Shamma Bint Mohammed School

3rd Grade
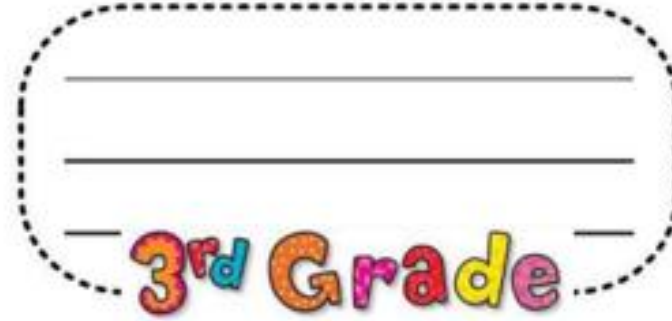
EOT1-2025-COVERAGE

Mathematics
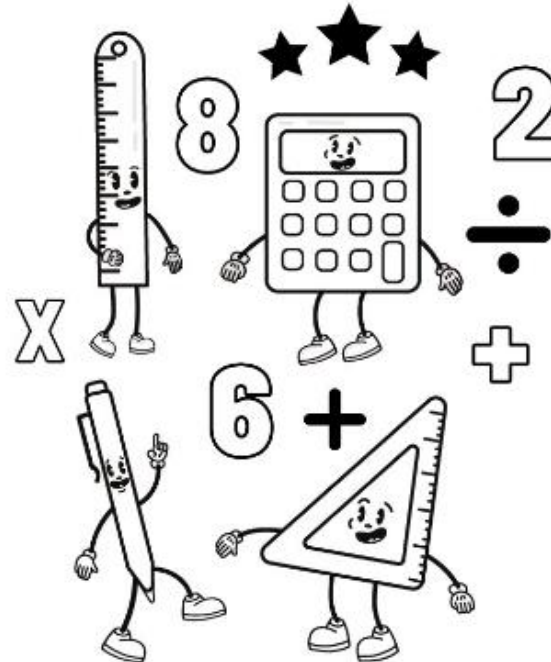
Teachers: Ms. Naazneen
Ms. Aysha

Principal: Ms. Fatima AlMansoori

Outcome: Round Multi digit numbers

Use a number line to round.

1. Round 27 to the nearest 10.
   30

2. Round 896 to the nearest 10.
   900

896

20   27   30   800   900

Use place value to round.

3. Round 48 to the nearest 10.
   50

4. Round 273 to the nearest 10.
   270

Use a number line to round. Show your work.

5. Round 436 to the nearest 100.

   See students'
   drawings.

6. Round 672 to the nearest 100.

   See students'
   drawings.

436 rounded to the nearest 100
is   400 .

672 rounded to the nearest 100
is   700 .

7. How can the number 78 round to 80 and 100? Explain.
   Sample answer: 78 rounded to the nearest 10 is 80 and 78 rounded to the nearest 100 is 100.

8. A number rounded to the nearest 10 is 240. What number could it be? **Sample answer: 235**

Outcome: Round Multi digit numbers

7. Circle the choice that correctly shows rounding to the nearest 10. (Lesson 2-2)

784 → 785

563 → 560

492 → 500

535 → 530

How can you make the equation true?

1. $218 + 325 = 325 + \underline{\quad 218 \quad}$ 2. $465 + \underline{\quad 78 \quad} = 78 + 465$

3. $529 + 407 = \underline{\quad 407 \quad} + 529$ 4. $\underline{\quad 505 \quad} + 93 = 93 + 505$

Outcome: Use Addition Properties to Add

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5. Mauricio had a sale. The table shows the number of items he sold each day. Which expressions show how to find the total number of items Mauricio sold? Choose all that apply.

   Ⓐ $42 + 67 + 58$
   B. $67 - 58 + 42$
   Ⓒ $58 + 42 + 67$
   D. $58 + 67 + 24$

Items Sold	
Monday	58
Tuesday	67
Wednesday	42

6. How can you group the addends to make it easier find the sum? Explain your thinking.

$$372 + 264 + 228$$

Sample answer: I can add $372 + 228 = 600$ because I can make a hundred. Adding to a hundred makes the problem easier to solve. Then I would add $600 + 264$.

Outcome: Use Addition Properties to Add

Complete the following using properties of addition. (Lesson 2-4)

8. $289 + 621 = 621 + \underline{\textbf{289}}$

9. $78 + \underline{\textbf{418}} + 212$
$= 418 + 212 + 78$

Outcome: Use partial sums to Add

How can you decompose each addend? What is the sum?

1. $247 + 564 =$ __811__

$$200 + 500 = 700$$
$$40 + 60 = 100$$
$$7 + 4 = 11$$
$$700 + 100 + 11 = 811$$

2.
$$815$$
$$+ 148$$
$$\overline{900}$$
$$50$$
$$+ 13$$
$$\overline{963}$$

3.
$$729$$
$$+148$$
$$\overline{800}$$
$$60$$
$$+ 17$$
$$\overline{877}$$

4. $327 + 176 =$ __503__

$$300 + 100 = 400$$
$$20 + 70 = 90$$
$$7 + 6 = 13$$
$$400 + 90 + 13 = 503$$

5. Whitney uses partial sums to add. Look at her work to determine which two numbers were in her original equation.

__216__ + __382__ $= 598$

$$200 + 300 = 500$$
$$10 + 80 = 90$$
$$6 + 2 = 8$$
$$500 + 90 + 8 = 598$$

6. How can you determine which addends are in the original equation by looking at the partial products?

Sample answer: The numbers in the partial sum equations represent the parts of the original addends.

7. Tyrone spent 172 days in school last year. If he attends school the same number of days next year, how many days will he spend in school in two years? **344 days**

Outcome: Use partial sums to Add

How can you find the sums in a different way?

