270$ sheets
Class **D** Estimate: $20 \times 20 = 400$ sheets Total: $24 \times 26 = 624$ sheets
Class **E** Estimate: $20 \times 20 = 400$ sheets Total: $27 \times 21 = 567$ sheets
2. $800 \times 10 = 8000$ sheets
3. $800 + 899 + 270 + 624 + 567 = 3160$ sheets
4. Yes. Multiplying 500×12 shows that there are 6000 sheets in a carton. The five classes use only 3160 sheets a month.

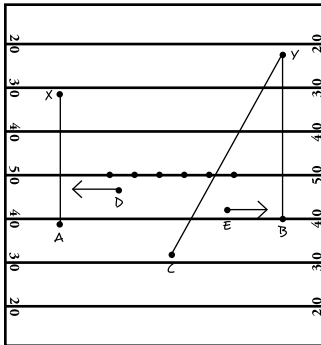
Lesson 8: Two-Digit Divisors

1. Trip 1: $300 \div 60 = 5$ hours Trip 5: $540 \div 10 = 54$ mph
Trip 2: $300 \div 50 = 6$ hours Trip 6: $945 \div 15 = 63$ mph
Trip 3: $660 \div 55 = 12$ hours Trip 7: $754 \div 13 = 58$ mph
Trip 4: $513 \div 57 = 9$ hours Trip 8: $630 \div 14 = 45$ mph
2. Example: If you drive more slowly, the trip takes longer to cover the same distance.
3. Trips 3, 6, and 7

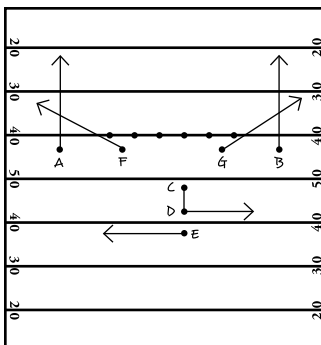
Using Geometry

Lesson 1: Points and Lines

Play 1 Possible Answer



Play 2 Possible answer



Lesson 2: Angles

straight or obtuse	right	acute
right	straight or obtuse	acute
acute	right	obtuse

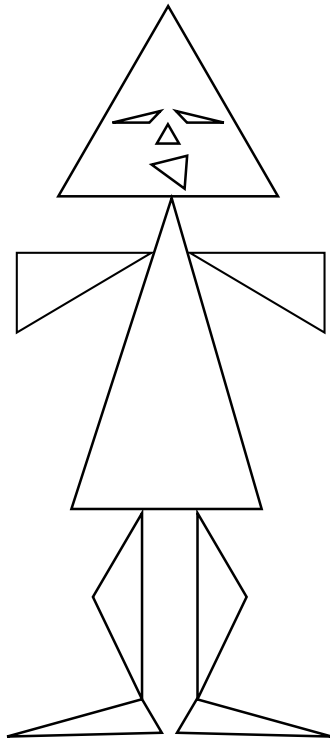
Lesson 3: Plane Geometric Figures

Tool Box 1: square & rhombus

Tool Box 2: regular pentagon & rectangle

Tool Box 3: regular hexagon & trapezoid

Lesson 4: Triangles



Using Decimals and Fractions

Lesson 1: Fractions

1. Mrs. Bowen: $\frac{4}{7}$ Mr. Hirt: $\frac{7}{12}$
 Mrs. Green: $\frac{4}{8}$ or $\frac{1}{2}$ Mr. Smith: $\frac{3}{9}$ or $\frac{1}{3}$
2. Mrs. Bowen: $\frac{3}{7}$ Mr. Hirt: $\frac{5}{12}$
 Mrs. Green: $\frac{4}{8}$ or $\frac{1}{2}$ Mr. Smith: $\frac{6}{9}$ or $\frac{2}{3}$
3. Mr. Hirt's cake. It was cut into the most pieces.
4. $\frac{4}{6}$ a drawing with 4 parts shaded out of 6 equal parts
 $\frac{3}{10}$ a drawing with 3 parts shaded out of 10 equal parts
 $\frac{1}{4}$ a drawing with 1 part shaded out of 4 equal parts

