Name Date Time

STUDY LINK 5·12

Unit 6: Family Letter

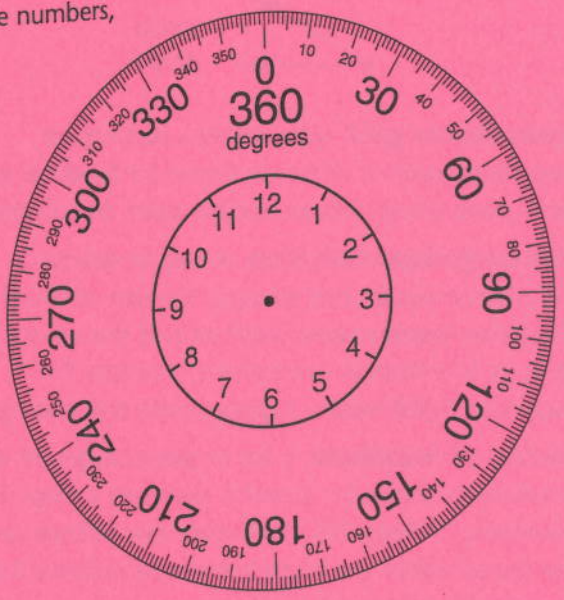
Division; Map Reference Frames; Measures of Angles

The first four lessons and the last lesson of Unit 6 focus on understanding the division operation, developing a method for dividing whole numbers, and solving division number stories.

Though most adults reach for a calculator to do a long-division problem, it is useful to know a paper-and-pencil procedure for computations such as $567 \div 6$ and $15\overline{)235}$. Fortunately, there is a method that is similar to the one most of us learned in school but is much easier to understand and use. This method is called the **partial-quotients method.**

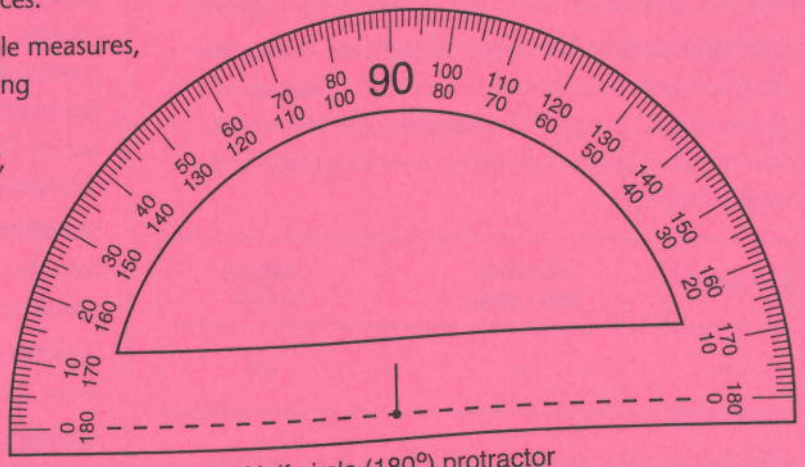
Students have had considerable practice with extended division facts, such as $420 \div 7 = 60$, and questions, such as "About how many 12s are in 150?" Using the partial-quotients method, your child will apply these skills to build partial quotients until the exact quotient and remainder are determined.

This unit also focuses on numbers in map coordinate systems. For maps of relatively small areas, rectangular coordinate grids are used. For world maps and the world globe, the system of latitude and longitude is used to locate places.



Full-circle (360°) protractor

Because this global system is based on angle measures, the class will practice measuring and drawing angles with full-circle (360°) and half-circle (180°) protractors. If you have a protractor, ask your child to show you how to use this tool.



Half-circle (180°) protractor

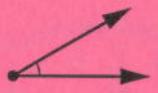
The class is well into the World Tour. Students have visited Africa and are now traveling in Europe. They are beginning to see how numerical information about a country helps them get a better understanding of the country—its size, climate, location, and population distribution—and how these characteristics affect the way people live. Your child may want to share with you information about some of the countries the class has visited. Encourage your child to take materials about Europe to school, such as magazine articles, travel brochures, and articles in the travel section of your newspaper.

Please keep this Family Letter for reference as your child works through Unit 6.

Vocabulary

Important terms in Unit 6:

acute angle An angle with a measure greater than 0° and less than 90°.



coordinate grid (also called a *rectangular coordinate grid*) A reference frame for locating points in a plane using *ordered number pairs,* or *coordinates.*

equal-groups notation A way to denote a number of equal-sized groups. The size of the groups is written inside square brackets and the number of groups is written in front of the brackets. For example, 3 [6s] means 3 groups with 6 in each group.

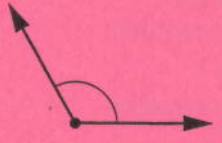
index of locations A list of places together with a reference frame for locating them on a map. For example, "Billings D3," indicates that Billings can be found within the rectangle where column 3 and row D of a grid meet on the map.

meridian bar A device on a globe that shows degrees of latitude north and south of the equator.

