Comparing Products

Family Note Today your child learned a game that involves finding a multiplication product greater than the one just played. The activity below provides practice with this skill. Have your child start at the picture of the Minotaur and use a pencil so that he or she can erase wrong turns.

Please return this Home Link to school tomorrow.

SRB
65-66

According to Greek mythology, there was a monster called the Minotaur that was half bull and half human. The king had a special mazelike dwelling built, from which the Minotaur could not escape. The dwelling, called a **labyrinth** (la buh rinth), had many rooms and passageways that formed a puzzle. No one who went in could find their way out without help. One day, a Greek hero named Theseus decided to slay the monster. To find his way out of the labyrinth, Theseus's friend Ariadne gave him a very, very long ball of string to unwind as he walked through the passageways. After Theseus slew the Minotaur, he followed the string to escape.

Pretend you are Theseus. To find your way out of the maze, each room you enter must have a product greater than the product in the room you are leaving. Start at the Minotaur's chambers in the middle and draw a path to the exit.

Exit	6 × 7	8 × 7	8 × 6	5 × 9	7 × 6	9 × 3
10 × 10	9 × 9	9 × 8	5 × 7	4 × 8	8 × 5	7 × 5
8 × 8	7 × 4	8 × 8	6 × 4	5 × 5	6 × 6	8 × 4
6 × 9	8 × 5	7 × 9	9 × 6	7 × 3	4 × 7	4 × 6
9 × 3	4 × 9	7 × 8	9 × 9	2 × 2	8 × 3	8 × 9
9 × 5	7 × 7	9 × 6	(Minotaur)	4 × 4	5 × 4	4 × 2
6 × 7	5 × 5	2 × 8	2 × 4	5 × 2	4 × 2	5 × 9
5 × 8	7 × 2	2 × 9	4 × 4	2 × 3	8 × 2	3 × 3
4 × 9	4 × 8	7 × 4	3 × 4	3 × 4	5 × 3	8 × 7
6 × 6	3 × 7	10 × 8	5 × 5	8 × 4	7 × 3	5 × 10

Multiplication and Division Number Stories

Family Note Today your child solved number stories involving multiples of 10. The class examined a map displaying the masses of adult North American birds to make sense of the stories and used multiplication/division diagrams to organize information. For the problems below, encourage your child to use a known basic fact to help solve the number models with extended facts involving multiples of 10.

Please return this Home Link to school tomorrow.

SRB
61-64

Write a number model. Then solve each number story. You may draw a picture or use the multiplication/division diagram.

(1) One American flamingo has a mass of about 2 kg. What is the mass of 40 American flamingos that each have a mass of about 2 kg?

number of flamingos	mass of 1 flamingo in kg	total mass in kg

_____
(number model with ?)

40 flamingos have a mass of about _____ kg.

(2) There are 9 bluebirds that each have about the same mass. Together they have a mass of about 270 g. What is the mass of one bluebird?

number of bluebirds	mass of 1 bluebird in g	total mass in g

_____
(number model with ?)

One bluebird has a mass of about _____ g.

(3) Explain to someone at home how you can use a basic fact to help you solve Problem 2.

Using Mental Math to Multiply

> **Family Note** Today your child practiced applying efficient fact strategies to solve multiplication problems with larger factors. Your child broke apart factors into easier numbers to mentally solve problems involving masses of North American birds.
>
> *Please return this Home Link to school tomorrow.*

Solve each problem in your head. Use number models and words to show your thinking.

① The mass of one California condor is 9 kilograms. What is the mass of twelve 9-kilogram California condors?

My thinking:

Answer: _____
                    (unit)

② The mass of one mountain bluebird is 25 grams. What is the mass of seven 25-gram bluebirds?

My thinking:

Answer: _____
                    (unit)

③ Explain to someone at home how you can use the break-apart and doubling strategies to solve problems with larger factors.