Lesson 2: Decimals and Percents

1. Your Bull's-Eye

- 1 A fraction bar with 5 parts shaded out of 10 = $\frac{5}{10} = 0.5$
- 2 A fraction bar with 4 parts shaded out of 10 = $\frac{4}{10} = 0.4$
- 3 A fraction bar with 1 part shaded out of 10 = $\frac{1}{10} = 0.1$

Your Friend's Bull's-Eye

- 1 A fraction bar with 5 parts shaded out of 10 = $\frac{5}{10} = 0.5$
- 2 A fraction bar with 3 parts shaded out of 10 = $\frac{3}{10} = 0.3$
- 3 A fraction bar with 2 parts shaded out of 10 = $\frac{2}{10} = 0.2$

2. $\frac{7}{10} = 0.7$
 $\frac{2}{10} = 0.2$
 $\frac{1}{10} = 0.1$

3. $0.50 = \frac{50}{100} = 50\%$
 $0.31 = \frac{31}{100} = 31\%$
 $0.19 = \frac{19}{100} = 19\%$

Lesson 3: Addition of Decimals

1. $0.5 + 0.4 = 0.9$ miles
2. $0.5 + 0.4 + 0.25 + 0.6 = 1.75$ miles
3. $0.5 + 0.4 + 0.7 + 0.9 + 1.25 = 3.75$ miles

Lesson 4: Subtraction of Decimals

1. **a.** $7042.1 - 367.4 = 6674.7$ miles
b. $6674.7 - 367.4 = 6307.3$ miles
2. $5000 - 4204.6 = 795.4$ miles
3. **a.** $277.5 - 197.6 = 79.9$ miles
b. $319.7 - 197.6 = 122.1$ miles
c. $611.9 - 197.6 = 414.3$ miles

Lesson 5: Multiplication of Decimals

1. $\$1.65 \times 5 = \8.25
2. 2 students bought hamburgers: $\$0.85 \times 2 = \1.70
3 students bought pizza: $\$1.10 \times 3 = \3.30
5 students bought milk: $\$0.28 \times 5 = \1.40
2 students bought fruit: $\$0.29 \times 2 = \0.58
4 students bought ice cream: $\$0.55 \times 4 = \2.20
3. $\$1.70 + \$3.30 + \$1.40 + \$0.58 + \$2.20 = \9.18
4. The A La Carte lunches cost \$0.93 more: $\$9.18 - \$8.25 = \$0.93$

Lesson 6: Division of Decimals

- Cups:** $\$1.35 \div 9 = \mathbf{\$0.15 \text{ per cup}}$
 $\$1.28 \div 8 = \0.16 per cup
- Plates:** $\$2.10 \div 7 = \mathbf{\$0.30 \text{ per plate}}$
 $\$2.80 \div 8 = \0.35 per plate
- Napkins:** $\$4.68 \div 3 = \1.56 per pack
 $\$5.68 \div 4 = \mathbf{\$1.42 \text{ per pack}}$
- Sodas:** $\$17.97 \div 3 = \5.99 per case
 $\$29.45 \div 5 = \mathbf{\$5.89 \text{ per case}}$
- Beef:** $\$11.97 \div 3 = \3.99 per pound
 $\$23.94 \div 6 = \3.99 per pound
- Rolls:** $\$7.32 \div 4 = \mathbf{\$1.83 \text{ per pack}}$
 $\$11.70 \div 6 = \1.95 per pack
- Catsup:** $\$3.84 \div 2 = \1.92 per bottle
 $\$4.80 \div 3 = \mathbf{\$1.60 \text{ per bottle}}$

Lesson 7: Equivalent Forms

1. Example diagram: 8-slice pizza with 4 slices shaded, 2 slices striped, and 2 slices with dots.

You: $\frac{1}{2}$ of pizza = $\frac{4}{8} = 4$ slices

Brother & Sister: $\frac{1}{4}$ of pizza each = $\frac{2}{8}$ each = 2 slices each

2. Example diagram: 12-slice pizza with 6 slices shaded, 3 slices striped, and 3 slices with dots.

You: $\frac{1}{2}$ of pizza = $\frac{6}{12} = 6$ slices

Brother & Sister: $\frac{1}{4}$ of pizza each = $\frac{3}{12}$ each = 3 slices each

3. Example diagram: 12-slice pizza with 4 slices shaded, 3 slices striped, 3 slices with dots, and 2 slices with diagonal lines.