8. $475 + 325 = 800$
$400 + 300 = 700$
$70 + 20 = 90$
$5 + 5 = 10$
$700 + 90 + 10 = 800$

$$\begin{array}{r} 475 \\ + 325 \\ \hline 700 \\ 90 \\ + \quad 10 \\ \hline 800 \end{array}$$

9. $\begin{array}{r} 238 \\ +271 \\ \hline 400 \\ 100 \\ + \quad 9 \\ \hline 509 \end{array}$

$238 + 271 = ?$
$200 + 200 = 400$
$30 + 70 = 100$
$8 + 1 = 9$
$400 + 100 + 9 = 509$

10. Eleanor's watch shows her steps before lunch. Then she took 486 more steps. How many total steps did she take?

953 steps

11. **Error Analysis** Amal adds $378 + 141$. She decomposes each number and adds $300 + 100 = 400$. She writes $378 + 141 = 400$. How can you explain her mistake?

Sample answer: She needs to find the other partial sums. Then she needs to add the partial sums to find the total sum.

12. **Extend Your Thinking** How can you solve $249 + 401 + 276$ using partial sums? Show your work. **Sample answer:**
$200 + 400 + 200 = 800; 40 + 0 + 70 = 110;$
$9 + 1 + 6 = 16; 800 + 110 + 16 = 926$

Outcome: Decompose to subtract

How can you decompose the number in 2 ways?

1. 367
Sample answer:
$300 + 60 + 7$;
$350 + 10 + 7$

2. 876
Sample answer:
$800 + 70 + 6$;
$800 + 70 + 5 + 1$

How can you decompose one number to subtract? Why did you choose that way?

3. $495 - 122$
Sample answer:
$100 + 20 + 2$; I can subtract the hundreds, tens, and ones quickly.

4. $639 - 370$
Sample answer:
$300 + 30 + 40$; I can subtract 3 tens from 3 tens, then subtract 40 from 300.

How can you find the difference? Show the strategy you used.

5. $284 - 182 = \underline{102}$
Sample answer:
$284 - 100 = 184$;
$184 - 80 = 104$;
$104 - 2 = 102$

6. $\underline{219} = 333 - 114$
Sample answer:
$333 - 100 = 233$;
$233 - 10 = 223$;
$223 - 3 = 220$;
$220 - 1 = 219$

7. $502 - 382 = \underline{120}$
Sample answer:
$502 - 300 = 202$;
$202 - 2 = 200$;
$200 - 80 = 120$

8. $744 - 466 = \underline{278}$
Sample answer:
$744 - 400 = 344$;
$344 - 44 = 300$;
$300 - 20 = 280$;
$280 - 2 = 278$

Outcome: Decompose to subtract

9. **Error Analysis** Juan subtracts 345 − 101. He decomposes 101 into 100 and 10 and subtracts the parts from 345. How can you help him understand his mistake?

Sample answer: He decomposed 101 incorrectly. 100 + 10 = 110 not 101. He can decompose 101 into 100 + 1 and subtract the parts from 345.

10. The table shows the number of people who attended the school fun fair each day. Show a strategy to find the difference between the greatest and least number of people.

**257 − 100 = 157,
157 − 3 = 154; 154 people**

Fun Fair Visitors	
Day	Number of People
Thursday	103
Friday	168
Saturday	257
Sunday	224

11. A baker bakes 268 bread rolls. 155 are cinnamon rolls. The rest are plain rolls. How many plain rolls does she bake?

113 plain rolls

12. **Extend Your Thinking** Ana subtracts 438 − 342 by decomposing 342. She subtracts 2, then 300, and finally 40. Can she subtract the parts in any order? Explain your reasoning.

Yes. Sample answer: The order does not matter if all parts of 342 are subtracted from 438.

Outcome: Adjust numbers to add or subtract

9. You can adjust 236 – 119 different ways. How can you explain one way you can adjust and why the equation is easier?

   Sample answer: 237 – 120 is easier because I can subtract 120 from 237 in just two parts. I can complete most of the subtraction mentally.

10. Melissa and Juan are finding 129 + 257 by adjusting. Melissa tries solving using 130 + 258 = 388 and Juan solves it using 130 + 256 = 386. Which sum is correct? Explain.

    Sample answer: 386 is correct because Juan kept the sum the same by adding 1 to 129 and subtracting 1 from 257.

11. **STEM Connection** Saffron completed 851 orders of pastries her first year. After her second year, she completed 926 orders. How many more pastry orders did she complete in her second year than in her first year?

    Sample answer: 925 – 850 = 75

12. **Extend Your Thinking** Yazmin adds 457 + 251. She adjusts 251 to 250, but forgets to adjust 457. She adds 457 + 250 = 707. How can she adjust the sum to fix her mistake? Explain your reasoning.

    Sample answer: Because she subtracted 1 from 251, she can add 1 to her sum to find the correct sum for 457 + 251.

Outcome: Adjust numbers to add or subtract

15. Gabe is trying to solve $246 + 367$. Which equation shows how he could adjust the addends to find the sum?

(Lesson 2-8)

A. $250 + 360 = ?$

B. $250 + 370 = ?$

C. $250 + 363 = ?$

D. $250 + 371 = ?$

Outcome: Solve Two-Step Problems Involving Addition and Subtraction

Represent and solve the problem. Use letters for the unknowns.

5. Sam and Ben take turns driving. They traveled 417 miles in May and 454 miles in June. If Sam drove 502 of the miles, how many miles did Ben drive?
   369 miles; Sample answer: $417 + 454 = a$; $871 = a$; $871 - 502 = b$; $369 = b$

6. Jaya earned $187 babysitting. She bought a wireless speaker for $129 and a carrying case for $26. How much money does she have left?
   $32; Sample answer: $187 - 129 = f$; $58 = f$; $58 - 26 = g$; $32 = g$

7. Judy has 323 beads. Sarah has 142 more beads than Judy. How many beads do they have together?
   788 beads; Sample answer: $323 + 142 = x$; $465 = x$; $465 + 323 = y$; $788 = y$

Outcome: Solve Two-Step Problems Involving Addition and Subtraction

19. Enrique read 249 pages of his book in June and 227 pages of his book in July. The book has a total of 638 pages and Enrique wants to know how many pages he has left to read. (Lesson 2-12)

Which set of equations could be used to solve the problem?