Measuring the Lengths of Activities

> **Family Note** Today your child practiced measuring time intervals by planning a schedule for a field trip. After completing Problem 1, have your child explain how he or she figured out the length of each activity.
>
> *Please return this Home Link to school tomorrow.*

1. Isabella wants to know how long each camp activity lasts. Use the table below to find the length of each activity. You may use open number lines, clocks, or another strategy.

Camp Activities		
Activity	**Schedule**	**Length, in minutes**
Art	8:30 A.M.–9:20 A.M.	
Swimming	9:20 A.M.–10:20 A.M.	
Snack	10:35 A.M.–10:55 A.M.	
Nature walk	10:55 A.M.–12:10 P.M.	

Practice

Solve.

2. $4 \times 60 =$ _____

3. $70 \times 3 =$ _____

4. _____ $= 60 \times 8$

5. _____ $= 80 \times 9$

Multidigit Multiplication

> **Family Note** Today your child multiplied 2-digit numbers by 1-digit numbers using area models. Children drew a rectangle to represent the multiplication problem and then broke apart the larger factor into smaller, easier-to-multiply numbers.
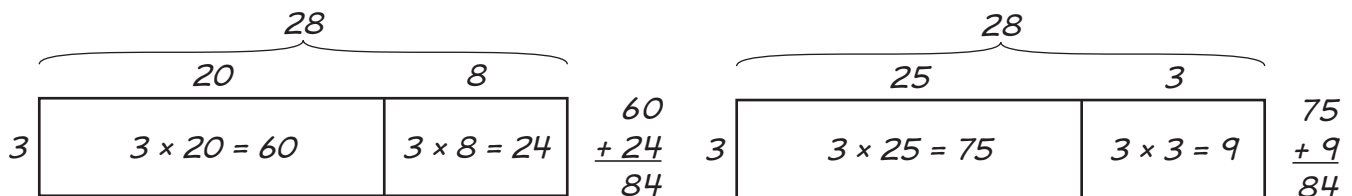>
> *Please return this Home Link to school tomorrow.*

Use the break-apart strategy to solve the multiplication problems. Draw and partition a rectangle. Then record number sentences to show how you broke apart the factor.

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Example:

$3 \times 28 = 84$

Two ways to break apart 28 to help solve 3×28.

(1) $5 \times 42 =$ _____

(2) $6 \times 54 =$ _____

(3) Explain to someone at home how you broke apart the larger factors.

Using Tools Effectively

Family Note Today your child pretended to use a calculator with a broken division key to solve a number story. In the problem below, your child is asked to solve a similar problem with a broken calculator. Ask your child to explain why both strategies work and how they are different.

Please return this Home Link to school tomorrow.

Ask someone at home for a calculator you can use to solve this problem.

A third-grade class is planning to buy eggs for the school's pancake breakfast. They need 180 eggs for the breakfast. The teacher reminded the class that eggs come in cartons of 12 and asked them to figure out how many cartons they need. Lucy wants to use her calculator to solve the problem, but the $+$ and $\div$ keys are both broken. Help Lucy find a way to use her broken calculator to solve the problem.

(1) Show or tell how to use Lucy's broken calculator to find the number of cartons of eggs the class needs to buy.

The class needs to buy _____ cartons of eggs.

(2) Show or tell another way for Lucy to use her broken calculator to solve the problem.

