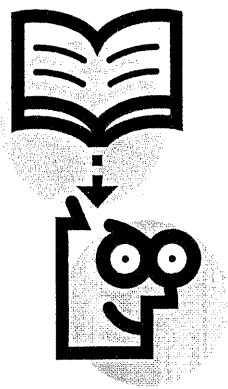


enVisionMath

2014-2015

Homework for Topics 9–16
Reteach
Practice
Enrichment



divides by 5.

When students give the correct answer of 20, ask: *What is 20 ÷ 5?* [4]

Rewrite the problem as $200 \div 5$ and ask for the answer.

Repeat this process of using compatible numbers with other examples.

$560 \div 7$	$540 \div 6$	$810 \div 9$	$480 \div 8$
$490 \div 7$	$420 \div 6$	$630 \div 9$	$640 \div 8$
$810 \div 9$	$480 \div 6$	$720 \div 9$	$420 \div 6$



You want your students to get four connected rectangles, like this.

Center Activity 9-2



Center Activity 9-2

$492 \div 6$	$391 \div 3$	$279 \div 2$	$295 \div 7$
$435 \div 7$	$369 \div 4$	$649 \div 9$	$259 \div 2$



You want your students to get four connected rectangles, like this.

Center Activity 9-2



Center Activity 9-2

Report Back To check understanding, ask a student to repeat and complete this sentence: *The numbers 120, 450, 560, and 630 are examples of compatible numbers you can use to estimate a quotient when you divide by _____.* [7]

Leveled Homework

Repeating Master

Repeating 9-2

Name _____

Estimating Quotients

You can also estimate by thinking about multiplication.
Ask yourself: What is a number close to 450 that could be easily divided by 9? Try 450.
 $450 \div 9 = 50$

50 is a good estimation for this problem.
So, $450 \div 9$ is about 50.

Estimate each quotient.

- $1,165 \div 4$ About 9
- $2,35 \div 4$ About 60
- $715 \div 9$ About 80
- $4,990 \div 8$ About 100
- $512 \div 5$ About 80
- $6,662 \div 8$ About 90
- $7,790 \div 9$ About 30
- $8,200 \div 7$ About 50
- $9,311 \div 6$ About 30

10. Number Sense Complete by filling in the circle with $<$, $=$, or $>$. Without showing your work, which quotient is greater?
 $450 \div 9$ or $347 \div 5$
 < because both dividends are divided by 5 and 347 is greater.

Also available in print

Practice Master

Practice 9-2

Name _____

Estimating Quotients

Estimate each quotient.

- $82 \div 4$ About 20
- $580 \div 3$ About 200
- $96 \div 5$ About 20
- $811 \div 2$ About 400
- $194 \div 6$ About 30
- $207 \div 7$ About 30
- $282 \div 4$ About 70
- $479 \div 8$ About 60

9. Jacqui is writing a book. If she needs to write 87 pages in 9 days, how many pages should she write each day?
About 10 pages

10. Wade wants to give $\frac{1}{2}$ of his marbles to 10 of his friends. If he gives each friend the same number of marbles, about how many will each friend receive?
About 41 marbles

11. Which is the best estimate for $802 \div 8$?
A 60 B 70 C 80 D 90

12. Writing to Explain You are using a recipe to determine how much whole wheat flour to use in a bread recipe. Is an estimated answer good enough?
Sample answer: No, because most recipes need exact measurements.

Also available in print

Franny's To-Do List

Franny wants to get a lot done this weekend. She made a list of things she needs to do.

- Pick up the car
- Buy presents for Ken, Wang, and Tim
- Pick CDs on radio

1. Franny wants to place the remaining 64 photos in a large photo album. She can only place 4 photos on each page? About 12 photos

2. Franny has to read 113 pages to finish her book. She plans to spend 3 1/2 hours to finish the book? About 30 pages

3. Franny wants to spend an equal amount of money on the presents. If she has \$82, about how much money can she spend on each present? About \$20

4. Franny's new CD rack has 7 rows. If Franny has 139 CDs, how many can she put on each row? About 20 CDs

Also available in print

5,123 is between 4,900 and 5,600, but is closer to 4,900. So, $5,123 \div 7$ is about 700.

Ask each student to write a problem like the example, but with a dividend between 3,000 and 8,000 and a divisor between 3 and 9.

Have students create posters that explain how to estimate the quotient of their problem. They may imitate your model or use a different way to explain the concept.

Use compatible numbers to estimate each quotient.

Read the dividend to the nearest hundred. Estimate the quotient.

Use compatible numbers to estimate each quotient.

Make up a "Think Together" question for this lesson. Challenge your classmates to think together to answer your question.

Do These Steps in Order

- Ask a question about the data so that your group can estimate a quotient.
- Ask a different question about the data so that your group can estimate a quotient.
- Ask a question about the data so that your group can compare the estimates of two quotients.
- Ask another question about the data so that your group can determine if a number is an overestimate or an underestimate.
- Repeat the activity using data not previously discussed.

Leveled Homework

Estimating Quotients for Greater Dividends

Name _____

Find $294 \div 5$.

Think of multiples of 5. 5, 10, 15, 20, 25, 30

Underline the first two digits of 294.

Find the multiple of 5 that is closest to 29. That multiple is 30.

$6 \times 5 = 30, 80$

$60 \times 5 = 300$

$500 \div 5 = 60$

$294 \div 5$ is about 60.

Estimate each quotient.

1. $1,561 \div 8$

Think of multiples of 8. 8, 16, 24, 32, 40, 48

Underline the first two digits of 1,561.

Which multiple of 8 is closest to 15? 16

What is 200×8 ? 1,600

What is $1,600 \div 8$? 200

So, $1,561 \div 8$ is about 200

2. $481 \div 9$ 50

3. $2,356 \div 6$ 400

4. $5,332 \div 9$ 600

Estimating Quotients for Greater Dividends

Name _____

Estimate each quotient.

1. $381 \div 5$ 70

2. $5,985 \div 9$ 700

3. $2,753 \div 7$ 400

4. $190 \div 8$ 20

5. $427 \div 6$ 70

6. $1,127 \div 4$ 300

7. $143 \div 3$ 50

8. $366 \div 9$ 40

9. $4,088 \div 5$ 800

10. $1,378 \div 4$ 300

11. $4,405 \div 6$ 700

12. $815 \div 7$ 100

13. $3,942 \div 8$ 500

14. $933 \div 3$ 300

15. $4,471 \div 7$ 600

16. $5,251 \div 9$ 600

17. Daniel's family grows pecans. Last year they harvested 1,309 pounds of pecans. If they packed bags with 3 pounds of pecans in each bag, about how many bags would they fill?

A. 40 bags B. 50 bags C. 400 bags D. 500 bags

18. Reason: At Camp Summer Fun, 4 campers share each tent. The camp is expecting 331 campers. About how many tents will they need? Will the number of tents they actually need be more or less than the estimate? How do you know?

80 tents: More; $4 \times 80 = 320$, which is less than the 331 campers they expect.

Estimating Bracelets

Name _____

Rob and Kate are making bracelets to sell at a craft fair. Each bracelet uses 6 blue beads, 8 silver beads, and 7 white beads. The table shows how many beads they have of each color.

Use estimation to figure out about how many bracelets Rob and Kate can make with each color of bead.

Then tell if each answer is an overestimate and they will not have quite enough beads or an underestimate and they will have some beads left over.

Color	Number of Beads	Number Needed for Each Bracelet	About How Many Bracelets They Can Make	Is the Estimate Over or Under?
Blue	258	6	40	Under
Silver	428	9	50	Over
Rose	102	3	30	Under
White	288	7	40	Over

1. About how many bracelets can they make before they run out of beads? **30 bracelets**

2. What color will they run out of first? **Rose**

3. Will they run out of blue beads or white beads first? How do you know? **White: Sample answer: 40 bracelets is an overestimate for the blue beads; bracelets will take 6 beads each to make. Blue beads: bracelets will take 8 beads each to make. They have 258 blue beads. They have some left over. 40 beads is an overestimate for the white beads; 40 bracelets will take $7 \times 40 = 280$ beads. They only have 288 beads so they will run out before they complete 40 bracelets.**

Also available in print

Also available in print

Also available in print

- Since students cannot divide 1 hundred block into 5 equal groups, have them split the hundred block into 10 tens. Then divide the tens rods into 5 equal groups.
- Since there is 1 ten rod left over, split it into ones. Then divide the ones blocks into 5 equal groups.
- Explain that the answer is the amount in each group plus the remainder.

7	0	4	2	5	7
6	6	1	5	1	8
7	0	8	2	6	5
3	8	7	7	0	7

7/43	7/54	7/51	7/68	7/48	7/62
7/53	7/26	7/64	7/11	7/39	7/56
7/60	7/38	7/24	7/57	7/20	7/45
7/25	7/65	7/46	7/27	7/58	7/40

Levelled Homework

Repeating Means

Name _____ Repeating
9-4

Dividing with Remainders
Write you divide, you can think of putting items into groups.
For example:
 $60 \div 6 = 10$
60 is 6 groups of 10 items.

Sometimes there are items left over. In division, the number of "left over" items is called the remainder. For example:
 $62 \div 6 = 10 \text{ R}2$ — 4 items left over
62 items is 10 groups of 6 items plus 2 items left over.

- Divide. You may use counters or pictures to help.
- 8 R2 8 R1 8 R3
 - 4 R3 2 R4 4 R1

7. Number Sense In division, why should the remainder not be greater than the divisor?
It means your quotient is too small.

Also available in print

Practice Master

Name _____ Practice
9-4

Dividing with Remainders
Divide. You may use counters or pictures to help.

- 6 R3 5 R2 2 R3 3 R2
- 4 R7 2 R3 3 R7 4 R2
- 3 R3 9 5 R3 8 R3
- 8 R7 6 R7 7 R5 8 R5
- 9 R1 4 R2 5 R2 1 R7
- 10 R7 11 R7 12 R6

If you arrange these items into equal rows, tell how many will be in each row and how many will be left over.

- 25 shells into 3 rows **8: 2 left over**
- 19 pennies into 5 rows **3: 4 left over**
- 17 balloons into 7 rows **2: 3 left over**

Reasonableness Ms. Nikel wants to divide her class of 23 students into 4 equal teams. Is this reasonable? Why or why not?
No: Sample answer: 23 cannot be divided equally by 4.

17. Which is the remainder for the quotient of $79 \div 6$?
A 7 B 5 C 5 D 4
18. Writing to Explain Pencil packs are sold in packages of 5. Explain why you need 6 packages in order to have enough for 27 students.
Sample answer: 5 packages will not be enough. With 6 packages you have enough, plus 3 extra.