A. $227 + 249 = 476$
$638 - 227 = 411$

B. $249 + 277 = 476$
$638 - 476 = 162$

C. $638 - 249 = 389$
$389 + 227 = 616$

D. $638 - 227 = 411$
$411 + 249 = 660$

Outcome: Understand equal groups

How many? Fill in the blanks.

1.

___3___ equal groups of ___4___

2.

___2___ equal groups of ___5___

How can you represent the equal groups?

3. 2 equal groups of 7

Sample answer: A drawing of 2 circles with 7 objects in each circle.

4. 4 equal groups of 5

Sample answer: A drawing of 4 circles with 5 objects in each circle.

How many objects?

5. 4 equal groups of 4 pencils
$4 \times 4 =$ ___16___
___16___ pencils

6. 3 equal groups of 2 mittens
$3 \times 2 =$ ___6___
___6___ mittens

What equation represents the equal groups?

7.

$2 \times 3 = 6$

8.

$4 \times 2 = 8$

9. **STEM Connection** Finn has 3 construction sites. He assigns 8 workers to each site. How many workers does he assign? Explain how you know.
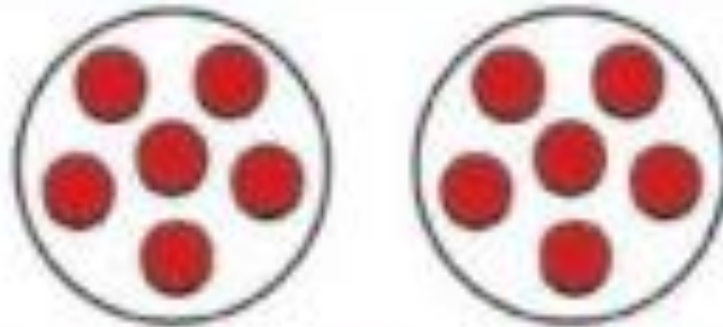
Sample answer: 3 equal groups of 8 equal 24 or 3 × 8 = 24. Finn assigns 24 workers.

Outcome: Understand equal groups

7. How can you represent these groups of counters? (Lesson 3-1)

Sample answer shown.

$\underline{2} \times \underline{6} = \underline{12}$

How many? Complete the equations.

1.

$4 + 4 + 4 =$ __12__

$3 \times 4 =$ __12__

2.

$5 + 5 =$ __10__

$2 \times 5 =$ __10__

Outcome: Use arrays to multiply

Write one addition equation. Write one multiplication equation.

3.

$3 + 3 = 6$

$2 \times 3 = 6$

4.

$8 + 8 + 8 = 24$

$3 \times 8 = 24$
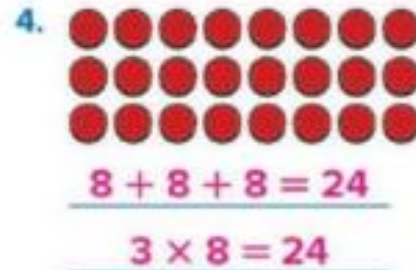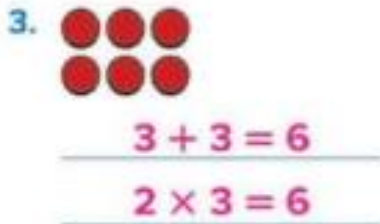
How can you draw an array to represent the equation?

5. $4 \times 4 = 16$

Sample answer: an array with 4 rows of 4 objects

6. $3 \times 5 = 15$

Sample answer: an array with 3 rows of 5 objects

Outcome: Use arrays to multiply

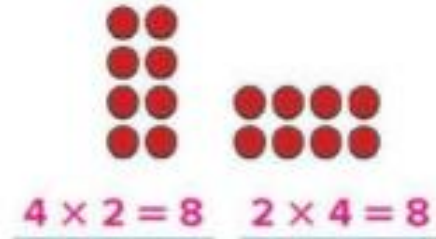**10.** What equation represents the stars shown? (Lesson 3-2)

Sample answer shown.

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__3__ × __5__ = __15__

Outcome: Understand the commutative property

1. What two multiplication equations represent these arrays?

$$4 \times 2 = 8 \quad 2 \times 4 = 8$$

2. Sam says that 6×2 and 2×6 have the same product. Do you agree with Sam? Explain why or why not.

Sample answer: Yes. 6 groups of 2 and 2 groups of 6 both equal 12. The order of the factors does not change the product.

7. **STEM Connection** Finn's construction team just finished placing windows in the building. What two multiplication equations can represent the total number of windows in the front of the building?

$$4 \times 5 = 20; 5 \times 4 = 20$$

What makes the equation true? Fill in the blank.

3. $5 \times 6 = 6 \times \underline{\quad 5 \quad}$

4. $9 \times 0 = \underline{\quad 0 \quad} \times 9$

5. Use representations to show 2×3 is equal to 3×2.

Sample answer:

6. Use representations to show 1×4 is equal to 4×1.

Sample answer:

Outcome: Understand the commutative property

8. How can you explain whether this statement is true or false?
$7 \times 2 = 14$, so $14 \times 2 = 7$.

This is false. Sample answer: 14 groups of 2 is not 7.

9. How does knowing the product of 9×6 help you find the product of 6×9?

Sample answer: They both have the same factors, so the product is the same.

10. Use 3, 30, and 10 to write 2 true multiplication equations.

Sample answer:
$3 \times 10 = 30$
$10 \times 3 = 30$

11. Oliver has 3 sheets of stickers with 4 stickers on each sheet. Sara has 4 sheets of stickers with 3 stickers on each sheet. Who has more stickers? Explain.

Sample answer: They both have the same number because the order of the factors does not change the product.

12. **Extend Your Thinking** Explain how this array represents 9×3 and 3×9.

Sample answer: There are 3 rows of 9 counters and 9 columns of 3 counters.

Outcome: Understand equal sharing

9. There are 25 crackers to be shared equally among 5 bowls.

   Sample answer: $25 \div 5 = 5$

10. **STEM Connection** The construction manager equally divides 24 bundles of lumber among 6 carpenters.