You: $\frac{1}{3}$ of pizza = $\frac{4}{12} = 4$ slices

Brother & Sister: $\frac{1}{4}$ of pizza each = $\frac{3}{12}$ each = 3 slices each

Friend: $\frac{1}{6}$ of pizza = $\frac{2}{12} = 2$ slices

Lesson 8: Addition of Fractions

1. **a.** $\frac{3}{8} + \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$

b. $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$

2. **a.** $\frac{3}{11} + \frac{5}{11} = \frac{8}{11}$

b. $\frac{3}{11} + \frac{3}{11} = \frac{6}{11}$

3. **a.** $\frac{4}{10} + \frac{3}{10} = \frac{7}{10}$

b. $\frac{2}{10} + \frac{1}{10} = \frac{3}{10}$

4. A 4 x 4 box with 3 purple, 3 orange, 2 green, and 4 blue squares.

a. Purple and Green, or Orange and Green

b. Purple and Blue, or Orange and Blue

Lesson 9: Subtraction of Fractions

1. $\frac{6}{12} - \frac{5}{12} = \frac{1}{12}$

2. $\frac{5}{12} - \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$

3. $\frac{6}{12} - \frac{1}{12} = \frac{5}{12}$
4. $\frac{8}{12} - \frac{4}{12} = \frac{4}{12} = \frac{1}{3}$
5. $\frac{4}{12} - \frac{1}{12} = \frac{3}{12} = \frac{1}{4}$
6. $\frac{12}{12} - \frac{6}{12} = \frac{6}{12} = \frac{1}{2}$
7. $\frac{12}{12} - \frac{5}{12} = \frac{7}{12}$
8. $\frac{12}{12} - \frac{1}{12} = \frac{11}{12}$

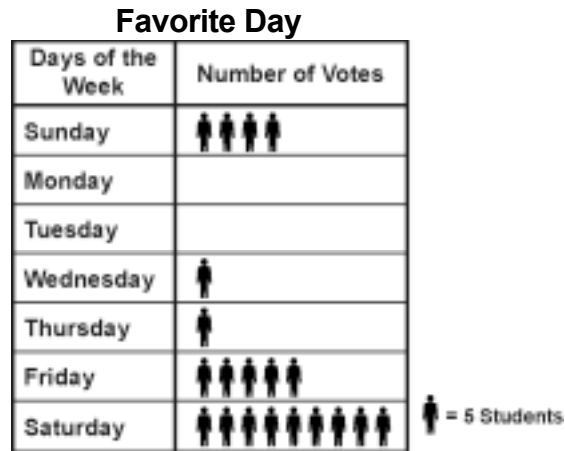
Lesson 10: Multiplication of Fractions

- salt:** $7 \times \frac{1}{6} = \frac{7}{6}$ or $1\frac{1}{6}$ tsp.
- honey:** $2 \times \frac{2}{5} = \frac{4}{5}$ jar
- butter:** $3 \times \frac{3}{8} = \frac{9}{8}$ or $1\frac{1}{8}$ sticks
- sugar:** $4 \times \frac{3}{4} = \frac{12}{4}$ or 3 cups
- cinnamon:** $5 \times \frac{2}{3} = \frac{10}{3}$ or $3\frac{1}{3}$ tsp.
- jelly:** $2 \times \frac{5}{6} = \frac{10}{6}$ or $1\frac{4}{6}$ or $1\frac{2}{3}$ cups
- ginger:** $4 \times \frac{1}{2} = \frac{4}{2}$ or 2 tsp.
- milk:** $3 \times \frac{5}{8} = \frac{15}{8}$ or $1\frac{7}{8}$ cups