Also available in print

Name _____ Enrichment
9-4

Order Lunch

Liz invited some friends to her house for lunch. She is ordering food from Dora's Diner down the street. She is thinking of buying one of the party-sized items listed in the chart.

Food Item	Amount	Serving Size
Texas Chili	38 oz	8 oz
Deluxe Veggie Pizza	16 slices	3 slices
Corn-Cob Delight	18 cobs	4 cobs

- How many people can Liz serve if she buys the Texas Chili?
How many ounces will she have left over? **4 people**
- How many people can Liz serve if she buys the Deluxe Veggie Pizza?
How many slices will she have left over? **5 people**
- How many people can Liz serve if she buys the Corn-Cob Delight?
How many cobs will she have left over? **1 slice left over**
- How many people can Liz serve if she buys the Deluxe Veggie Pizza?
How many slices will she have left over? **4 people**
- How many cobs will she have left over? **2 cobs left over**
- Liz needs to buy enough food to have a lot of food left over.
What should she buy? **Deluxe Veggie Pizza**
- The Texas Chili costs \$11.99, the Deluxe Veggie Pizza costs \$17.99, and the Corn-Cob Delight costs \$17.25. Do the prices change your decision about what Liz should buy? Explain your answer.
Sample answer: Texas Chili is cheaper and Liz can serve 5 people if she reduces the serving size.

Also available in print

Ask students to write a multiplication sentence and a division sentence for each array they make.

Have students point to the parts of the array to explain how the array shows the multiplication and division.

9. How many puppets are there in each group? Write the number in the box.

10. How many puppets are there in each group? Write the number in the box.

11. How many puppets are there in each group? Write the number in the box.

12. How many puppets are there in each group? Write the number in the box.

13. How many puppets are there in each group? Write the number in the box.

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16. How many puppets are there in each group? Write the number in the box.

17. How many puppets are there in each group? Write the number in the box.

18. How many puppets are there in each group? Write the number in the box.

19. How many puppets are there in each group? Write the number in the box.

20. How many puppets are there in each group? Write the number in the box.

21. How many puppets are there in each group? Write the number in the box.

22. How many puppets are there in each group? Write the number in the box.

23. How many puppets are there in each group? Write the number in the box.

24. How many puppets are there in each group? Write the number in the box.

25. How many puppets are there in each group? Write the number in the box.

26. How many puppets are there in each group? Write the number in the box.

27. How many puppets are there in each group? Write the number in the box.

28. How many puppets are there in each group? Write the number in the box.

29. How many puppets are there in each group? Write the number in the box.

30. How many puppets are there in each group? Write the number in the box.

9. How many puppets are there in each group? Write the number in the box.

10. How many puppets are there in each group? Write the number in the box.

11. How many puppets are there in each group? Write the number in the box.

12. How many puppets are there in each group? Write the number in the box.

13. How many puppets are there in each group? Write the number in the box.

14. How many puppets are there in each group? Write the number in the box.

15. How many puppets are there in each group? Write the number in the box.

16. How many puppets are there in each group? Write the number in the box.

17. How many puppets are there in each group? Write the number in the box.

18. How many puppets are there in each group? Write the number in the box.

19. How many puppets are there in each group? Write the number in the box.

20. How many puppets are there in each group? Write the number in the box.

21. How many puppets are there in each group? Write the number in the box.

22. How many puppets are there in each group? Write the number in the box.

23. How many puppets are there in each group? Write the number in the box.

24. How many puppets are there in each group? Write the number in the box.

25. How many puppets are there in each group? Write the number in the box.

26. How many puppets are there in each group? Write the number in the box.

27. How many puppets are there in each group? Write the number in the box.

28. How many puppets are there in each group? Write the number in the box.

29. How many puppets are there in each group? Write the number in the box.

30. How many puppets are there in each group? Write the number in the box.

Partner Talk Listen for reasons for choosing one or more operations, or for increasing the quotient by 1. For example, a student might say: "14 divided by 4 is 3, but we need 4 bumper cars for 14 people otherwise 2 people in the group will be left behind."

Levelled Homework

Name _____

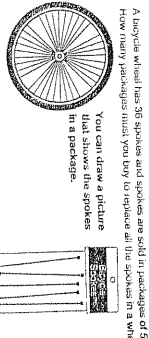
Relaxing 9-5

Multiplication and Division Stories

Multiply when you want to combine equal groups, and divide when you want to find the number of groups. You can draw a picture to help you interpret a story and turn it into a math problem.

A bicycle wheel has 36 spokes and spokes are sold in packages of 5. How many packages must you buy to replace all the spokes in a wheel?

You can draw a picture that shows the spokes in a package.



1. Do you want to combine equal groups or do you want to find the number of groups? divide
2. Do you want to multiply or divide? divide
3. What is the number expression for this problem? $36 \div 5$
4. What is the solution to the expression? 7 R1
5. How many packages must you buy? 8 packages
6. Writing to Explain: Why are the products two answers different from each other?

Answers may vary. Example: 7 packages will buy 35 spokes. In order to buy 36 spokes, I must buy one more package.

Name _____

Practice 9-5

Multiplication and Division Stories

Use the story to solve questions 1 through 4.

1. 3 puppets were born at Bumblebee Kennel last year, and each litter had 7 puppies. How many puppies were born at Bumblebee Kennel last year?

21 puppies

2. Geometry Master is making squares by arranging 26 sides. How many squares can he make? Write and solve the number that you need to find the answer.

$26 \div 4 = 6$ R2; 6 squares.

3. Writing to Explain: 60 people will be attending a dinner party. Each table at the party can seat 8 people. How many tables are needed? Write and solve the number that you need to find the answer, and explain your thinking.

$60 \div 8 = 7$ R4; 8 tables; Answers may vary. Example: 8 tables are needed because 56 people may sit at 7 tables and another table is needed for the 4 people remaining.

4. In a parking lot, some cars have 1 spare tire and others have no spare tires. All together, there are 43 tires and 5 cars. How many cars have a spare tire?

$9 \times 4 = 36$ and $43 - 36 = 7$; seven cars have spare tires, and two cars have no spare tires.

Write a multiplication story using the multiplication problem below. Then solve.

14×4


Answers will vary. Sample: A window has 4 panes. How many panes are in 14 windows? $14 \times 4 = 56$ panes.

Name _____

Enrichment 9-5

Do You Have Change?

You take a 5-dollar bill to the bank and ask for change in nickels.



1. How many nickels would the bank give you? 100 nickels
2. The bank gave you rolls of nickels wrapped in paper. A roll of nickels has 40 coins in it. How many rolls of each roll would? \$2
3. How many rolls of nickels would the bank give you? 2 rolls
4. Will the bank give you any nickels outside of rolls? Yes
5. How many? 20 nickels
6. A nickel weighs 5 grams. How much does a roll of nickels weigh in grams? 200 grams
7. What is the weight in grams of the nickels the bank gives you? 500 grams

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- Have students write the multiplication fact shown. Ask them to find the product.
- Have students make a bar diagram to show 7 groups of an unknown amount that equals 42. Have students write " $42 \div 7 = ?$ "
- Ask, " $117 \times 6 = 42$, what does $42 \div 7$ equal?" [6] Have students check their work by adding $6 + 6 + 6 + 6 + 6 + 6 + 6$.

Repeating Master

Retooling 9-6

Name _____

Problem Solving: Draw a Picture and Write an Equation

Read the question and follow the steps to solve.

Bryan has 24 bottles of water. He and his friends have 8 bottles each. How many bottles will be in each?

Step 1: Read/Understand

- Find the information the problem wants you to figure out. (The number of bottles in each backpack.)
- Write an equation. $24 \div 8 = 3$
- Write an equation. $24 \div 8 = 3$
- Write an equation. $24 \div 8 = 3$

Step 2: Plan and Solve

Draw a picture to help you solve the problem. (Use 24 circles to represent bottles and 8 backpacks.)

Step 3: Check

Check: $3 \times 8 = 24$

The answer checks.

1. Strategy Practice: Joell has 10 quarters. She wants to buy postcards to mail to her friends. Each postcard costs 2 quarters. How many postcards can she buy?

• What does the question tell you? **Joell has 10 quarters, each postcard costs 2 quarters.**

• What does the question ask you to find? **The number of postcards Joell can buy.**

• Write an equation. Solve and check. $10 \div 2 = 5$

She can buy 5 postcards.

Solve the following problems. Draw a picture to help.

- Mark has 36 photos. He album can hold 9 photos per page. How many pages will he need to use? **4 pages**
- There are 7 vans taking 56 students on a field trip. If each van has the same number of students, how many **8 students** students are on each van?

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Partner Talk

Listen for reasons that justify why a number sentence matches a picture.

Play against this one. Play an equation that includes the number of boxes in each row.

$24 \div 4$	$12 \div 3$	$18 \div 3$	$24 \div 6$	$24 \div 3$
$15 \div 3$	$12 \div 3$	$12 \div 3$	$12 \div 3$	$18 \div 6$
$18 \div 3$	$12 \div 3$	$12 \div 3$	$24 \div 6$	$18 \div 6$
$24 \div 6$	$12 \div 3$	$12 \div 3$	$18 \div 6$	$15 \div 3$
	$12 \div 3$	$12 \div 3$	$18 \div 6$	$12 \div 2$

Levelled Homework

Practice Master

Practice 9-6

Name _____

Problem Solving: Draw a Picture and Write an Equation

Solve. Draw a picture and write an equation to help you.

- Terrance has 16 trophies and he wants to put an equal number on 4 shelves. How many trophies will he have on each shelf?
 $16 \div 4 = 4$
 4 trophies
- Mrs. Parker has 21 bookshelves that she wants to give to her 7 reading club members. How many bookshelves will each member receive?
 $21 \div 7 = 3$
 3 bookshelves
- Lisa has 45 megabytes of space left on her flash drive. She has 5 files that are the same size that weigh the same amount. How many megabytes is each file?
 $45 \div 9 = 5$
 5 megabytes
- A store is displaying boxes of a new video game in 7 rows. If the store has 49 games in all, how many games are in each row?
 $49 \div 7 = 7$
 7 games
- Algebra Perry is 8 years old. She is twice as old as her younger sister. How old is her sister?
 $8 \div 2 = 4$
- Jillian wants to organize her CD collection into wooden crates. Each crate holds 8 CDs. Jillian has 48 CDs. How can she use a picture to figure out how many crates she needs? **She can draw a picture of her 48 CDs, and divide the picture into groups of 8. That will tell her that she needs 6 wooden crates to hold all of her CDs.**

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Play against talk about your strategies as you play.