    Sample answer:

    $24 \div 6 = 4$

11. Emma picks 32 peaches. She needs 8 peaches for each batch of jam. If she makes 4 batches, will she have any peaches left over? Justify your answer. **Sample answer: No. Emma can divide 32 peaches equally into 4 batches. Each batch will use 8 peaches and no peaches will be left over.**

12. **Extend Your Thinking** Ms. Bain has 3 art tables. She shares 27 markers equally among the tables so each student gets 3 markers. How many students sit at each table? Explain how you know. **3 students; Sample answer: $27 \div 3 = 9$, so each table gets 9 markers. If each student at the table gets 3 markers, then 9 markers can be shared equally among 3 students; $9 \div 3 = 3$**

Outcome: Understand equal sharing

12. Clara has 20 glue bottles to place at 5 tables. She will place the same number of bottles on each table.

Which equation represents the problem? (Lesson 3-4)

A. $5 \div 4 = 20$

B. $5 \div 20 = 4$

C. $4 \div 5 = 20$

D. $20 \div 5 = 4$

1. Byron is making loaves of bread. He uses 2 cups of flour for each loaf. Complete the table to show how many cups of flour he needs for each number of loaves.

Loaves of Bread	Cups of Flour
5	10
6	12
7	14

Outcome: Use patterns to multiply by 2

2. Arya is buying balloons for her two brothers. She wants to give them both the same number of balloons. How can you write an equation to represent the total number of balloons Arya might buy?

Sample answer: 2 × 9 = 18. If Arya buys both of her brothers 9 balloons each, she buys 18 balloons in all.

3. Peter is cooking potatoes in a large pot. The recipe calls for 2 minutes of boiling for every pound of potatoes. How many minutes will it take Peter to cook 8 pounds of potatoes?

16 minutes

4. Draw a line to connect the related equations.

$2 \times ? = 4$ $7 + 7 = ?$

$2 \times ? = 10$ $2 + 2 = ?$

$2 \times ? = 14$ $5 + 5 = ?$

How can you complete the equation?

5. $2 \times 9 = $ __18__

6. __20__ $= 2 \times 10$

7. $6 \times 2 = $ __12__

8. $8 = $ __4__ $\times 2$

9. __3__ $\times 2 = 6$

10. $7 \times 2 = $ __14__

11. **STEM Connection** Matthew's computer program has 6 lines of code. Grace's computer program has double the number of lines of code as Matthew's. How many lines of code does Grace's program have?

    12 lines of code

12. Jenine has 7 pencils. Karly has double the number of pencils Jenine has. How many pencils does Karly have?

    14 pencils

13. Choose the equations that are true.

    (A.) $2 \times 5 = 5 + 5$ B. $2 \times 3 = 2 + 3$

    C. $2 \times 6 = 6 + 2$ (D.) $2 \times 4 = 4 + 4$

14. **Extend Your Thinking** Sarah has 4 blocks. Frank has double that number of blocks. Zehra has double Frank's number of blocks. How can you find the number of blocks Zehra has?

    Multiply 2 × 4 to find the number of blocks Frank has. Frank has 8 blocks. Then multiply 2 × 8 to find the number of blocks that Zehra has. 16. Zehra has 16 blocks.

How can you use what you know about multiplication with 5 to answer the question?

1. What can you say about the products of ×5 facts?

   Sample answer: Multiples of 5 have 0 or 5 in the ones place. If the other factor is even, the product is even. If the other factor is odd, the product is odd.

2. Sheila says that knowing 3 × 5 can help you remember 5 × 3. Is she correct? Explain.

   Sample answer: 3 × 5 and 5 × 3 have the same product, 15. Changing the order of the factors does not change the product.

3. Marcel is decorating a poster with stickers. He arranges the stickers into 5 rows. Each row has the same number of stickers. How many stickers might Marcel have in all?

   Sample answer: Marcel could have 40 stickers if he places 8 stickers in each row.

How can you complete the equation?

4. $5 \times 9 = \underline{45}$

5. $\underline{35} = 5 \times 7$

6. $6 \times 5 = \underline{30}$

7. $25 = 5 \times \underline{5}$

8. $10 \times 5 = \underline{50}$

9. $3 \times 5 = \underline{15}$

10. $\underline{2} \times 5 = 10$

11. $8 \times 5 = \underline{40}$

12. Mary Lou does 5 jumping jacks. If she does the same number of jumping jacks for 4 days in a row, how many jumping jacks does Mary Lou do?

20 jumping jacks

Outcome: Use patterns to multiply by 5

13. Sara puts the same number of fish shown in each of 5 tanks. How many fish does she have?

35 fish

14. Which equations are true? Choose all that apply.

A. $5 \times 3 = 3 + 3 + 3$ (B.) $3 \times 5 = 5 + 5 + 5$

C. $5 \times 2 = 5 + 2$ (D.) $5 \times 4 = 4 + 4 + 4 + 4 + 4$

15. Extend Your Thinking Lee has 32 books. He says he can make 5 stacks of books with the same number of books in each stack. Is he correct? Explain. **No. Sample answer: Since 32 does not have a 0 or a 5 in the ones place, it cannot be a multiple of 5.**

Outcome: Use patterns to multiply by 5

1. $7 \times 1 = $ __7__

2. $0 = $ __0__ $\times 1$

3. $4 \times$ __0__ $= 0$

4. __1__ $\times 1 = 1$

5. $0 \times 6 = $ __0__

6. $8 = 1 \times$ __8__

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7. Kelly and Yusif want to share a box of crackers. They open the box and share all of the crackers in the box. They each get 0 crackers. How many crackers were in the box?

   0 crackers

8. Eli checks out some books from the library. He reads 1 book per day. How many days will it take Eli to read all his books?

   Sample answer: If Eli checks out 8 books and reads 1 book per day, it will take him 8 days to read all 8 books.

9. Carter starts playing a new game. He completes 0 levels per day for a week. How many levels will Carter complete by the end of the week? **Sample answer: 0 levels per day × 7 days = 0 levels. Carter completes 0 levels in a week.**

10. Mr. Mustafa buys 1 jersey for each player on his daughter's team. There are 9 players. How can you write an equation to find the number of jerseys he buys?