Calculating Elapsed Time
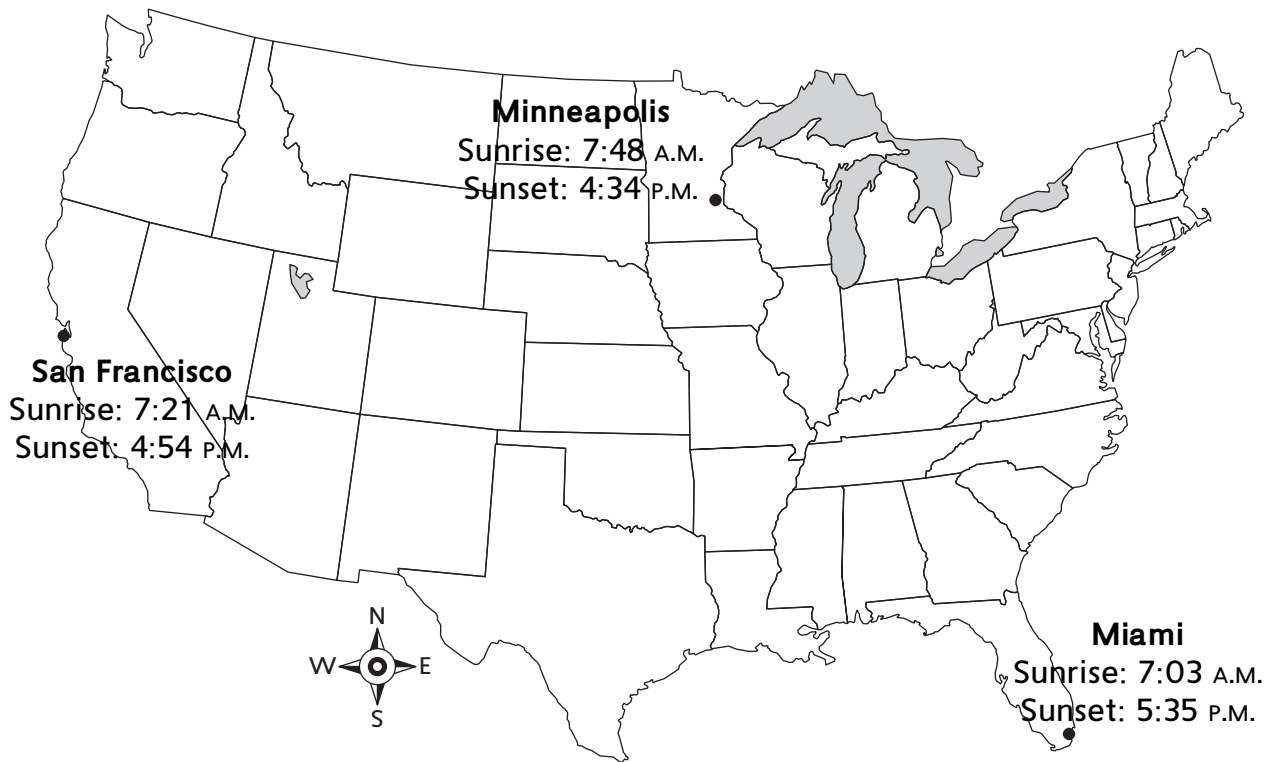
Family Note Throughout the year, your child has practiced calculating the length of day (hours of sunlight) using sunrise and sunset data. Children have used clocks and open number lines to figure out the total minutes and hours that pass from a start time to an end time. Today children analyzed graphs showing the length-of-day data for our location and for other locations around the world.

Please return this Home Link to school tomorrow.

① On the map below, look at the sunrise and sunset times for December 21, 2016. On the back of this page, calculate the length of day for all three cities. Record the times next to each city on the map.

SRB
18-19,
187-188

Minneapolis
Sunrise: 7:48 A.M.
Sunset: 4:34 P.M.

San Francisco
Sunrise: 7:21 A.M.
Sunset: 4:54 P.M.

N
W ◆ E
S

Miami
Sunrise: 7:03 A.M.
Sunset: 5:35 P.M.

② Which city has the *most* hours of sunlight? _____

③ Which city has the *least* hours of sunlight? _____

Congratulations! By completing *Third Grade Everyday Mathematics* your child has accomplished a great deal. Thank you for all of your support.

This Family Letter is provided for you as a resource throughout your child's school vacation. It includes a list of Do-Anytime Activities, game directions, titles of mathematics-related books, and a sneak preview of what your child will be learning in *Fourth Grade Everyday Mathematics.*

Enjoy your summer!