$32 \div 4 = 8$	$15 \div 5 = 3$	$32 \div 4 = 8$	$12 \div 4 = 3$
$45 \div 5 = 9$	$18 \div 3 = 6$	$28 \div 4 = 7$	$45 \div 5 = 9$
$36 \div 4 = 9$	$24 \div 4 = 6$	$25 \div 5 = 5$	$21 \div 3 = 7$

Just the Facts

Name _____

Write each missing number. Then, write a related multiplication fact.

Missing Number

- $27 \div 3 = 9$ Related Fact: $9 \times 3 = 27$
- $48 \div 6 = 8$ Related Fact: $8 \times 6 = 48$
- $32 \div 8 = 4$ Related Fact: $4 \times 8 = 32$
- $18 \div 6 = 3$ Related Fact: $3 \times 6 = 18$
- $63 \div 9 = 7$ Related Fact: $7 \times 9 = 63$

Choose from the missing numbers you found above to make these sentences true.

- A triangle has **3** sides.
- There are **7** legs on an octopus.
- There are **8** days in a week.
- A baseball game lasts **9** innings.
- A dog has **4** legs.

Also available in print

Ask them how many 3s are in 24.
Repeat for the number of 4s in 28
and the number of 5s in 30.

8 rows	3 groups	5 rows	6 rows
4 rows	7 groups	4 groups	8 groups
5 groups	6 rows	9 rows	7 groups

You want if you are the first to get four connected rectangles, like Play again!

Gal 16 squares in each row.	Gal 10 squares in each row.	Gal 16 squares in each group.
Gal 18 squares in each group.	Gal 12 squares in each row.	Gal 12 squares in each row.
Gal 20 squares in each group.	Gal 14 squares in each row.	Gal 16 squares in each row.
Gal 14 squares in each group.	Gal 18 squares in each row.	Gal 12 squares in each row.

You want if you are the first to get four connected rectangles, like Play again!

Partner Talk Listen for evidence that a student is counting only complete and equal groups to find out how many groups there are in all. For example, a student might say, "Now every group has 5 squares, so I am ready to count all of the groups."

Levelled Homework

Repeating Number Repeating 10-1

Name _____

Division as Repeated Subtraction

For City Council Day, 18 people volunteered to clean up the city park. The volunteers worked in groups with 3 people each. How many groups of volunteers cleaned up the city park?
Use repeated subtraction to find the number of groups.

18 - 3 = 15
15 - 3 = 12
12 - 3 = 9
9 - 3 = 6
6 - 3 = 3
3 - 3 = 0

There are 6 groups of volunteers.

Use repeated subtraction to divide. Use a number line to help.

0 3 6 9 12 15 18
You subtract 3 six times.

- Mick is packing 12 model cars into equal groups. How many groups of model cars will he make?
3 groups
- There are 24 students in gym class. They are divided into teams of 6 for a volleyball game. How many teams were there?
4 teams
- Each necklace Cara makes has 5 beads. How many necklaces can Cara make with 20 beads?
4 necklaces
- Charlin has 16 photos to do. He can complete 4 chores in one day. How many days will it take him to learn all of the songs?
4 days
- At Peak Elementary School, 27 teachers signed up to carpool. If 3 teachers ride together in each car, how many cars are needed for all of the teachers?
9 cars

Practice Master Practice 10-1

Name _____

Division as Repeated Subtraction

Use repeated subtraction to solve each problem. Draw pictures to help.

- Roger buys a package of 16 favorite books for his dog. He gives his dog 4 books each week. How many weeks will the package of favorite books last?
Check students' drawings: 4 weeks
- During recess 24 students divided into kickball teams. Each team had 6 players. How many teams were there?
Check students' drawings: 4 teams
- Each number of a juggling loop juggles 6 balls at one time. The juggler uses 18 balls during a show. How many juggles are in the show?
Check students' drawings: 3 jugglers
- The county fair has 4 people working at the snack bar each shift. If 32 people work at the snack bar each day, how many shifts are there?
Check students' drawings: 8 shifts
- For a piano recital, Jesse is playing a song that is 3 minutes long. The pianist plays for 21 minutes. How many times does she play the song?
7
- Ryan wants to prepare for a performance by juggling 12 mice each week. How many sets would he need to juggle if he uses only 3 mice each day?
4 sets

Sample answer: Ryan would have to run 4 days each week. There are 4 groups of three in 12.

Find the Missing Numbers Enrichment 10-1

Name _____

Use multiplication and division to complete each table.

	Number of Bicycles	1	6	2	9	5	8	3	7	4
	Number of Wires	2	12	4	18	10	16	6	14	8

	Number of Spiders	1	9	6	2	4	8	3	7	5
	Number of Legs	8	72	48	16	32	64	24	56	40

	Number of Spokes	1	7	4	5	2	9	6	3	8
	Number of Legs	6	42	24	30	12	54	36	18	48

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Also available in print

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the blocks into 3 groups.]

Have students move the tens rods so there are three groups with 1 rod in each group. [1]

Have students trade the tens rod for 10 ones cubes. [19] Have students move the cubes into the groups. [1] This is the remainder.

Make up other division problems. Ask your partner to explain the answer with 0-9 tiles.

f	g	h	i	j
---	---	---	---	---

Make up other division problems. Ask your partner to explain the answer with 0-9 tiles.

a	b	c	d	e
f	g	h	i	j

Levelled Homework

Name _____ Repeating 10-2

Using Objects to Divide: Division as Sharing

You can use models to help you solve division problems. This means you can find the answer.

Example: $80 \div 5 = 16$

Now, divide the ones. $15 \div 5 = 3$

1	5 tens	5 tens	5 tens	5 tens	5 tens
5 tens	20	20	20	20	20
-20					
3					

Now, write the remainder.

Now, divide the ones. $15 \div 5 = 3$

1	5 tens	5 tens	5 tens	5 tens	5 tens
5 tens	20	20	20	20	20
-20					
3					

Now, write the remainder.

Use five models to help you fill in the boxes.

1. $66 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$

2. $97 \div 4 = \underline{\quad} \text{ R } \underline{\quad}$

3. $83 \div 7 = \underline{\quad} \text{ R } \underline{\quad}$

4. $76 \div 3 = \underline{\quad} \text{ R } \underline{\quad}$

Also available in print

Name _____ Practice 10-2

Using Objects to Divide: Division as Sharing

Draw pictures to tell how many are in each group and how many are left over.

1. 57 CDs in 9 drawers. $57 \div 9 = 6 \text{ R } 3$

2. 63 stickers on 5 rolls. $63 \div 5 = 12 \text{ R } 3$

3. 44 plants in 8 rows. $44 \div 8 = 5 \text{ R } 4$

4. 37 chairs in 4 rows. $37 \div 4 = 9 \text{ R } 1$

5. 27 $\div 4 = 6 \text{ R } 3$

6. $93 \div 9 = 11$

7. $48 \div 3 = 16$

8. $42 \div 3 = 14 \text{ R } 0$

9. Ken has 72 minutes. He decides to spend time watching movies. How many can he watch?

10. Writing to Explain: At the market, I bought 53 coleslaw. There are 4 people who make the coleslaw each day. How many people are the same number of coleslaw makers? **Sample answer: No, 53 divided by 4 is 13 with 1 left over.**

Also available in print

Name _____ Enrichment 10-2

New Shapes

If you place the figure on the left inside of the figure on the right, what would the new figure look like? Circle the letter of the figure that shows the new figure.

1. A B C

2. A B C

3. A B C

4. A B C

5. A B C

Also available in print

the problem using long division.

Have students make four groups with 1 rod in each group. Write 1 in the tens place of the quotient.

Have students trade the 2 tens rods for 20 ones cubes.

Have students move the 28 cubes into the four equal groups.

0] [0]

Levelled Homework

Play again! Talk about how to check your results.

69	20 R 3	13 R 4	23 R 2	11 R 3	3
76	15 R 1	23 R 0	15 R 4	16 R 3	5
83					6

Play again! Talk about your strategies as you play.

97 + 3	18 x 3 + 0	21 x 3 + 0	27 x 3 + 1	19 x 3 + 2	83 + 3
73 + 3	27 x 3 + 2	29 x 3 + 1	24 x 3 + 1	28 x 3 + 0	54 + 3
88 + 3					70 + 3

Partner Talk Listen for evidence that a student understands how to check a quotient. A student might say, "When I multiply the quotient by the divisor, I do not get the number I am dividing unless I add the remainder."

Retrieving 10-3

Dividing 2-Digit by 1-Digit Numbers

You can find 2-digit quotients by breaking apart the problem and dividing tens, then ones.

Find 85 ÷ 5
 Estimate: 100 ÷ 5 = 20

$$\begin{array}{r} 17 \\ 5 \overline{)85} \\ \underline{-5} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

 Check: 17 x 5 = 85
 The answer checks.

Find 83 ÷ 3
 Estimate: 90 ÷ 3 = 30

$$\begin{array}{r} 27 \\ 3 \overline{)83} \\ \underline{-6} \\ 23 \\ \underline{-21} \\ 2 \end{array}$$

 Check: 27 x 3 = 81
 The answer checks.

Find 86 ÷ 7
 Estimate: 84 ÷ 7 = 12

$$\begin{array}{r} 12 \\ 7 \overline{)86} \\ \underline{-14} \\ 72 \\ \underline{-70} \\ 2 \end{array}$$

 Check: 12 x 7 = 84
 The answer checks.

Find the missing values.