    Sample answer: 9 × 1 = 9; 9 jerseys

11. There are 3 bins. Each bin has 1 book. How can you write an equation to show the number of books there are?

    Sample answer: 3 × 1 = 3; 3 books

Outcome: Use patterns to multiply by 1 and 0

12. Which equations are true? Circle all that are correct.

A. $6 \times 0 = 6$

B. $8 \times 1 = 2 \times 4$

C. $0 \times 3 = 9 \times 0$

D. $1 \times 10 = 5 \times 1$

13. Error Analysis Elijah says that multiplying 4 by 0 is like adding 0 to 4. His work is shown. Do you agree? Explain.

$$4 + 0 = 4$$
$$4 \times 0 = 4$$

**No. Sample answer: When you multiply by 0, the product is always 0.**

14. Extend Your Thinking Does the equation $1 \times 0 = ?$ follow the pattern of multiples of 0, multiples of 1, or both? Justify your reasoning.

Sample answer: Both; $1 \times 0 = 0$; The product of 0 and any factor is 0. The product of 1 and any factor is the other factor, which is 0 in this equation.

1. How can you use the representation to decompose 7?

$4 \times 7 = 4 \times \underline{5} + 4 \times \underline{2}$

$4 \times 7 = \underline{20} + \underline{8}$

$4 \times 7 = \underline{28}$
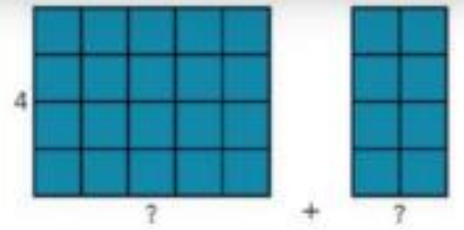
2. How can you decompose 9×6?

$9 \times 6 = \underline{5} \times \underline{6} + \underline{4} \times \underline{6}$

$9 \times 6 = \underline{30} + \underline{24}$

$9 \times 6 = \underline{54}$

What number makes the equation true?

3. $? \times 7 = 3 \times 7 + 3 \times 7$

$? = \underline{6}$

4. $7 \times ? = 5 \times 8 + 2 \times 8$

$? = \underline{8}$

5. $1 \times 9 + 5 \times 9 = 9 \times ?$

$\underline{6} = ?$

6. $6 \times 2 + 6 \times 2 = 6 \times ?$

$\underline{4} = ?$

Outcome: Understanding the distributive property

Outcome: Understanding the distributive property

How can you decompose one of the factors to find the product?
Sample answers shown.

7. $8 \times 6 = \underline{4} \times \underline{6} + \underline{4} \times \underline{6}$

$8 \times 6 = \underline{24} + \underline{24}$

$8 \times 6 = \underline{48}$

8. $9 \times 7 = \underline{5} \times \underline{7} + \underline{4} \times \underline{7}$

$9 \times 7 = \underline{35} + \underline{28}$

$9 \times 7 = \underline{63}$

9. $9 \times 8 = \underline{9} \times \underline{4} + \underline{9} \times \underline{4}$

$9 \times 8 = \underline{36} + \underline{36}$

$9 \times 8 = \underline{72}$

10. $8 \times 4 = \underline{8} \times \underline{2} + \underline{8} \times \underline{2}$

$8 \times 4 = \underline{16} + \underline{16}$

$8 \times 4 = \underline{32}$

11. **STEM Connection** Some nurses work 8 hours each day for 7 days. How many hours do some nurses work in 7 days? Explain your strategy.
56 hours; Sample answer: I decomposed 8 into two 4s. Then I doubled the product of 4 × 7 to get 56.

12. **Extend Your Thinking** If you decompose a factor in a multiplication equation in different ways to multiply, will the product always be the same? Explain. **Yes. Sample answer: I know this is true because if you represent the equation with an array, the total number in the array does not change no matter how you decompose it.**

How can you use the 2s fact to find the unknown?

1. $8 \times 2 = 16$ $4 \times 8 = \underline{32}$

2. $2 \times 3 = 6$ $4 \times \underline{3} = 12$

How can you decompose to solve the problem? Show your thinking.

3. $2 \times 9 = 18$ $9 \times 4 = \underline{36}$

6. Mrs. Turner uses 9 eggs every week to make breakfast for her family. How many eggs does she use in 4 weeks?

   Sample answer: $2 \times 9 + 2 \times 9 = 36$

4. $5 \times 2 = 10$ $5 \times \underline{4} = 20$

   36 eggs

5. $6 \times 2 = 12$ $6 \times 4 = \underline{24}$

7. Tyler made 4 friendship bracelets for each of his friends. How many bracelets did he make if he has 8 friends?

   Sample answer: $2 \times 8 = 16$; $16 + 16 = 32$

   32 bracelets

8. Luis babysits for 4 hours. He makes $6 per hour. How much does he make in all?

   Sample answer: $6 \times 2 + 6 \times 2 = 24$

   $24

Outcome: Use properties to multiply by 4

9. **Error Analysis** Zara found the product of 4 × 7.
   She followed these steps.

   - First, she found the product of 2 × 7, which is 14.
   - Then, she added 14 + 14 = 28.

   Zara says that 4 × 7 = 28. Do you agree or disagree? Explain.

   Agree; Sample answer: I agree because when you double a 2s fact, you get the product of a 4s fact.

10. What completes the equation?

    3 × 4 = __12__   28 = __7__ × 4

    4 × __10__ = 10 × 4   5 × __4__ = 20

    4 = 4 × __1__   6 × 4 = __4__ × 6

    16 = 4 × __4__   __36__ = 4 × 9

11. Which is equal to 9 × 4?

    (A.) 9 × 2 + 9 × 2   **B.** 9 × 4 + 9 × 1

    C. 5 × 2 + 4 × 2   **D.** 2 × 4 + 2 × 4

12. **Extend Your Thinking** How can you use properties to find
    the products of 4 × 2, 4 × 6, and 4 × 0? Explain.