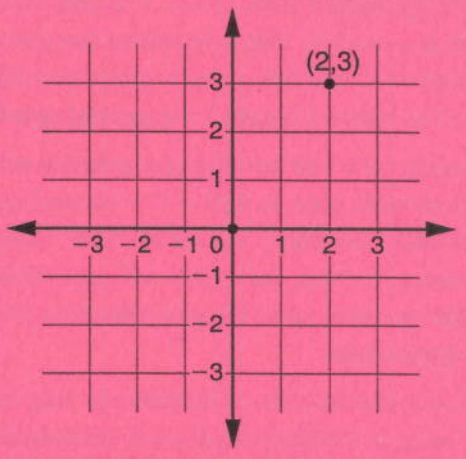
multiplication/division diagram A diagram used for problems in which a total is made up of several equal groups. The diagram has three parts: a number of groups, a number in each group, and a total number.

rows	chairs per row	chairs in all
6	4	24

obtuse angle An angle with a measure greater than 90° and less than 180°.



ordered number pair Two numbers that are used to locate a point on a *coordinate grid.* The first number gives the position along the horizontal axis, and the second number gives the position along the vertical axis. The numbers in an ordered pair are called *coordinates.* Ordered pairs are usually written inside parentheses: (2,3).



protractor A tool used for measuring or drawing angles. A half-circle protractor can be used to measure and draw angles up to 180°. A full-circle protractor can be used to measure and draw angles up to 360°. One of each type is on the Geometry Template.

quotient The result of dividing one number by another number. For example, in 35 ÷ 5 = 7, the quotient is 7.

reflex angle An angle with a measure greater than 180° and less than 360°.

straight angle An angle with a measure of 180°.

vertex The point at which the rays of an angle, the sides of a polygon, or the edges of a polyhedron meet. Plural is vertexes or vertices.

Do-Anytime Activities

To work with your child on concepts taught in this unit, try these interesting and rewarding activities:

1. Help your child practice division by solving problems for everyday situations.
2. Name places on the world globe and ask your child to give the latitude and longitude for each.
3. Encourage your child to identify and classify acute, right, obtuse, straight, and reflex angles in buildings, bridges, and other structures.
4. Work together with your child to construct a map, coordinate system, and index of locations for your neighborhood.

Building Skills through Games

In Unit 6, your child will practice using division and reference frames and measuring angles by playing the following games. For detailed instructions, see the *Student Reference Book*.

Angle Tangle See *Student Reference Book*, page 230.

This is a game for two players and will require a protractor. The game helps students practice drawing, estimating the measure of, and measuring angles.

Division Dash See *Student Reference Book*, page 241.

This is a game for one or two players. Each player will need a calculator. The game helps students practice division and mental calculation.

Grid Search See *Student Reference Book*, pages 250 and 251.

This is a game for two players, and each player will require *two* playing grids. The game helps students practice using a letter-number coordinate system and developing a search strategy.

Over and Up Squares See *Student Reference Book*, page 257.

This is a game for two players and will require a playing grid. The game helps students practice using ordered pairs of numbers to locate points on a rectangular grid.

As You Help Your Child with Homework

As your child brings assignments home, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through some of the Study Links in this unit.

Study Link 6•1

1. 8 rows **2.** 120,000 quills **3.** 21 boxes

Study Link 6•2

1. 38 **2.** 23 **3.** 47

Study Link 6•3

1. 13 marbles; 5 left **2.** 72 prizes, 0 left

3. 22 R3 **4.** 53 R3

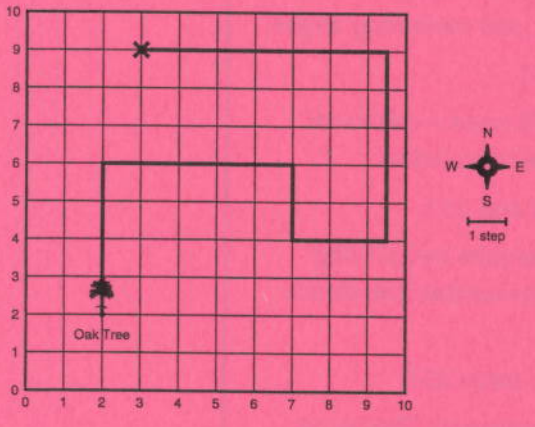
Study Link 6•4

1. $15\frac{4}{8}$ or $15\frac{1}{2}$; Reported it as a fraction or decimal; Sample answer: You can cut the remaining strawberries into halves to divide them evenly among 8 students.

2. 21; Ignored it; Sample answer: There are not enough remaining pens to form another group of 16.

Study Link 6•5

1–7.



Study Link 6•6

1. >; 101° **2.** <; 52°

3. >; 144° **4.** <; 85°

6. 24 **7.** 8 R2 **8.** 157 **9.** 185 R3

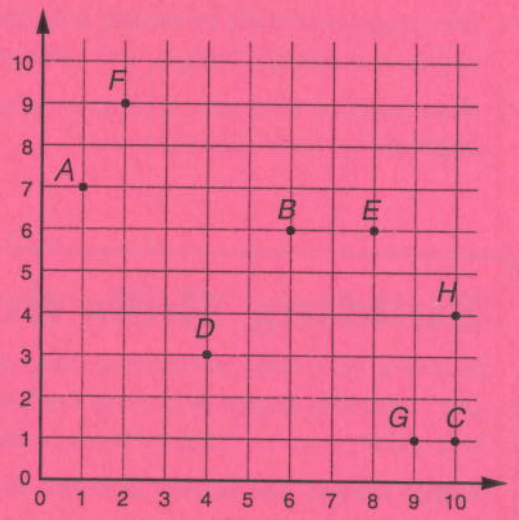
Study Link 6•7

1. 60° **2.** 150° **3.** 84° **4.** 105°

5. 32° **6.** 300°

Study Link 6•8

1.



2. *K* (4,8); *L* (7,7); *M* (10,5); *N* (1,8); *O* (6,2); *P* (8,4); *Q* (10,2); *R* (3,10)

Study Link 6•9

1.

2. Eastern Hemisphere **3.** water

4. 15 R2 **5.** 14 **6.** 43 R2 **7.** 134

Study Link 6•10

1. 8 pitchers; 0 oranges left

2. 22 bouquets; 8 flowers left

3. 45 R6 **4.** 69 **5.** 180

6. 2,233 **7.** 1,827 **8.** 16,287