1.
$$\begin{array}{r} 2 \overline{)7} \\ \underline{-6} \\ 1 \end{array}$$

2.
$$\begin{array}{r} 1 \overline{)9} \\ \underline{-4} \\ 4 \\ \underline{-4} \\ 0 \end{array}$$

3. 30 R 1

4. 21 R 2

5. 37 R 1

Also available in print

Practice Master

Dividing 2-Digit by 1-Digit Numbers

Find 85 ÷ 5

$$\begin{array}{r} 17 \\ 5 \overline{)85} \\ \underline{-5} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

Find 83 ÷ 3

$$\begin{array}{r} 27 \\ 3 \overline{)83} \\ \underline{-6} \\ 23 \\ \underline{-21} \\ 2 \end{array}$$

Find 86 ÷ 7

$$\begin{array}{r} 12 \\ 7 \overline{)86} \\ \underline{-14} \\ 72 \\ \underline{-70} \\ 2 \end{array}$$

1.
$$\begin{array}{r} 2 \overline{)8} \\ \underline{-6} \\ 2 \end{array}$$

2.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 1 \overline{)8} \\ \underline{-4} \\ 4 \\ \underline{-4} \\ 0 \end{array}$$

4.
$$\begin{array}{r} 3 \overline{)24} \\ \underline{-9} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 3 \overline{)24} \\ \underline{-9} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

6.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

7.
$$\begin{array}{r} 3 \overline{)2} \\ \underline{-3} \\ 2 \end{array}$$

8.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

9.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

10.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

11.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

12.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

13.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

14.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

15.
$$\begin{array}{r} 1 \overline{)1} \\ \underline{-1} \\ 0 \end{array}$$

Mrs. Thomas is planting to provide snacks for 86 fourth graders when they go on a field trip to the aquarium. Each student will receive 1 of each snack. She only has 24 packages of each snack. How many more packages does Mrs. Thomas need?

- 12. Fruit cups
- 13. Applesauce
- 14. Which is the remainder of 27 ÷ 3?
- 15. Writing to Explain: Explain how to find the number of leftover pencils if Wendy wants to share 37 pencils with 9 people. Sample answer: Wendy will give each person 4 pencils and have 1 left over.

Also available in print

Enriched 10-3

Will They Reach the Top?

Begin at the bottom of each mountain and solve each division problem. If there is a remainder, the skier stops at that problem. If there is no remainder, the skier keeps climbing.

1.
$$\begin{array}{r} 12 \\ 6 \overline{)72} \end{array}$$

2.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

3.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

4.
$$\begin{array}{r} 24 \\ 2 \overline{)48} \end{array}$$

5.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

6.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

7.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

8.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

9.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

10.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

11.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

12.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

13.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

14.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

15.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

16.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

17.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

18.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

19.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

20.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

21.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

22.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

23.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

24.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

25.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

26.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

27.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

28.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

29.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

30.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

31.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

32.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

33.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

34.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

35.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

36.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

37.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

38.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

39.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

40.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

41.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

42.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

43.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

44.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

45.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

46.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

47.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

48.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

49.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

50.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

51.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

52.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

53.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

54.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

55.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

56.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

57.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

58.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

59.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

60.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

61.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

62.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

63.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

64.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

65.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

66.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

67.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

68.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

69.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

70.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

71.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

72.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

73.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

74.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

75.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

76.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

77.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

78.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

79.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

80.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

81.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

82.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

83.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

84.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

85.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

86.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

87.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

88.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

89.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

90.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

91.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

92.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

93.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

94.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

95.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

96.
$$\begin{array}{r} 18 \\ 6 \overline{)108} \end{array}$$

97.
$$\begin{array}{r} 17 \\ 1 \overline{)17} \end{array}$$

98.
$$\begin{array}{r} 14 \\ 2 \overline{)28} \end{array}$$

99.
$$\begin{array}{r} 19 \\ 3 \overline{)57} \end{array}$$

100.
$$\begin{array}{r} 13 \\ 1 \overline{)13} \end{array}$$

Also available in print

- **Uncover the 9.** What is the value of the remainder? [1] **What is the remainder of 7199? [12] What is the remainder?** [1]
- **Repeat for 7)519**, which has a two-digit quotient. [74 R1]
- **What is the new quotient?** [122]
- **What is the new remainder?** [5]

Repeating Numbers

Name _____

Repeating 10-4

You can find 3-digit quotients by breaking apart the problem.

Find $526 \div 4 =$ Estimate $600 \div 4 = 125$. Estimate $600 \div 9 = 120$. Estimate $750 \div 9 = 280$.

132 $\begin{array}{r} 115 \\ -4 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$ 4035 $\begin{array}{r} 115 \\ -5 \\ \hline 7 \\ -7 \\ \hline 0 \end{array}$ 132 $\begin{array}{r} 241 \\ -6 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$ 4035 $\begin{array}{r} 3725 \\ -5 \\ \hline 7 \\ -7 \\ \hline 0 \end{array}$ 132 $\begin{array}{r} 241 \\ -6 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$ 4035 $\begin{array}{r} 3725 \\ -5 \\ \hline 7 \\ -7 \\ \hline 0 \end{array}$

Check $132 \times 4 = 528$ Check $115 \times 5 = 575$ Check $241 \times 3 = 723$
The answer checks. The answer checks. The answer checks.

Find the missing values.

1. $\begin{array}{r} 21\overline{)3} \\ -6 \\ \hline 10 \\ -10 \\ \hline 0 \end{array}$ 2. $\begin{array}{r} 1\overline{)31} \\ -6 \\ \hline 21 \\ -21 \\ \hline 0 \end{array}$

3. $\begin{array}{r} 154 \\ 3\overline{)482} \end{array}$ 4. $\begin{array}{r} 128 \\ 4\overline{)960} \end{array}$ 5. $\begin{array}{r} 102 \\ 5\overline{)919} \end{array}$ R1

Also available in print

Partner Talk

Listen for language that describes sharing place-value blocks. For example, a student might say, "To start dividing 435 by 3, figure out how many hundreds each student can get."

Practice Master

Name _____

Practice 10-4

Dividing 3-Digit by 1-Digit Numbers

In 1 through 8, use place-value blocks to help you divide.

1. $413 \div 103$ 2. $635 \div 156$ 3. $739 \div 114$ 4. $786 \div 115$ R1
5. $3420 \div 140$ 6. $5813 \div 123$ R4 7. $984 \div 120$ R2 8. $838 \div 107$

9. A train can hold 414 people in rows with 4 seats. How many 4-seat rows are there? 111

10. A song has 540 beats. If the song is 3 minutes long, how many beats per minute does the song have? 180 BEATS PER MINUTE

11. Geometry A circle has 360 degrees. If the circle is divided in half, how many degrees does each half measure? 180

12. Harvey has 513 stamps. He places an equal number in 3 stamp books. How many stamps are in each book? 171 STAMPS

13. Zeeshan has collected 812 autographs. Each autograph is either from a baseball star, a football star, a movie star, or a rock star. He has an equal number of each type. 203 AUTOGRAPHS

14. Bruce has 369 tea bags. There are 3 different flavors of tea. What information do you need to find how many tea bags he has of each flavor?
A The number of flavors
B The number of tea bags
C If a tea bag can be divided into fourths
D If there is an equal number of tea bags for each flavor

15. An art has 6 bags. There are 870 bags in total's art form. How many arts are there in the art form?
A 14 R5
B 145
C 884
D 5 220

16. Writing to Explain Jeff has 242 DVDs. He has 2 shelves that can hold 120 DVDs each. He needs to buy another shelf?
Sample: Yes; $242 \div 2 = 121$. Each shelf holds 120 DVDs, so there will be 2 DVDs that do not fit on the two shelves.

Also available in print

Up and Up!

Name _____

Essential 10-4

Begin at the bottom of each ladder and solve each division problem to get to the top. If the problem has no remainder, count how problems up. If the problem has a remainder, 50 cover one problem.

Ladder 1

31411	137
787	125 R2
3160	120
8896	112
315	11 R2
4888	147
5335	105

Ladder 2

7794	113 R3
3188	119 R1
5975	115
6075	112 R3
7986	112 R2
2388	167 R1
677	12

Explain any difficulty you noticed in getting to the finish from Ladder 2.
Answers will vary. Sample: In Ladder 2, you can never get to the finish because you enter a loop.

Also available in print

How can you regroup the 2 hundreds and 5 tens as tens? [25 tens]

- How many tens are in each group? [5]
- How many tens are left? [0 tens]
- How many ones are in each group? [1]
- What is the quotient? [51]
- What is the remainder? [4]

Repeat for $4\overline{)347}$, [86 R3]

Explain how to share one set of place value blocks shown above with a different number of students.

Choose your own 3-digit dividend and one-digit divisor. Follow steps 1 - 4 to solve your number.

Levelled Homework

Reasoning Master

Name _____

Deciding Where to Start Dividing

10-5

Sometimes there are not enough hundreds to divide by. Sometimes you have to break up the hundreds into 10 tens.

Find 25×5
Estimate $300 \div 5 = 60$

Try to divide the hundreds

Divide the tens

Now divide the ones

5 does not divide into 3. The 3 hundred is changed to 30 tens.

With 32 tens, 6 tens can go into each one of the 5 groups.

Each of the groups has 6 tens and 2 ones.

Find the missing values in the problems below.

- $4\overline{)312}$
- $6\overline{)214}$
- $25 \overline{)975}$
- $8\overline{)818}$

Also available in print

Practise Master

Name _____

Deciding Where to Start Dividing

10-5

Complete each calculation.

- $1\overline{)35}$
- $4\overline{)179}$
- $3\overline{)91}$
- $1\overline{)214}$
- $2\overline{)587}$
- $8\overline{)7793}$
- Grandfather, 582, purchased 123 businesses each year. How many businesses does each business sell?
- Writing to Explain Write and solve your problem for $56 \div 6$.
Sample answer: Bob sells 456 tops over 6 weeks. On average, how many tops does Bob sell in 1 week? He sells 76 tops per week.

Also available in print

The History of Zero

Name _____

10-5

Use the time line to answer the questions below.

Important Dates in Zero's History

- 1500: Zero is invented
- 1507: First presidential election
- 1540: Centennial celebration
- 1849: First Zero Olympics

- A new president is elected every 7 years. By the year 2014, how many presidents will Zero have had?
73 presidents
- The people of Zero decided they would continue to hold their Olympics every 6 years. By the year 2014, how many Olympics will Zero have had?
33 Olympics
- Based on the time line, what do you think a Centennial celebration is for?
Sample answer: To celebrate a 100th anniversary
- What 2 events would have occurred in the year 1885?
A presidential election and Zero Olympics
- What was the first figure skater to obtain a perfect score in the Zero Olympics. Has happened?
Zero Olympics in what year did the first perfect 1849

Also available in print

should use compatible numbers to estimate each quotient. Mark each estimate. The first pair to mark three estimates across, down, or diagonally wins.

Call out the following problems in random order. $112 \div 9$ [10], $135 \div 7$ [20], $194 \div 6$ [30], $305 \div 8$ [40], $164 \div 3$ [50], $516 \div 9$ [60], $291 \div 4$ [70], $153 \div 2$ [80], $672 \div 7$ [90].