    Sample answer: I know that 2 × 4 = 8 so 4 × 2 also equals 8. I can decompose 4 × 6 into two 2s facts and double the product to find 24. I know any number multiplied by 0 equals 0 so 4 × 0 = 0.

Outcome: Represent 4-digit numbers

Learn

What are some ways to represent this number?

2,138 fish

You can use a place-value chart.

thousands	hundreds	tens	ones
2	1	3	8

You can use base-ten blocks.

2 cubes   1 flat   3 rods   8 units
2,000   100   30   8
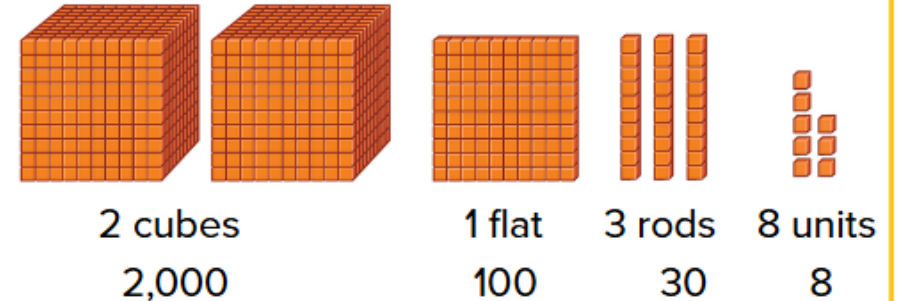
You can read and write the number in different forms.

standard form   2,138

expanded form   2,000 + 100 + 30 + 8

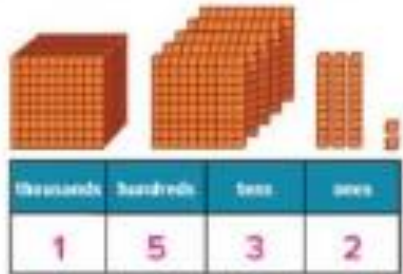**word form**   two thousand, one hundred thirty-eight

4-digit numbers have thousands, hundreds, tens, and ones.

Math is... **Generalizations**

How is representing 4-digit numbers the same as representing 3-digit numbers?

Outcome: Represent 4-digit numbers

What number is represented by the base-ten blocks?

1.

thousands	hundreds	tens	ones
1	5	3	2

2.

thousands	hundreds	tens	ones
1	0	9	8
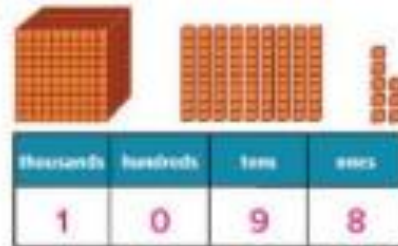
How can you represent the number in the place-value chart and in expanded form?

3. 2,446

thousands	hundreds	tens	ones
2	4	4	6

$2,000 + 400 + 40 + 6$

4. 4,729

thousands	hundreds	tens	ones
4	7	2	9

$4,000 + 700 + 20 + 9$

How can you represent the number shown in standard form and expanded form?

5. three thousand, one hundred twelve

  3,112 $3,000 + 100 + 10 + 2$

6. six thousand, eighty-seven

  6,087 $6,000 + 80 + 7$

7. seven thousand, two hundred twenty-four

  7,224 $7,000 + 200 + 20 + 4$

Outcome: Represent 4-digit numbers

How can you represent the number shown in standard form and expanded form?

8.

_____1,553_____   1,000 + 500 + 50 + 3

How can you represent the number in standard form?

9. 8,000 + 500 + 2   10. 9,000 + 50 + 2

_____8,502_____   _____9,052_____

11. **STEM Connection** 1,455 customers visited Saffron's pastry shop this month. Last month 1,355 customers came to the shop. Explain how she can use place value to determine the difference in the number of customers.

Sample answer: There were 100 more customers this month because the digit in the hundreds place increased by 1.

12. **Extend Your Thinking** Use the digits shown to write a number with the least possible value. Write the number in standard form, expanded form, and word form.

                    3   8   8   2

_____2,388_____   2,000 + 300 + 80 + 8

_____two thousand, three hundred eighty-eight_____

Outcome: Estimate Sums and differences

What is a reasonable estimate of the sum or difference?
Write or draw to show your thinking.

1. $423 + 168 = ?$

   Sample answer:
   $423 \rightarrow 420; 168 \rightarrow 170;$
   $420 + 170 = 590$

2. $? = 695 - 205$

   Sample answer:
   $695 \rightarrow 700; 205 \rightarrow 200;$
   $700 - 200 = 500$

3. $? = 317 + 248$

   Sample answer:
   $317 \rightarrow 320; 248 \rightarrow 250;$
   $320 + 250 = 570$

4. $473 + 218 = ?$

   Sample answer:
   $473 \rightarrow 500; 218 \rightarrow 200;$
   $500 + 200 = 700$

5. $798 - 307 = ?$

   Sample answer:
   $798 \rightarrow 800; 307 \rightarrow 300;$
   $800 - 300 = 500$

6. $? = 835 - 466$

   Sample answer:
   $835 \rightarrow 800; 466 \rightarrow 500;$
   $800 - 500 = 300$

7. How can you use rounding to estimate the sum of $389 + 223$?

   Sample answer: I can round 389 to 400 and 223 to 200. $400 + 200 = 600$.

8. A complete set of baseball cards has 678 cards. Julio needs 273 more cards to complete his set. How can you use rounding to find about how many cards are in Julio's collection?

   Sample answer: I can round 678 to 680 and 273 to 270, and then subtract 270 from 680.

Outcome: Estimate Sums and differences

9. The Comic Book Shack displays 318 comic books near the front door and keeps 502 comic books in the storage room. How can you use compatible numbers to find about how many comic books are in the store?

   Sample answer: I can change 318 to 320 and 502 to 500 to make a new ten, and then add.

10. **STEM Connection** Saffron's bakery needs to decorate 355 cupcakes for an event. It has decorated 223 so far. How can she determine about how many more cupcakes they need to decorate?