Do-Anytime Activities

The following activities are for you and your child to do together during the summer to help review concepts your child learned in third grade. These activities build on the skills from this year and help prepare your child for *Fourth Grade Everyday Mathematics*.

1. Pose number stories with single-digit numbers or multiples of 10 that can be solved using multiplication and division. Examples: *I have 12 crackers to share equally among you and your two sisters. How many crackers will you each get? 12 ÷ 3 = 4 crackers. 30 children can ride in one bus. How many can ride in 3 buses? 30 × 3 = 90 children.*

2. Have your child review and practice multiplication and division facts. Your child can use Fact Triangles or play a multiplication game (as described on page 324 of this letter).

3. Pose simple fraction stories for your child to solve and encourage him or her to draw pictures to show his or her thinking. Examples: *The pizza is the whole. If you eat $\frac{1}{4}$ of the pizza and your sister eats $\frac{1}{2}$ of the pizza, who eats more? How do you know? My sister eats more because 1 out of 2 parts is larger than 1 out of 4 parts of the same pizza.*

4. Have your child practice reading analog clocks to the nearest minute.

5. Encourage your child to identify and describe geometric shapes that can be seen in the world. Example: *The window is a rectangle and a parallelogram because it has four sides and two sets of parallel sides.*

6. Examine food and drink labels to prompt discussions about mass and liquid volume units in the real world, such as milliliters, liters, grams, and kilograms. At the grocery store, look for items that have a mass of about 1 gram (blueberry) or 1 kilogram (pineapple).

7. Measure real-world objects or distances to the nearest inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch. Talk about when you need to make more precise measurements. Example: Hold a watermelon-seed spitting contest and measure the distances the seeds travel.

8. Find the areas and perimeters of rooms at home. Have your child estimate which room could have the largest area and largest perimeter (they might not be the same).

9. Practice multidigit addition and subtraction.

10. Practice extended facts using basic facts for multiplication and division. Example: If you know 3 × 3 = 9, then it helps you know that 3 × 30 = 90.

Building Skills through Games

Multiplication Top-It

Materials	Number cards 0–10* (4 of each)
Players	2 to 4
Skill	Multiplication facts 0 to 10
Object of the Game	To collect the most cards

Directions

Shuffle the cards and place them facedown in a pile. Each player turns over 2 cards and calls out the product of the numbers. The player with the largest product wins the round and takes all the cards. In case of a tie for the largest product, each tied player turns over 2 more cards and calls out the product of the numbers. The player with the largest product then takes all the cards from both plays. The game ends when there are not enough cards left for each player to have another turn. The player with the most cards wins.

Variation: *Extended Multiplication Top-It*

Turn over 2 cards and make the second card a multiple of 10. For example, if you turn over 2 and 4, the 4 becomes 40. Multiply the single digit by the multiple of 10.

Name That Number

Materials	Number cards 0–20* (4 of each card 0–10, and 1 of each card 11–20)
Players	2 to 4 (the game is more interesting when played by 3 or 4 players)
Skill	Finding equivalent names for numbers
Object of the Game	To collect the most cards

Directions

1. Shuffle the deck and place 5 cards number-side up on the table. Leave the rest of the deck number-side down. Then turn over the top card of the deck and lay it down next to the deck. The number on this card is the target number.

2. Players take turns. When it is your turn, try to name the target number by adding, subtracting, multiplying, or dividing the numbers on 2 or more of the 5 cards that are number-side up. A card may be used only once for each turn. If you can name the target number, take the target number card and the cards you used to name it. Then replace all the cards you took by drawing from the top of the deck. If you cannot name the target number, your turn is over. Turn over the top card of the deck and lay it down on the target-number pile. The number on this card becomes the new target number to be named.

3. Play continues until all of the cards in the deck have been turned over. The player who has taken the most cards wins.