32	81	148	68
92	109	96	59
118	96	81	148

You win if you are the first to get four connected rectangles, like this. **Check your work!**

$359 \div 4$	$745 \div 5$	$896 \div 8$	$1,086 \div 9$
$798 \div 6$	$411 \div 7$	$359 \div 4$	$784 \div 8$
$398 \div 5$	$255 \div 6$	$1,267 \div 7$	$1,086 \div 9$

You win if you are the first to get four connected rectangles, like this. **Check your work!**

Partner Talk Listen for evidence that a student is using estimation to check the reasonableness of the quotient. For example, a student might say, "If the quotient is 96, the dividend must be almost 100 times the divisor."

Levelled Homework

Relating Models

Name _____

Reaching 10-6

Dividing 4-Digit by 1-Digit Numbers

An estimate will help you decide where to place the first digit of the quotient. It will also help you check your answer.

Divide $5,483 \div 6$.
 Estimate first. You can use compatible numbers to divide mentally.

5,400 is close to 5,483 and 4,800 is close to 5,400. $4,800 \div 6 = 800$.
 5,400 is 600 more than 4,800. $600 \div 6 = 100$.
 So, $5,483 \div 6 \approx 800 + 100 = 900$.

Choose to find the actual quotient. Compute to the estimate close to the quotient.

$5,483 \div 6 = 913 \text{ R}5$
 quotient: 900
 estimate: 900

If it is close, your answer is reasonable.

Estimate. Then find each quotient. Use your estimate to check if your quotient is reasonable. **Sample estimates are given.**

- Divide $4,318 \div 7$.
 Estimate: $4,200 \div 7 = 600$
 $4,318 \div 7 = 616 \text{ R}6$
 Is your answer reasonable? **Yes**
- Divide $4,826 \div 5$.
 Estimate: $5,000 \div 5 = 1,000$
 $4,826 \div 5 = 965 \text{ R}1$
 Is your answer reasonable? **Yes**
- Divide $4,377 \div 8$.
 Estimate: $4,000 \div 8 = 500$
 $4,377 \div 8 = 547 \text{ R}1$
 Is your answer reasonable? **Yes**
- Divide $7,192 \div 8$.
 Estimate: $7,200 \div 9 = 799 \text{ R}1$
 $7,192 \div 9 = 799 \text{ R}1$
 Is your answer reasonable? **Yes**

Also available in print

Practice Master

Name _____

Practice 10-6

Dividing 4-Digit by 1-Digit Numbers

Estimate. Then find each quotient. Use your estimate to check if your answer is reasonable.

- $41,227,306 \text{ R}3$
- $587,487 \text{ R}3$
- $81,590,613$
- $7,621,373$
- $615,988,833$
- $9,038,426$
- $37,875,558 \text{ R}1$
- $41,284,313 \text{ R}2$
- $544 \div 8 = 68$
- $2,430 \div 6 = 405$

11. At the airport, there are 1,780 seats in the waiting area. There are 6 separate, same size waiting areas. How many seats are in each waiting area?
145 seats

12. A wall by the school parking lot has an area of 1,650 square feet. Seven teams of students will paint a mural on the wall. Each team will paint an equal area. How many square feet will each team paint?
238 square feet

13. Geometry Connor put a fence around the perimeter of his rectangular yard. The perimeter of the yard is 638 feet. How long is the yard?
142 ft

14. Lily estimated a quotient of 120 and found an actual quotient of 83. What should she do next? Explain.
Sample answer: She should check her estimate and check her quotient. The estimate tells her that the quotient is not reasonable, or she may have made a mistake on the estimate.

Also available in print

Name _____

Enrichment 10-6

Fact Path

Solve each problem by following the arrows. Write the final answer in the last box.

1. 21	$\rightarrow +7$	$\rightarrow \times 2$	$\rightarrow +6$	$\rightarrow 1$
2. 54	$\rightarrow -6$	$\rightarrow +3$	$\rightarrow \times 5$	$\rightarrow 15$
3. 8	$\rightarrow \times 3$	$\rightarrow +4$	$\rightarrow \times 7$	$\rightarrow 42$
4. 5	$\rightarrow -5$	$\rightarrow \times 8$	$\rightarrow \times 4$	$\rightarrow 36$
5. 72	$\rightarrow +9$	$\rightarrow +2$	$\rightarrow -2$	$\rightarrow 2$
6. 6	$\rightarrow \times 2$	$\rightarrow -4$	$\rightarrow \times 6$	$\rightarrow 18$
7. 30	$\rightarrow +5$	$\rightarrow \times 0$	$\rightarrow \times 8$	$\rightarrow 0$
8. 8	$\rightarrow \times 3$	$\rightarrow +6$	$\rightarrow +5$	$\rightarrow 9$
9. 35	$\rightarrow +7$	$\rightarrow -4$	$\rightarrow \times 9$	$\rightarrow 81$
10. 4	$\rightarrow \times 7$	$\rightarrow -3$	$\rightarrow -5$	$\rightarrow 5$

Write two fact paths. Include a multiplication step and a division step in each path.
Check students' work.

- $\square \rightarrow \square \rightarrow \square \rightarrow \square \rightarrow \square$
- $\square \rightarrow \square \rightarrow \square \rightarrow \square \rightarrow \square$

Also available in print

Ask students: *What if the family had more money? How would that change the problem?*

- Carl paid for the family's groceries, and the family had enough money to rent a car and go to the movie. How much money would Carl need to have left over?
- The Johnson family rented 2 adult bicycles and two baby seats for a day. What did the Johnson family spend at the bicycle rental shop?

Practice Master

Problem Solving: Multiple-Step Problems

Name _____

Write and answer the hidden question of questions. Then solve the problem. Write your answer in a complete sentence.

- Katara and her family went to a concert. They bought 3 adult tickets and 4 children's tickets. What was the total cost for the family? How much was the total of the adult tickets? \$24. How much was the total of the children's tickets? \$12. The total for Marcia's family was \$36.

Practice Master

Problem Solving: Multiple-Step Problems

Name _____

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Partner Talk Listen for questions being posed and answered, followed by interpretations of those answers to solve a problem.

Leveled Homework

Practice Master

Problem Solving: Multiple-Step Problems

Name _____

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Problem Solving: Multiple-Step Problems

Name _____

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Problem Solving: Multiple-Step Problems

Name _____

Solve Problems Step-by-Step

Scott and Gina went to go see a movie after they eat dinner. They have brought \$25 with them. Scott's meal costs \$9 and Gina's meal costs \$8. How much money do they have left over after dinner to pay for 2 movie tickets?

First Step: What do you know?
 • They have \$25 to spend.
 • They are spending \$9 and \$8 on dinner.

Second Step: Write down what you need to know.
 • How much money is left over?
 • Is it enough for 2 movie tickets?

Third Step: Solve the problem using the step-by-step process.
 • Subtract \$9 and \$8 from \$25.
 • Then subtract from \$25.
 • \$25 - \$9 - \$8 = \$8
 • They have \$8 left for 2 movie tickets.

Fourth Step: Check the problem.
 • Is \$8 enough for 2 movie tickets that cost \$4 each?
 • Yes, they have enough for 2 movie tickets.

Problem Solving: Multiple-Step Problems

Name _____

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Problem Solving: Multiple-Step Problems

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Also available in print

Also available in print

Also available in print

- 9 Since we can model 21 in 3 rows of 7, is it prime? [No]
- 10 Write 17 on the board and have students try to model it.
- 11 Is 17 prime or composite? [Prime]
- 12 Have students work in pairs to make up simple rules about prime numbers. For example, except 5, no numbers ending in 5 can be prime.

Prime number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors
10	14	15	21	22
12	18	20	24	26
14	21	22	24	26
15	20	21	22	24
18	24	26	28	30
20	24	26	28	30
21	24	26	28	30
22	24	26	28	30
24	26	28	30	32
26	28	30	32	34
28	30	32	34	36
30	32	34	36	38
32	34	36	38	40
34	36	38	40	42
36	38	40	42	44
38	40	42	44	46
40	42	44	46	48
42	44	46	48	50
44	46	48	50	52
46	48	50	52	54
48	50	52	54	56
50	52	54	56	58
52	54	56	58	60
54	56	58	60	62
56	58	60	62	64
58	60	62	64	66
60	62	64	66	68
62	64	66	68	70
64	66	68	70	72
66	68	70	72	74
68	70	72	74	76
70	72	74	76	78
72	74	76	78	80
74	76	78	80	82
76	78	80	82	84
78	80	82	84	86
80	82	84	86	88
82	84	86	88	90
84	86	88	90	92
86	88	90	92	94
88	90	92	94	96
90	92	94	96	98
92	94	96	98	100

Composite number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors	Composite number that has 4 factors
10	14	15	21	22
12	18	20	24	26
14	21	22	24	26
15	20	21	22	24
18	24	26	28	30
20	24	26	28	30
21	24	26	28	30
22	24	26	28	30
24	26	28	30	32
26	28	30	32	34
28	30	32	34	36
30	32	34	36	38
32	34	36	38	40
34	36	38	40	42
36	38	40	42	44
38	40	42	44	46
40	42	44	46	48
42	44	46	48	50
44	46	48	50	52
46	48	50	52	54
48	50	52	54	56
50	52	54	56	58
52	54	56	58	60
54	56	58	60	62
56	58	60	62	64
58	60	62	64	66
60	62	64	66	68
62	64	66	68	70
64	66	68	70	72
66	68	70	72	74
68	70	72	74	76
70	72	74	76	78
72	74	76	78	80
74	76	78	80	82
76	78	80	82	84
78	80	82	84	86
80	82	84	86	88
82	84	86	88	90
84	86	88	90	92
86	88	90	92	94
88	90	92	94	96
90	92	94	96	98
92	94	96	98	100

EQD Report Back To check understanding, ask a student to repeat and complete this sentence: *A composite number is a whole number greater than 1 that has more than two factors.* [more than two factors]

Layered Homework

Reporting Master

Name _____ Reporting 11-2

Prime and Composite Numbers

A composite number is a whole number greater than 1 that has more than two different factors. 15 has four different factors, 1, 3, 5, and 15, so 15 is a composite number. A prime number is a whole number greater than 1 that has exactly two factors, itself and 1. 7 has exactly two factors, 1 and 7, so 7 is a prime number.

- Example 1**
- Is 7 a prime or composite number?
Find all the factors of 7.
Factors of 7: 1, 7
1 and 7 divide evenly into 7.
7 is a prime number because it only has two factors, the number itself and 1.
- Example 2**
- Is 6 a prime or composite number?
Find all the factors of 6.
Factors of 6: 1, 2, 3, 6
1, 2, 3, and 6 divide evenly into 6.
6 is a composite number because it has more than two factors.