    Sample answer: She can round 355 to 360, 223 to 220, and then subtract. They need to decorate about 140 more cupcakes.

11. Melinda estimates she traveled 830 miles last Monday and Tuesday. She traveled 412 miles on Tuesday. About how many miles could she have traveled on Monday?

    Sample answer: about 420 miles

12. **Extend Your Thinking** Jason has 744 flyers to deliver. If he has delivered 62 flyers at each of his last 2 stops, about how many flyers does he have left to deliver?

    Sample answer: about 620 flyers

Outcome: Understand equal grouping

How can you draw a representation and answer
the question? **See students' drawings.**

1. 6 dogs
   2 dogs at each water bowl
   How many water bowls? **3**

2. 8 balloons
   2 balloons for each child
   How many children? **4**

3. 10 plates
   5 plates on each table
   How many tables? **2**

4. 12 beads
   4 beads for each bracelet
   How many bracelets? **3**

Which division equation describes the representation?

5.
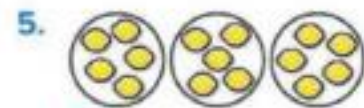
A. $15 \div 3 = 5$
B. $15 = 3 \div 3$
C. $15 \div 5 = 5$
D. $12 \div 5 = 5$

6.

A. $12 \div 4 = 4$
B. $12 = 3 \div 4$
C. $12 \div 5 = 4$
D. $12 \div 3 = 4$

How can you write and solve an equation for the situation?

7. 8 students divided into
   4 groups

   $8 \div 4 = 2$

8. 10 players divided into
   2 teams

   $10 \div 2 = 5$

Outcome: Relate multiplication and division

How can you draw an array to represent the situation?

1. 4 groups of 2 = 8
   8 divided by 4 = 2

   an array with 4 rows of 2 objects

2. $2 \times 8 = 16$
   $16 \div 2 = 8$

   an array with 2 rows of 8 objects

How can you draw an equal group to represent the situation?

3. 4 groups of 3 = 12
   12 divided by 4 = 3

   a drawing of 4 groups with 3 objects in each group

4. $3 \times 5 = 15$
   $15 \div 3 = 5$

   a drawing of 3 groups with 5 objects in each group

How can you write a division equation for the representation?

5.

   $2 \times 5 = 10$
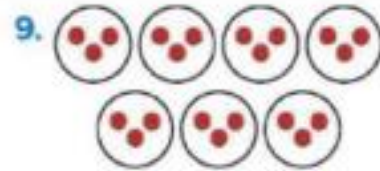
   10 ÷ 2 = 5

6.

   $3 \times 6 = 18$

   18 ÷ 3 = 6

7. Jason says that because he knows 6 × 2 = 12, he also knows a related division equation. Explain why you agree or disagree. **Sample answer: I agree because division is related to multiplication. 12 ÷ 6 = 2 is related to 6 × 2 = 12 and 2 × 6 = 12.**

Outcome: Relate multiplication and division

8.

$5 \times 4 = 20$

$20 \div 5 = 4$

9.

$7 \times 3 = 21$

$21 \div 7 = 3$

10. **STEM Connection** Finn has 245 days to complete 3 parts of a construction project. He wants to spend the same number of days on each part. How can you write a multiplication and a division equation to represent the problem? Use a ? for the unknown.

$245 \div 3 = ?; 3 \times ? = 245$

11. How can 9 pairs of shoes represent a multiplication and a division equation? **Sample answer: 9 pairs of shoes show 9 equal groups of 2, or 9 × 2 = 18. 18 shoes divided into 9 groups of 2 is 18 ÷ 9 = 2.**

12. **Extend Your Thinking** Mr. Mack gives 3 pencils to each of his students. He had 24 pencils. How can you use the multiplication equation 8 × 3 = 24 to find how many students he has in class? **Sample answer: 8 × 3 = 24 is related to 24 ÷ 8 = 3 because both equations describe 8 groups of 3.**

Outcome: multiply by 0, 1, 2, 5, and 10

How can you use what you know about multiplication to answer the question?

1. Multiples of __2__ and __10__ are always even.

2. Multiples of __10__ always have a 0 in the ones place.

3. The product of any number and __1__ is itself.

4. The product of any number and __0__ is always 0.

_____

How can you complete the equation?

5. $5 \times 3 = $ __15__

6. $2 \times 7 = $ __14__

7. __0__ $\times 8 = 0$

8. __40__ $= 10 \times 4$

9. __30__ $= 5 \times 6$

10. $9 \times$ __1__ $= 9$

11. Felix has fewer than 10 nickels in his piggy bank. How many cents might he have? Explain how you know. **Sample answer: Felix could have up to 9 nickels, so he could have 5, 10, 15, 20, 25, 30, 35, 40, or 45 cents.**

12. The Lee family buys pairs of mittens for their vacation. Can the Lee family buy 17 mittens in all? Explain. **No. Sample answer: The total number of mittens must be even. 2 mittens are in a pair, and multiples of 2 are even.**

Outcome: Solve Problems Involving Equal Groups

How can you write a multiplication and division equation for the problem? Write a ? for the unknown.

1. Eight friends share 40 apple slices. If each friend receives the same amount of apple slices, how many does each person receive?

   $8 \times ? = 40$ and $40 \div 8 = ?$

2. Bobbie, Wendy, and Winston spent a total of $21 to go to the movies. If it cost each person the same amount, how much did each person spend?

   $3 \times ? = 21$ and $21 \div 3 = ?$

3. Jermaine ran 56 minutes over seven days. If he ran the same amount of time each day, how many minutes did he run each day?

   $7 \times ? = 56$ and $56 \div 7 = ?$

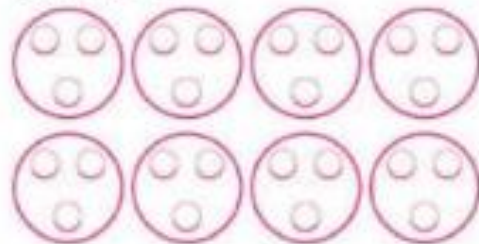4. June earns $25 for working five hours. If she earns the same amount each hour, how much does she get paid per hour?