Salute!

Materials	Number cards 1–10* (4 of each)
Players	3
Skill	Practicing multiplication and division facts
Object of the Game	To solve for a missing factor

Directions

One person begins as the Dealer. The Dealer gives one card to each of the other two Players. Without looking at their cards, the Players hold them on their foreheads with the numbers facing out. The Dealer looks at both cards and says the product of the two numbers. Each Player looks at the other Player's card. They use the number they see and the product said by the Dealer to figure out the number on their card (the missing factor). They say that number out loud. Once both Players have said their numbers, they can look at their own cards to check their answers. Rotate roles clockwise and repeat the game. Play continues until everyone has been the Dealer five times.

*The number cards used in some games can be made from index cards or from a regular deck of playing cards. (Use jacks for zeros, aces for ones, and other face cards for teen numbers.)

Product Pile-Up

Materials	Number cards 1–10 (4 of each)
Players	3
Skill	Practicing multiplication facts 1 to 10
Object of the Game	To play all of your cards

Directions

1. Take turns being the dealer. Shuffle and deal 8 cards to each player. Place the rest of the deck number-side down.

2. The player to the left of the dealer begins. This player selects 2 cards from his or her hand, places them number-side up on the table, multiplies the numbers, and says the product aloud.

3. Play continues with each player playing 2 cards with a product *greater than* the product of the last 2 cards played. If a player states an incorrect product, other players may suggest a helper fact or strategy to help find the correct product.

4. If a player is not able to play 2 cards with a greater product, the player draws 2 cards from the deck.

    • If the player is now able to make a greater product, those cards are played and the game continues. If the player still cannot make a greater product, the player keeps the cards and says "Pass." The game continues to the next person.

    • If all players must pass, the player who laid down the last 2 cards starts a new round beginning with Step 2 above.

5. The winner is the first player to run out of cards, or the player with the fewest cards when there are no more cards to draw.

Vacation Reading with a Mathematical Twist

Books can contribute to children's learning by presenting mathematics in a combination of real-world and imaginary contexts. The titles below were recommended by teachers who use *Everyday Mathematics.* Visit your local library and check out these mathematics-related books with your child.

Geometry

A Cloak for the Dreamer by Aileen Friedman

Fractals, Googols, and Other Mathematical Tales by Theoni Pappas

Measurement

How Tall, How Short, How Far Away by David Adler

Math Curse by Jon Scieszka

Measuring on Penny by Loren Leedy

Numeration

Fraction Fun by David Adler

How Much Is a Million? by David Schwartz

Operations

The Grapes of Math by Gregory Tang

The King's Chessboard by David Birch

The I Hate Mathematics! Book by Marilyn Burns

A Remainder of One by Elinor J. Pinczes

Anno's Mysterious Multiplying Jar by Masaichiro Anno and Mitsumasa Anno

Patterns, Functions, and Algebra

Eight Hands Round: A Patchwork Alphabet by Ann Whitford Paul

A Million Fish . . . More or Less by Patricia C. McKissack

Reference Frames

Pigs on a Blanket by Amy Axelrod

Three Days on a River in a Red Canoe by Vera B. Williams

Looking Ahead: *Fourth Grade Everyday Mathematics*

Next year your child will:

- Solve multistep problems involving the four operations.
- Explore multiples, factors, and prime and composite numbers.
- Explore multidigit multiplication and division methods.
- Add and subtract fractions with like denominators and multiply fractions by whole numbers.
- Read, write, compare, and order fractions and decimals.
- Convert between metric and U.S. customary units of measure.
- Apply formulas to find the area and the perimeter of rectangles.
- Identify geometric properties in a variety of shapes.
- Collect and interpret data.
- Identify lines of symmetry and symmetric shapes.
- Explore partial quotients for division.
- Solve number stories involving different units of measurement.

Again, thank you for your support this year. Have fun continuing your child's mathematical adventures throughout the vacation!