- Tell if the number is prime or composite.
- 1, 5 _____ prime _____ composite
2, 12 _____ prime _____ composite
4, 15 _____ prime _____ composite
3, 18 _____ prime _____ composite
6, 43 _____ prime _____ composite

Also available in print

Practice Master

Name _____ Practice 11-2

Prime and Composite Numbers

- In 1 through 18, write whether each number is prime or composite.
1. 81 2. 43 3. 572 4. 63
5. 53 6. 87 7. 3 8. 27
9. 68 10. 19 11. 69 12. 78
13. 325 14. 1,212 15. 57 16. 17

17. Ms. Garry's class has 19 students. Ms. Vernon's class has 21 students, and Mr. Chang's class has 23 students. Whose class has a composite number of students?
Ms. Vernon's class

18. Every prime number greater than 10 has a digit in the ones place that is included in which set of numbers below?
A. 1, 3, 7, 9 C. 0, 2, 4, 5, 6, 8
B. 1, 3, 5, 9 D. 1, 3, 7
19. Writing to Explain Jackie says that every number in the nineties is composite. Jackie says that one number in the nineties is prime. **The only number that is prime in the nineties is 97.**

Also available in print

Name _____ Enrichment 11-2

Pyramid Patterns

Suppose you are an ancient Egyptian stone worker. The queen has hired you to make a pyramid sculpture for her garden. "I will give you 140 blocks of stone," she says. "Do not waste them!" The queen shows you a model using 14 blocks. The model is 3 layers high. The top layer has 1 block, the second layer has 4 blocks, and the third layer has 9 blocks. A mathematician whispers to you, "You will be able to use all of the blocks if you follow the queen's model. Just look for the pattern." After a while, the pattern becomes clear. You build the pyramid, using the blocks, and are richly rewarded by the queen.

- How many layers does your finished pyramid have? **7 layers**
- How many blocks did you use for each layer?
1, 4, 9, 16, 25, 36, and 49, in order
- Describe the pattern the mathematician was talking about. **The number of blocks per layer is the square of the layer number, that is, layer 1 has 1 x 1 or 1 block, layer 2 has 2 x 2, or 4, blocks; layer 3 has 3 x 3, or 9, blocks; and so on.**
- Could you make another pyramid with 200 blocks following the same pattern? **No, to continue the pattern, the next layer should have 64 blocks, and 140 + 64 = 204.**
- How many blocks of stone would you need to follow the same pattern and make a pyramid?
a. 8 layers high? **204**
b. 9 layers high? **285**
c. 10 layers high? **385**

Also available in print

- 4; it is 1 times 4.
- Have students add another row of 4 counters to the array and write the fact $2 \times 4 = 8$. Identify 8 as a multiple of 4; it is 2 times 4.
- Have students add another row to the array and write the fact $3 \times 4 = 12$. *What multiple of 4 did you show?* [12]
- Have students continue in this way to find more multiples of 4. Repeat to find multiples of another number.

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

You want to be the first to get four connected rectangles, like this one. **Level 1** **Level 2** **Level 3**

30, 35, 40	50, 60, 70	27, 36, 45	28, 35, 42
15, 18, 21	42, 49, 56	42, 48, 54	63, 72, 81
36, 42, 48	28, 32, 36	8, 10, 12	18, 24, 30
48, 56, 64	54, 63, 72	24, 28, 32	24, 32, 40

You want to be the first to get four connected rectangles, like this one. **Level 1** **Level 2** **Level 3**

Report Back To check understanding, ask a student to repeat and complete this sentence: *Three consecutive multiples of 6 that are greater than 50 are _____* [Sample answer: 56, 64, 72]

Levelled Homework

Repeating Multiples

Name _____

Multiples _____

You can use a multiplication table to help find some multiples for numbers.

What are some multiples of 5? **5, 10, 15, 20, 25, 30, 35, 40, 45**

Step 1 Find the column for 5.

Step 2 Add the multiples in that column are multiples of 5.

Step 3 Add the multiples in that column are multiples of 5.

Step 4 Add the multiples in that column are multiples of 5.

In the chart, the multiples of 5 are 5, 10, 15, 20, 25, 30, 35, 40, and 45.

×	1	2	3	4	5	6	7	8	9
1	5	10	15	20	25	30	35	40	45
2	10	20	30	40	50	60	70	80	90
3	15	30	45	60	75	90	105	120	135
4	20	40	60	80	100	120	140	160	180
5	25	50	75	100	125	150	175	200	225
6	30	60	90	120	150	180	210	240	270
7	35	70	105	140	175	210	245	280	315
8	40	80	120	160	200	240	280	320	360
9	45	90	135	180	225	270	315	360	405

In 1 through 8, write five multiples of each number.

Given: 4, 2

1, 3 **4, 8, 12, 16, 20**

2, 7 **14, 21, 28, 35, 42**

3, 6, 9 **12, 18, 27, 36, 45**

4, 2 **8, 10, 12, 14, 16**

5, 1 **5, 10, 15, 20, 25, 30**

6, 8 **12, 16, 24, 32, 40**

7, 6 **12, 18, 24, 30, 36**

8, 4 **8, 10, 12, 14, 16**

9, 5 **9, 15, 20, 25, 30**

10, 24, 6 **24, 30, 36, 42, 48**

11, 32, 7 **28, 35, 42, 49, 56**

12, 12, 4 **12, 24, 36, 48, 60**

15. Number Sense What number has 12, 24, and 30 as factors? Explain how you found your answer.

6. Sample answer: I looked for a column (or row) in the multiplication table that included 12, 24, and 30. The column (or row) for 6 was the only one-

Also available in print

Practice Master

Name _____

Multiples _____

In 1 through 8, write five multiples of each number. Sample answers are given.

1, 3 **3, 6, 9, 12, 15**

2, 9 **18, 27, 36, 45, 54**

3, 6, 9 **12, 18, 24, 30, 36**

4, 8, 12 **16, 20, 24, 28, 32**

5, 9 **15, 20, 25, 30, 35**

6, 2 **12, 18, 24, 30, 36**

7, 6 **12, 18, 24, 30, 36**

8, 8 **16, 24, 32, 40, 48**

9, 18, 27, 36, 45

10, 28, 3 **24, 30, 36, 42, 48**

11, 17, 3 **21, 24, 27, 30, 33**

12, 20, 4 **24, 30, 36, 42, 48**

13, 54, 9 **18, 27, 36, 45, 54**

14, 15, 5 **15, 20, 25, 30, 35**

15, 26, 4 **20, 28, 36, 44, 52**

16, 32, 8 **32, 40, 48, 56, 64**

17. Circle the number in the box that is a multiple of 6.

10 19 20 29 31 35

18. Number Sense List five multiples for 3 and five multiples for 4. Then circle the common multiples.

Sample answers: 3: 3, 6, 9, 12, 15; 4: 4, 8, 12, 16, 20

19. Reasoning What number has factors of 2 and 3 and multiples of 12 and 18? **6**

20. What are five multiples of 9? **9, 18, 27, 36, 45**

21. Carriann listed the multiples of 6 as 1, 2, 3, and 6. Is she correct? Explain why or why not. **No; She listed the factors of 6. The multiples of 6 are 6, 12, 18, 24, 30, and so on.**

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Enrichment

Name _____

Multiples or Factors? _____

Look at the numbers in each box. Circle if they are multiples or factors, and write the number.

1. Factors of 6 **2, 3, 4, 5, 6**

2. Factors of 8 **2, 4, 8**

3. Factors of 5 **2, 4, 5, 10**

4. Factors of 4 **2, 4**

5. Multiples of 3 **3, 9, 15**

6. Factors of 9 **1, 3, 9**

7. Factors of 8 **1, 2, 4**

8. Multiples of 7 **7, 21, 35**

Read the label for each box. Write at least three numbers in each box that match the description.

For 5, 7, and 8, sample answers are given.

Also available in print

the fractions by multiplying the numerator and denominator by the same number. Show that when you change the drawing by dividing the circle into different numbers of parts, the amount of the whole that is shaded stays the same.