   $5 \times ? = 25$ and $25 \div 5 = ?$

How can you draw a representation for the set of equations?

5. $6 \times ? = 18$
   $18 \div 6 = ?$

6. $8 \times ? = 24$
   $24 \div 8 = ?$

7. $9 \times ? = 36$
   $36 \div 9 = ?$

8. $3 \times ? = 21$
   $21 \div 3 = ?$

Outcome: Solve Problems Involving Equal Groups

9. Sam bought tickets to the county fair. How much did each ticket cost if each costs the same amount? **$6**

Total
$36

Item:
6 adult tickets

10. Carlos spends 35 minutes on homework. He spends the same amount of time on each of his 5 assignments. How long does he spend on each assignment? **7 minutes**

11. **STEM Connection** It takes Grace 24 hours to write a computer program for 4 robots. If each program takes the same amount of time to write, how long does it take Grace to write one program? Explain.

6 hours; Sample answer: 24 hours divided into 4 equal groups is 6 hours in each group. 24 ÷ 4 = 6

12. **Extend Your Thinking** Describe a situation that could be represented by the equations 4 × ? = 12 and 12 ÷ 4 = ?. Then solve.

Sample answer: There are 12 seats on the roller coaster. There are 4 rows of the same number of seats. How many seats are in each row? 4 × 3 = 12 and 12 ÷ 4 = 3

Outcome: Use Properties to Multiply by 8

Learn

A gardener plants 8 rows of 6 sunflowers.

How can you find the total number of sunflowers he planted?
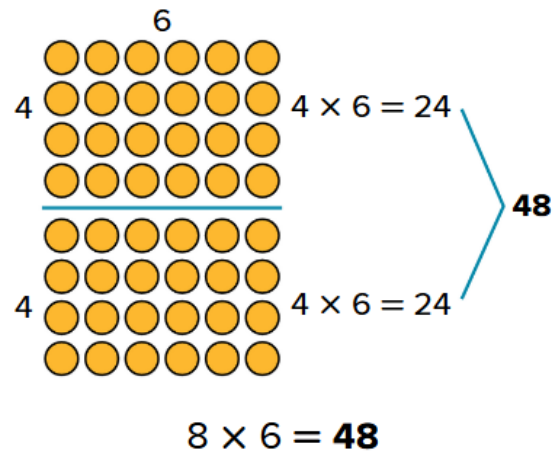
You can decompose 8s facts in different ways.

Double the product of a 4s fact to find a product of 8.
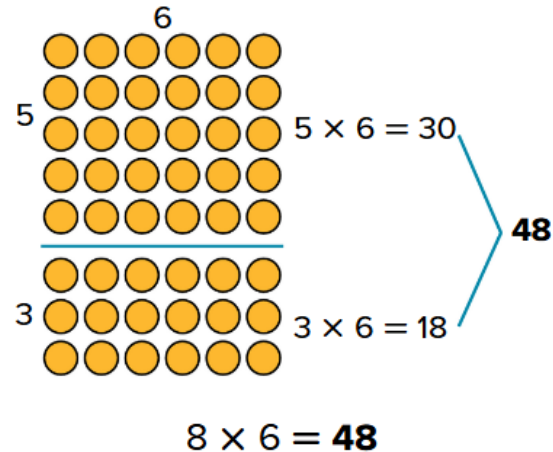
You can use a 5s fact to recall an 8s fact.

Math is... **Structure**

How can you explain why the product of an 8s fact is always double the product of a 4s fact?

You can double the product of 4 × 6 to determine the product of 8 × 6.

6

4   4 × 6 = 24

4   4 × 6 = 24

48

8 × 6 = **48**

You can use a 5s fact and a 3s fact to determine the product of 8 × 6.

6

5   5 × 6 = 30

3   3 × 6 = 18

48

8 × 6 = **48**

What multiplication facts can help you find the product of 7 × 8, and how can you use them?

Outcome: Use Properties to Multiply by 8

1. The array represents 3 × 4. How can you use it to find the product of 3 × 8? Draw to show your work.

⭐ ⭐ ⭐ ⭐   **See students' drawings.**

⭐ ⭐ ⭐ ⭐

⭐ ⭐ ⭐ ⭐

3 × 8 = __24__

2. Jonathan placed cubes in 8 rows, with 6 cubes in each row. How can you decompose a factor to find the number of cubes he placed?
Sample answer: 4 × 6 = 24; 24 + 24 = 48

48 cubes

3. How can you find the products of 1 × 8 and 8 × 1 without decomposing?
Sample answer: I can use properties of multiplication. Any number multiplied by 1 is itself and the order of the factors does not change the product so both products equal 8.

How can you use 2s and 4s facts to complete 8s facts?

4. 2 × 3 = __6__   4 × 3 = __12__   8 × 3 = __24__

5. 2 × 4 = __8__   4 × 4 = __16__   8 × 4 = __32__

6. 2 × 5 = __10__   4 × 5 = __20__   8 × 5 = __40__

Outcome: Use Properties to Multiply by 8

7. Complete each step to find the product of 8×9 using a 5s fact and a 3s fact.

   $5 \times 9 = \underline{\ 45\ }$

   $\underline{\ 3\ } \times 9 = 27$

   $27 + \underline{\ 45\ } = \underline{\ 72\ }$

   $8 \times 9 = \underline{\ 72\ }$

8. **Error Analysis** Tobias says that he can find the product of 4×8 by decomposing either of the factors into equal parts. Do you agree or disagree? Explain.

   Agree. Sample answer: He can decompose 4 into 2 and 2 or 8 into 4 and 4.

How can you complete the equation?

9. $\underline{\ 24\ } = 3 \times 8$

10. $7 \times 8 = \underline{\ 56\ }$

11. $6 \times 8 = \underline{\ 48\ }$

12. $\underline{\ 80\ } = 10 \times 8$

13. $8 \times 4 = \underline{\ 32\ }$

14. $8 \times 8 = \underline{\ 64\ }$