Working with Data

Lesson 1: Pictographs

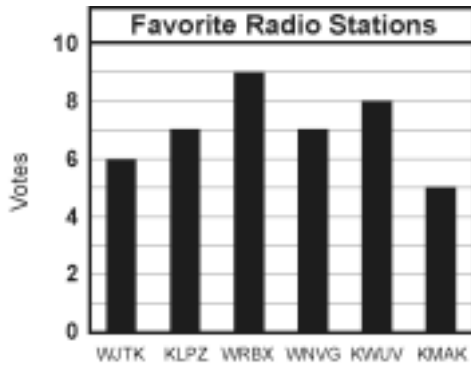
- Five symbols added to Friday to represent 25 students:



- Saturday
- Monday or Tuesday
- $9 \times 5 = 45$ students
- $1 \times 5 = 5$ students
- $25 - 20 = 5$ students
- $45 - 20 = 25$ students
- Monday (or Tuesday)
Tuesday (or Monday)
Wednesday (or Thursday)
Thursday (or Wednesday)
Sunday
Friday
Saturday

Lesson 2: Bar Graphs

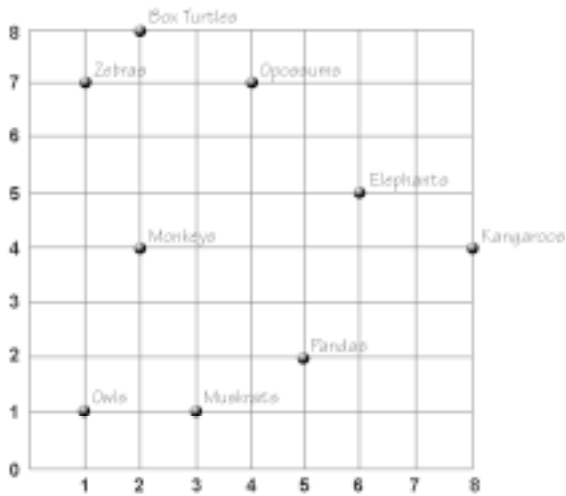
1.



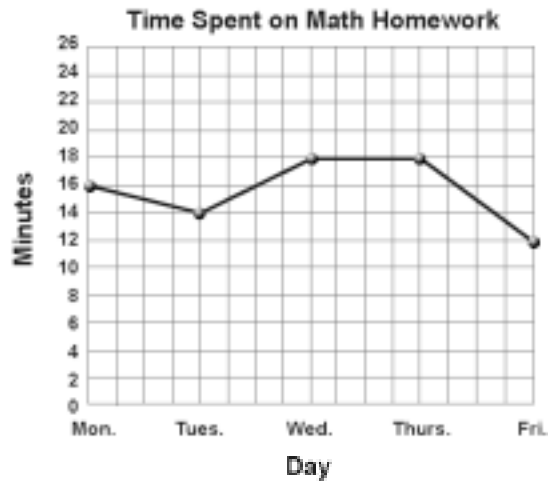
2. The WRBX bar goes up to 9 because it received 9 votes.
3. The WRBX bar is tallest. WRBX was listened to the most.
4. The WRBX bar would be enlarged from 9 to 14 on the graph. Since this graph only goes to ten, the scale on the left side of the graph would have to be increased.
5. KMAK had the least votes.
6. WRBX had the most votes.