19. $\frac{4}{8}$ $\frac{2}{4}$ $\frac{1}{2}$ $\frac{3}{6}$ $\frac{5}{10}$ $\frac{6}{12}$ $\frac{7}{14}$ $\frac{8}{16}$ $\frac{9}{18}$ $\frac{10}{20}$ $\frac{11}{22}$ $\frac{12}{24}$ $\frac{13}{26}$ $\frac{14}{28}$ $\frac{15}{30}$ $\frac{16}{32}$ $\frac{17}{34}$ $\frac{18}{36}$ $\frac{19}{38}$ $\frac{20}{40}$ $\frac{21}{42}$ $\frac{22}{44}$ $\frac{23}{46}$ $\frac{24}{48}$ $\frac{25}{50}$ $\frac{26}{52}$ $\frac{27}{54}$ $\frac{28}{56}$ $\frac{29}{58}$ $\frac{30}{60}$ $\frac{31}{62}$ $\frac{32}{64}$ $\frac{33}{66}$ $\frac{34}{68}$ $\frac{35}{70}$ $\frac{36}{72}$ $\frac{37}{74}$ $\frac{38}{76}$ $\frac{39}{78}$ $\frac{40}{80}$ $\frac{41}{82}$ $\frac{42}{84}$ $\frac{43}{86}$ $\frac{44}{88}$ $\frac{45}{90}$ $\frac{46}{92}$ $\frac{47}{94}$ $\frac{48}{96}$ $\frac{49}{98}$ $\frac{50}{100}$ $\frac{51}{102}$ $\frac{52}{104}$ $\frac{53}{106}$ $\frac{54}{108}$ $\frac{55}{110}$ $\frac{56}{112}$ $\frac{57}{114}$ $\frac{58}{116}$ $\frac{59}{118}$ $\frac{60}{120}$ $\frac{61}{122}$ $\frac{62}{124}$ $\frac{63}{126}$ $\frac{64}{128}$ $\frac{65}{130}$ $\frac{66}{132}$ $\frac{67}{134}$ $\frac{68}{136}$ $\frac{69}{138}$ $\frac{70}{140}$ $\frac{71}{142}$ $\frac{72}{144}$ $\frac{73}{146}$ $\frac{74}{148}$ $\frac{75}{150}$ $\frac{76}{152}$ $\frac{77}{154}$ $\frac{78}{156}$ $\frac{79}{158}$ $\frac{80}{160}$ $\frac{81}{162}$ $\frac{82}{164}$ $\frac{83}{166}$ $\frac{84}{168}$ $\frac{85}{170}$ $\frac{86}{172}$ $\frac{87}{174}$ $\frac{88}{176}$ $\frac{89}{178}$ $\frac{90}{180}$ $\frac{91}{182}$ $\frac{92}{184}$ $\frac{93}{186}$ $\frac{94}{188}$ $\frac{95}{190}$ $\frac{96}{192}$ $\frac{97}{194}$ $\frac{98}{196}$ $\frac{99}{198}$ $\frac{100}{200}$ $\frac{101}{202}$ $\frac{102}{204}$ $\frac{103}{206}$ $\frac{104}{208}$ $\frac{105}{210}$ $\frac{106}{212}$ $\frac{107}{214}$ $\frac{108}{216}$ $\frac{109}{218}$ $\frac{110}{220}$ $\frac{111}{222}$ $\frac{112}{224}$ $\frac{113}{226}$ $\frac{114}{228}$ $\frac{115}{230}$ $\frac{116}{232}$ $\frac{117}{234}$ $\frac{118}{236}$ $\frac{119}{238}$ $\frac{120}{240}$ $\frac{121}{242}$ $\frac{122}{244}$ $\frac{123}{246}$ $\frac{124}{248}$ $\frac{125}{250}$ $\frac{126}{252}$ $\frac{127}{254}$ $\frac{128}{256}$ $\frac{129}{258}$ $\frac{130}{260}$ $\frac{131}{262}$ $\frac{132}{264}$ $\frac{133}{266}$ $\frac{134}{268}$ $\frac{135}{270}$ $\frac{136}{272}$ $\frac{137}{274}$ $\frac{138}{276}$ $\frac{139}{278}$ $\frac{140}{280}$ $\frac{141}{282}$ $\frac{142}{284}$ $\frac{143}{286}$ $\frac{144}{288}$ $\frac{145}{290}$ $\frac{146}{292}$ $\frac{147}{294}$ $\frac{148}{296}$ $\frac{149}{298}$ $\frac{150}{300}$ $\frac{151}{302}$ $\frac{152}{304}$ $\frac{153}{306}$ $\frac{154}{308}$ $\frac{155}{310}$ $\frac{156}{312}$ $\frac{157}{314}$ $\frac{158}{316}$ $\frac{159}{318}$ $\frac{160}{320}$ $\frac{161}{322}$ $\frac{162}{324}$ $\frac{163}{326}$ $\frac{164}{328}$ $\frac{165}{330}$ $\frac{166}{332}$ $\frac{167}{334}$ $\frac{168}{336}$ $\frac{169}{338}$ $\frac{170}{340}$ $\frac{171}{342}$ $\frac{172}{344}$ $\frac{173}{346}$ $\frac{174}{348}$ $\frac{175}{350}$ $\frac{176}{352}$ $\frac{177}{354}$ $\frac{178}{356}$ $\frac{179}{358}$ $\frac{180}{360}$ $\frac{181}{362}$ $\frac{182}{364}$ $\frac{183}{366}$ $\frac{184}{368}$ $\frac{185}{370}$ $\frac{186}{372}$ $\frac{187}{374}$ $\frac{188}{376}$ $\frac{189}{378}$ $\frac{190}{380}$ $\frac{191}{382}$ $\frac{192}{384}$ $\frac{193}{386}$ $\frac{194}{388}$ $\frac{195}{390}$ $\frac{196}{392}$ $\frac{197}{394}$ $\frac{198}{396}$ $\frac{199}{398}$ $\frac{200}{400}$ $\frac{201}{402}$ $\frac{202}{404}$ $\frac{203}{406}$ $\frac{204}{408}$ $\frac{205}{410}$ $\frac{206}{412}$ $\frac{207}{414}$ $\frac{208}{416}$ $\frac{209}{418}$ $\frac{210}{420}$ $\frac{211}{422}$ $\frac{212}{424}$ $\frac{213}{426}$ $\frac{214}{428}$ $\frac{215}{430}$ $\frac{216}{432}$ $\frac{217}{434}$ $\frac{218}{436}$ $\frac{219}{438}$ $\frac{220}{440}$ $\frac{221}{442}$ $\frac{222}{444}$ $\frac{223}{446}$ $\frac{224}{448}$ $\frac{225}{450}$ $\frac{226}{452}$ $\frac{227}{454}$ $\frac{228}{456}$ $\frac{229}{458}$ $\frac{230}{460}$ $\frac{231}{462}$ $\frac{232}{464}$ $\frac{233}{466}$ $\frac{234}{468}$ $\frac{235}{470}$ $\frac{236}{472}$ $\frac{237}{474}$ $\frac{238}{476}$ $\frac{239}{478}$ $\frac{240}{480}$ $\frac{241}{482}$ $\frac{242}{484}$ $\frac{243}{486}$ $\frac{244}{488}$ $\frac{245}{490}$ $\frac{246}{492}$ $\frac{247}{494}$ $\frac{248}{496}$ $\frac{249}{498}$ $\frac{250}{500}$ $\frac{251}{502}$ $\frac{252}{504}$ $\frac{253}{506}$ $\frac{254}{508}$ $\frac{255}{510}$ $\frac{256}{512}$ $\frac{257}{514}$ $\frac{258}{516}$ $\frac{259}{518}$ $\frac{260}{520}$ $\frac{261}{522}$ $\frac{262}{524}$ $\frac{263}{526}$ $\frac{264}{528}$ $\frac{265}{530}$ $\frac{266}{532}$ $\frac{267}{534}$ $\frac{268}{536}$ $\frac{269}{538}$ $\frac{270}{540}$ $\frac{271}{542}$ $\frac{272}{544}$ $\frac{273}{546}$ $\frac{274}{548}$ $\frac{275}{550}$ $\frac{276}{552}$ $\frac{277}{554}$ $\frac{278}{556}$ $\frac{279}{558}$ $\frac{280}{560}$ $\frac{281}{562}$ $\frac{282}{564}$ $\frac{283}{566}$ $\frac{284}{568}$ 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$\frac{395}{790}$ $\frac{396}{792}$ $\frac{397}{794}$ $\frac{398}{796}$ $\frac{399}{798}$ $\frac{400}{800}$ $\frac{401}{802}$ $\frac{402}{804}$ $\frac{403}{806}$ $\frac{404}{808}$ $\frac{405}{810}$ $\frac{406}{812}$ $\frac{407}{814}$ $\frac{408}{816}$ $\frac{409}{818}$ $\frac{410}{820}$ $\frac{411}{822}$ $\frac{412}{824}$ $\frac{413}{826}$ $\frac{414}{828}$ $\frac{415}{830}$ $\frac{416}{832}$ $\frac{417}{834}$ $\frac{418}{836}$ $\frac{419}{838}$ $\frac{420}{840}$ $\frac{421}{842}$ $\frac{422}{844}$ $\frac{423}{846}$ $\frac{424}{848}$ $\frac{425}{850}$ $\frac{426}{852}$ $\frac{427}{854}$ $\frac{428}{856}$ $\frac{429}{858}$ $\frac{430}{860}$ $\frac{431}{862}$ $\frac{432}{864}$ $\frac{433}{866}$ $\frac{434}{868}$ $\frac{435}{870}$ $\frac{436}{872}$ $\frac{437}{874}$ $\frac{438}{876}$ $\frac{439}{878}$ $\frac{440}{880}$ $\frac{441}{882}$ $\frac{442}{884}$ $\frac{443}{886}$ $\frac{444}{888}$ $\frac{445}{890}$ $\frac{446}{892}$ $\frac{447}{894}$ $\frac{448}{896}$ $\frac{449}{898}$ 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$\frac{505}{1010}$ $\frac{506}{1012}$ $\frac{507}{1014}$ $\frac{508}{1016}$ $\frac{509}{1018}$ $\frac{510}{1020}$ $\frac{511}{1022}$ $\frac{512}{1024}$ $\frac{513}{1026}$ $\frac{514}{1028}$ $\frac{515}{1030}$ $\frac{516}{1032}$ $\frac{517}{1034}$ $\frac{518}{1036}$ $\frac{519}{1038}$ $\frac{520}{1040}$ $\frac{521}{1042}$ $\frac{522}{1044}$ $\frac{523}{1046}$ $\frac{524}{1048}$ $\frac{525}{1050}$ $\frac{526}{1052}$ $\frac{527}{1054}$ $\frac{528}{1056}$ $\frac{529}{1058}$ $\frac{530}{1060}$ $\frac{531}{1062}$ $\frac{532}{1064}$ $\frac{533}{1066}$ $\frac{534}{1068}$ $\frac{535}{1070}$ $\frac{536}{1072}$ $\frac{537}{1074}$ $\frac{538}{1076}$ $\frac{539}{1078}$ $\frac{540}{1080}$ $\frac{541}{1082}$ $\frac{542}{1084}$ $\frac{543}{1086}$ $\frac{544}{1088}$ $\frac{545}{1090}$ $\frac{546}{1092}$ $\frac{547}{1094}$ $\frac{548}{1096}$ $\frac{549}{1098}$ $\frac{550}{1100}$ $\frac{551}{1102}$ $\frac{552}{1104}$ $\frac{553}{1106}$ $\frac{554}{1108}$ $\frac{555}{1110}$ $\frac{556}{1112}$ $\frac{557}{1114}$ $\frac{558}{1116}$ $\frac{559}{1118}$ $\frac{560}{1120}$ $\frac{561}{1122}$ $\frac{562}{1124}$ $\frac{563}{1126}$ $\frac{564}{1128}$ $\frac{565}{1130}$ $\frac{566}{1132}$ $\frac{567}{1134}$ $\frac{568}{1136}$ $\frac{569}{1138}$ $\frac{570}{1140}$ $\frac{571}{1142}$ $\frac{572}{1144}$ $\frac{573}{1146}$ $\frac{574}{1148}$ $\frac{575}{1150}$ $\frac{576}{1152}$ $\frac{577}{1154}$ $\frac{578}{1156}$ $\frac{579}{1158}$ $\frac{580}{1160}$ $\frac{581}{1162}$ $\frac{582}{1164}$ $\frac{583}{1166}$ $\frac{584}{1168}$ $\frac{585}{1170}$ $\frac{586}{1172}$ $\frac{587}{1174}$ $\frac{588}{1176}$

The first tick mark represents $\frac{1}{6}$, the seventh represents $\frac{1}{2}$, and each mark in between is one-sixth.

