Math At-Home Practice

4th Grade

*The following can be completed by students to review and practice at home.
Divide with remainders.

1. \(5)29\) 
2. \(8)34\) 
3. \(9)75\)

4. \(2)13\) 
5. \(4)39\) 
6. \(4)30\)

7. \(7)45\) 
8. \(6)38\) 
9. \(5)39\)

10. \(3)25\) 
11. \(4)31\) 
12. \(9)35\)

13. \(4)27\) 
14. \(8)29\) 
15. \(7)22\)

16. \(3)26\) 
17. \(6)37\) 
18. \(8)42\)
Write the number of thousands and the number of hundreds in each number.

1. 4,128
   _______ thousands
   _______ hundreds

2. 8,395
   _______ thousands
   _______ hundreds

3. 612
   _______ thousands
   _______ hundreds

Read and write each number in expanded form.

4. 94
   ___________

5. 752
   ___________

6. 3,576
   ___________

7. 8,109
   ___________

Read and write each number in standard form.

8. 200 + 30 + 7
   ___________

9. 5,000 + 800 + 60
   ___________

10. four hundred sixty-three
    ___________

11. eight thousand, one hundred ten
    ___________

Find the area (in square units) of a rectangle with the given dimensions.

12. 5 × 7
    ___________

13. 20 × 3
    ___________

14. 3 × 8
    ___________

15. 4 × 90
    ___________

16. 4 × 4
    ___________

17. 30 × 6
    ___________

18. Stretch Your Thinking  Three vocabulary terms for division are shown in the division model. Use these terms to complete the multiplication sentence.

   quotient
   divisor ÷ dividend

   _______ × _______ = _______
Solve. Use the Place Value Sections Method for division.

Charlie has 944 baseball cards in his collection. He places the cards in an album with exactly 4 cards on each page. How many pages does Charlie fill in his baseball card album? 236 pages

\[
\begin{array}{c}
4 & 944 \\
-800 & -120 \\
144 & 24 \\
200 & 30 & 6 \\
\end{array}
\]

1. A hardware store has 834 planks of wood to deliver to 6 building sites. If each site gets the same number of planks, how many planks should each building site get? _________

\[
\begin{array}{c}
\_00 + \_0 + \_ = \_
\end{array}
\]

Solve. Use the Expanded Notation Method for division.

2. A park planner is designing a rectangular butterfly garden. The plan is for the garden to have an area of 1,917 square feet. If the garden is 9 feet wide, how long is it? ________

3. A family drives 1,498 miles from Boston, Massachusetts to Miami, Florida. If they drive the same number of miles each day for 7 days, how many miles will they drive each day? ________
Remembering

Round each number to the nearest hundred.

1. 591
2. 827
3. 457

Round each number to the nearest thousand.

4. 7,129
5. 6,742
6. 1,028

Draw a rectangle. Find the tens product, the ones product, and the total product.

7. $4 \times 29$
8. $8 \times 36$

Divide with remainders.

9. $7 \overline{)38}$
10. $4 \overline{)29}$
11. $3 \overline{)14}$

12. **Stretch Your Thinking** Divide 594 by 3 using the Place Value Sections Method and Expanded Notation Method. Explain how you can check your answer using multiplication.

\[
\begin{array}{c|c|c|c}
\_00 & + & \_0 & + & \_0 & = & \_ \_ \_ \\
3 & 594 & & & & & 3 \overline{)594} \\
\end{array}
\]
Solve. Use the Place Value Sections and the Expanded Notation Methods for division.

1. \[ \underline{0} + \underline{=} = \underline{1} \]
   \[
   \begin{array}{c}
   6 \end{array}
   \ 
   \[
   \begin{array}{c}
   5 \ 6 \ 4
   \end{array}
   \]

2. \[ \underline{0} + \underline{=} = \underline{1} \]
   \[
   \begin{array}{c}
   7 \end{array}
   \ 
   \[
   \begin{array}{c}
   2 \ 4 \ 5
   \end{array}
   \]

3. \[ \underline{000} + \underline{00} + \underline{0} + \underline{=} = \underline{1} \]
   \[
   \begin{array}{c}
   5 \end{array}
   \ 
   \[
   \begin{array}{c}
   9 \ 6 \ 7 \ 5
   \end{array}
   \]

4. \[ \underline{000} + \underline{00} + \underline{0} + \underline{=} = \underline{1} \]
   \[
   \begin{array}{c}
   4 \end{array}
   \ 
   \[
   \begin{array}{c}
   9 \ 5 \ 3 \ 6
   \end{array}
   \]
Read and write each number in word form.