Lesson 3: Graphing Ordered Pairs

1. Monkeys: (2,4) Pandas: (5,2) Owls: (1,1)
Elephants: (6,5) Zebras: (1,7) Opossums: (4,7)
- 2.

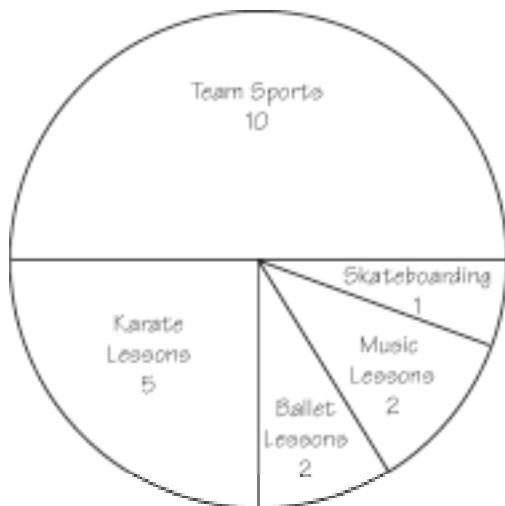


Lesson 4: Line Graphs



Lesson 5: Circle Graphs

Favorite After-School Activities



Assignment Sheets



This section contains an assignment sheet for *Math A*. The assignment sheet lists the available lessons, quizzes and tests. The Online Tracking System will monitor your lesson assignments and the lessons, quizzes and tests your students complete. However, it may be helpful to photocopy an assignment sheet to help you plan lesson assignments or to help your students keep track of the lessons, quizzes and tests they complete.

Assignment Sheets: Math A

Activity	Date Assigned	Date Completed	Score/Progress
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Understanding Numbers			
	•	Pretest on Understanding Numbers	
	1	Place Value	
	2	Numbers and Word Names	
	Q1	Quiz on Lessons 1 and 2	
	3	Comparing and Ordering Numbers	
	4	Changes in Temperature	
	Q2	Quiz on Lessons 3 and 4	
	•	Posttest on Understanding Numbers	

Using Addition and Subtraction			
	•	Pretest on Using Addition and Subtraction	
	1	Basic Addition Facts	
	2	Basic Subtraction Facts	
	3	Open Sentences	
	PS	The Science Project	
	Q1	Quiz on Lessons 1 through 3	
	4	Estimation by Rounding	
	5	Addition	
	6	Subtraction	
	7	Patterns	
	PS	Extra! Extra! Read All About It!	
	Q2	Quiz on Lessons 4 through 7	
	•	Posttest on Using Addition and Subtraction	

Assignment Sheets: Math A

Activity		Date Assigned	Date Completed	Score/Progress
Using Multiplication and Division				
	•	Pretest on Using Multiplication and Division		
	1	Basic Multiplication Facts		
	2	Basic Multiplication Facts		
	3	Open Sentences		
	PS	Let Me See Your Picture		
	Q1	Quiz on Lessons 1 through 3		
	4	Quiz on Lessons 1 through 3		
	5	One-Digit Multipliers		
	6	One-Digit Divisors		
	PS	The Good Deed		
	Q2	Quiz on Lessons 4 through 6		
	7	Two-Digit Multipliers		
	8	Two-Digit Divisors		
	PS	Water Wings		
	Q3	Quiz on Lessons 7 and 8		
	•	Quiz on Lessons 7 and 8		

Assignment Sheets: Math A

Activity		Date Assigned	Date Completed	Score/Progress
Using Geometry				
	•	Pretest on Using Geometry		
	1	Points and Lines		
	2	Angles		
	3	Plane Geometric Figures		
	4	Triangles		
	5	Solid Geometric Figures		
	6	Symmetry and Congruence		
	•	Posttest on Using Geometry		

Assignment Sheets: Math A

Activity		Date Assigned	Date Completed	Score/Progress
Using Decimals and Fractions				
	•	Pretest on Using Decimals and Fractions		
	1	Fractions		
	2	Decimals and Percents		
	3	Addition of Decimals		
	4	Subtraction of Decimals		
	Q1	Subtraction of Decimals		
	PS	Puppy's Pen		
	5	Multiplication of Decimals		
	6	Division of Decimals		
	7	Equivalent Forms		
	PS	School's Out		
	Q2	Quiz on Lessons 5 through 7		
	8	Addition of Fractions		
	9	Subtraction of Fractions		
	10	Multiplication of Fractions		
	PS	Lemonade Stand		
	Q3	Quiz on Lessons 8 through 10		
	•	Quiz on Lessons 8 through 10		

Assignment Sheets: Math A

Activity	Date Assigned	Date Completed	Score/Progress
Working with Data			
•	Pretest on Working with Data		
1	Pictographs		
2	Bar Graphs		
3	Graphing Ordered Pairs		
Q1	Quiz on Lessons 1 through 3		
4	Line Graph		
5	Circle Graph		
Q2	Quiz on Lessons 4 and 5		
•	Posttest on Working with Data		