Ask volunteers to stand at given points, such as the following:

- $\frac{5}{6}$ [6th mark]
- $\frac{1}{3}$ [3rd mark]
- $\frac{2}{3}$ [5th mark]
- $\frac{2}{6}$ [3rd mark]
- $\frac{4}{6}$ [5th mark]
- $\frac{1}{6}$ [2nd mark]

Repeating Master

Number Lines and Equivalent Fractions

Repeating
11-5

Write two equivalent fractions that name the point on the number line.

Step 1: Count the number of tick marks from 0 to 1. On the number line, there are 12 tick marks. That tells you the denominator of one fraction is 12. You now know one fraction that names the point is $\frac{4}{12}$.

Step 2: Count the number of tick marks from 0 to $\frac{1}{2}$. There are 6. That tells you the denominator of the fraction is 6. You now know one fraction that names the point is $\frac{2}{6}$.

Step 3: $\frac{1}{2}$ is an even number, so it can be divided by 2. If you count every second tick mark from 0 to 1, you will count 6 tick marks. The denominator of the fraction is 6. An equivalent fraction to $\frac{1}{2}$ is $\frac{3}{6}$.

Now count every second tick mark from 0 to $\frac{1}{2}$. There are 3 tick marks. The denominator of the fraction is 3. An equivalent fraction to $\frac{1}{2}$ is $\frac{3}{6}$.

Write two fractions that name the point on the number line.

1. $\frac{4}{12}$ or $\frac{1}{3}$

2. $\frac{6}{12}$ or $\frac{1}{2}$

3. Draw a diagram. Are $\frac{3}{6}$ and $\frac{3}{6}$ equivalent fractions? Draw a number line to show your answer. No, $\frac{3}{6}$ and $\frac{3}{6}$ are not equivalent fractions.

Also available in print

4. $\frac{21}{7} = \square$ $\frac{3}{4} = \frac{\square}{8}$

a	b	c	d	e
f	g	h	i	j

Make your own puzzle with equivalent fractions that have a missing digit.

Report Back To check understanding, ask a student to repeat and complete this sentence: *When you divide a fish into two equal parts, the name of each of those parts is [tenths].*

Levelled Homework

Practice Master

Number Lines and Equivalent Fractions

Practice
11-5

Write two fractions that name each point on the number line.

1. $\frac{1}{2}$ $\frac{2}{4}$

2. $\frac{4}{8}$ $\frac{1}{2}$

3. $\frac{1}{2}$ $\frac{2}{4}$

4. $\frac{4}{8}$ $\frac{1}{2}$

5. Draw a number line to show that $\frac{2}{4}$ and $\frac{1}{2}$ are equivalent.

6. Draw a number line to show that $\frac{3}{6}$ and $\frac{1}{2}$ are equivalent.

7. Which of the following pairs are NOT equivalent fractions?
 a. $\frac{3}{8}$ and $\frac{6}{16}$ b. $\frac{2}{4}$ and $\frac{1}{2}$ c. $\frac{3}{6}$ and $\frac{1}{2}$ d. $\frac{3}{8}$ and $\frac{6}{16}$

8. Writing to Explain: How many fractions are equivalent to $\frac{1}{2}$ fish?
 Sample answer: Infinitely many. You can always divide the segments of a number line into smaller parts to generate another equivalent fraction.

Also available in print

a. $\frac{4}{8} = \frac{1}{2}$ b. $\frac{6}{12} = \frac{1}{2}$ c. $\frac{7}{14} = \frac{1}{2}$ d. $\frac{5}{10} = \frac{1}{2}$

e. $\frac{2}{4} = \frac{1}{2}$ f. $\frac{1}{2} = \frac{2}{4}$ g. $\frac{3}{6} = \frac{1}{2}$ h. $\frac{4}{8} = \frac{1}{2}$

i. $\frac{3}{6} = \frac{1}{2}$ j. $\frac{5}{10} = \frac{1}{2}$

a	b	c	d	e
f	g	h	i	j

Make your own puzzle with equivalent fractions that have a missing digit.

Fraction Playground

Number Lines and Equivalent Fractions

Enrichment
11-5

To balance a seesaw at the playground, the two people on the seesaw must be the same weight. The same is true for fractions. Two equal fractions will result in a balanced seesaw. When one fraction on a seesaw is greater than the other fraction on the seesaw, the greater fraction will sink, and the lesser fraction will rise. Look at the fractions on the seesaws. For each, circle the fraction or fractions that would result in the seesaw staying in the position shown.

1. $\frac{1}{2}$ vs $\frac{1}{4}$ $\frac{1}{2}$ vs $\frac{1}{3}$ $\frac{1}{2}$ vs $\frac{1}{6}$ $\frac{1}{2}$ vs $\frac{1}{8}$

2. $\frac{1}{2}$ vs $\frac{1}{4}$ $\frac{1}{2}$ vs $\frac{1}{3}$ $\frac{1}{2}$ vs $\frac{1}{6}$ $\frac{1}{2}$ vs $\frac{1}{8}$

3. $\frac{1}{2}$ vs $\frac{1}{4}$ $\frac{1}{2}$ vs $\frac{1}{3}$ $\frac{1}{2}$ vs $\frac{1}{6}$ $\frac{1}{2}$ vs $\frac{1}{8}$

4. $\frac{1}{2}$ vs $\frac{1}{4}$ $\frac{1}{2}$ vs $\frac{1}{3}$ $\frac{1}{2}$ vs $\frac{1}{6}$ $\frac{1}{2}$ vs $\frac{1}{8}$

5. $\frac{1}{2}$ vs $\frac{1}{4}$ $\frac{1}{2}$ vs $\frac{1}{3}$ $\frac{1}{2}$ vs $\frac{1}{6}$ $\frac{1}{2}$ vs $\frac{1}{8}$

Also available in print

- * Have students line up the fraction strips on top of each other.
- * Have students write number sentences to compare and order the fractions. Students should use appropriate symbols.
- * Repeat this process, asking students to come up with different fractions.

Repeating Master

Name _____ Repeating 11-6

Comparing Fractions

Leave one wanted to compare $\frac{2}{3}$ and $\frac{3}{8}$. She used fraction strips to help.



She compared the amounts that were shaded in each picture. Because the amount shaded in $\frac{2}{3}$ is more than the amount shaded in $\frac{3}{8}$, she knew that $\frac{2}{3}$ is greater than $\frac{3}{8}$. So, $\frac{2}{3} > \frac{3}{8}$.

Write $>$ or $<$ for each Use fraction strips or benchmark fractions to help.

- $\frac{2}{3} > \frac{3}{8}$
- $\frac{2}{3} < \frac{3}{8}$
- $\frac{3}{8} > \frac{2}{3}$
- $\frac{1}{2} > \frac{1}{3}$
- $\frac{2}{5} > \frac{3}{10}$
- $\frac{3}{4} > \frac{1}{2}$
- $\frac{1}{2} < \frac{3}{8}$
- $\frac{1}{3} < \frac{2}{5}$
- $\frac{1}{4} > \frac{1}{8}$
- $\frac{2}{10} < \frac{3}{10}$

The same number of students attended school all week.

Day	Fraction of students buying lunch
Monday	$\frac{1}{2}$
Tuesday	$\frac{2}{3}$
Wednesday	$\frac{3}{4}$
Thursday	$\frac{4}{5}$
Friday	$\frac{5}{6}$

- Did more students buy lunch on Thursday or on Wednesday?
- Did more students buy lunch on Thursday or on Friday?

Wednesday _____
Friday _____

Also available in print

Partner Talk Listen for language that describes a pattern. For example, a student might say, "To compare $\frac{4}{5}$ and $\frac{5}{9}$, I know that $\frac{4}{5}$ is greater than $\frac{1}{2}$ and $\frac{4}{9}$ is less than $\frac{1}{2}$, so $\frac{4}{5} > \frac{4}{9}$."

Play again!

>	>	<	>	>	>	>
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Play again!

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Level 1 Homework

Practice Master

Name _____ Practice 11-6

Comparing Fractions

Write $>$ or $<$ for each You may use fraction strips to help.

- $\frac{1}{2} > \frac{3}{8}$
- $\frac{2}{5} > \frac{3}{10}$
- $\frac{3}{4} < \frac{1}{2}$
- $\frac{1}{3} > \frac{2}{5}$
- $\frac{2}{3} > \frac{1}{2}$
- $\frac{1}{2} < \frac{3}{8}$
- $\frac{2}{5} < \frac{3}{10}$
- $\frac{1}{2} < \frac{3}{8}$
- $\frac{3}{10} < \frac{2}{5}$

- Trina completed $\frac{3}{4}$ of her homework. George completed $\frac{2}{3}$ of his homework. Who completed a greater fraction of homework?
- Jackson played a video game for $\frac{1}{2}$ hour. Haley played a video game for $\frac{1}{3}$ hour. Who played the video game for a greater amount of time?

- Which fraction is greater than $\frac{3}{7}$?
A $\frac{1}{2}$ B $\frac{3}{8}$ C $\frac{1}{3}$ D $\frac{1}{4}$
- Writing to Explain James says that $\frac{3}{4}$ is greater than $\frac{2}{3}$. Is he correct? Explain.
Sample answer: James is correct because $\frac{9}{12}$ is less than $\frac{8}{12}$ and $\frac{5}{12}$ is equal to $\frac{5}{12}$.

Comparing Outcomes

Name _____ Enrichment 11-6

Comparing Outcomes

Trifony tossed a number cube 12 times. Then she made a tally chart to show each time the cube showed each face.

Face	1	2	3	4	5	6
Fraction (out of 12 tosses)	$\frac{1}{12}$	$\frac{2}{12}$	$\frac{3}{12}$	$\frac{0}{12}$	$\frac{2}{12}$	$\frac{4}{12}$
Number	I	II	III	II	III	IIII

- Complete the table to show the fraction of tosses for each face of the number cube.

Face	1	2	3	4	5	6
Fraction (out of 12 tosses)	$\frac{1}{12}$	$\frac{2}{12}$	$\frac{3}{12}$	$\frac{0}{12}$	$\frac{2}{12}$	$\frac{4}{12}$
Number	I	II	III	II	III	IIII

- Compare the fractional results for each face by writing $>$, $<$, or $=$ in each
- Face 1 Face 2
- Face 3 Face 5
- Face 5 Face 4
- Face 2 Face 6
- Complete the table to show the fraction of heads and tails.

Outcomes	Heads	Tails
Fraction out of 10	$\frac{6}{10}$	$\frac{4}{10}$
Fraction out of 20	$\frac{6}{20}$	$\frac{12}{20}$

Also available in print

Also available in print