1. 73,894

2. 220,508

3. 1,000,000

4. 915,007

Estimate each product. Solve to check your estimate.

5. \(6 \times 42\)

6. \(3 \times 19\)

7. \(5 \times 78\)

Solve. Use the Place Value Sections Method and the Expanded Notation Method for division.

8. A ball pit at an entertainment center contains 2,120 balls. The balls are cleaned regularly by a machine which can hold a certain number of balls at once. If the machine must be run 8 times to clean all the balls, how many balls fit in the machine at one time?

\[8 \div 2,120\]

\[
\begin{array}{c}
8 \\
2,120
\end{array}
\]

9. Stretch Your Thinking How many digits will be in the quotient of 588 divided by 6? Use place value to explain.
Divide.

1. \(6 \div 2,142\)  
2. \(4 \div 886\)  
3. \(8 \div 576\)

4. \(5 \div 8,265\)  
5. \(3 \div 795\)  
6. \(9 \div 2,664\)

7. \(6 \div 259\)  
8. \(7 \div 952\)  
9. \(3 \div 7,459\)

Solve.  

10. For the school field day, students are divided into 5 same-size teams. Any extra students will serve as substitutes. If 243 students participate, how many students will be on each team? How many substitutes will there be?

11. A fruit stand sells packages containing 1 peach, 1 pear, 1 apple, 1 banana, and 1 mango each. One week they sold a total of 395 pieces of fruit. How many packages did they sell?
Remembering

Compare using >, <, or =.
1. 258,800 258,700
2. 142,367 342,367

Use the Algebraic Notation Method to solve the problem.
Complete the steps.
3. 7 ÷ 28 _____

Solve. Use the Place Value Sections and the Expanded Notation Methods for division.
4. _____00 + ___0 + ___ = _____
   
   4)1,036
   
   4
   1,036
   
   5. Stretch Your Thinking Jenna divides 2,506 by 4. Explain the error in Jenna’s solution. Then show the correct solution.

   604
   4)2,506
   - 2 4
   
   1
   - 0
   16
   - 16
   0
Use any method to solve.

1. \(5)\overline{652}\)
2. \(4)\overline{940}\)
3. \(6)\overline{840}\)
4. \(7)\overline{942}\)

5. \(5)\overline{6,502}\)
6. \(6)\overline{8,370}\)
7. \(4)\overline{5,267}\)
8. \(8)\overline{9,161}\)

Solve.

9. Joe had 145 peanuts in a bag. He fed all of the peanuts to the 5 squirrels that he saw. If each squirrel got the same number of peanuts, how many peanuts did each squirrel get?

10. There were 1,148 students at Jefferson High School who wanted to go on a field trip. Since they could not all go at the same time, they went in 7 equal groups. How many students were in each group?

11. A printing company has 1,080 ink cartridges to be packed in 9 shipping boxes. If each box holds the same number of cartridges, how many ink cartridges will be packed in each box?
The table shows the water surface area of each of the Great Lakes. Use the data in the table to answer the following questions.

1. What is the combined surface area of the two Great Lakes with the greatest surface area?

2. Which is greater, the surface area of Lake Michigan or the sum of the surface areas of Lake Erie and Lake Ontario?

<table>
<thead>
<tr>
<th>Lake</th>
<th>Surface Area (square kilometers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erie</td>
<td>25,655</td>
</tr>
<tr>
<td>Huron</td>
<td>59,565</td>
</tr>
<tr>
<td>Michigan</td>
<td>57,753</td>
</tr>
<tr>
<td>Ontario</td>
<td>19,009</td>
</tr>
<tr>
<td>Superior</td>
<td>82,097</td>
</tr>
</tbody>
</table>

Use any method to solve. Sketch a rectangle model, if you need to.

3. $4 \times 39$
4. $3 \times 71$
5. $7 \times 62$

Divide. Show your work.

6. $5 \div 1,985$
7. $6 \div 253$
8. $7 \div 1,477$

Solve.

1. \(3 \div 21\)  \(3 \div 22\)  \(3 \div 23\)  \(3 \div 24\)  \(3 \div 25\)

2. \(7 \div 21\)  \(7 \div 22\)  \(7 \div 23\)  \(7 \div 24\)  \(7 \div 25\)

3. Describe how the repeating pattern in row 1 is different from the pattern in row 2. Explain why.

   

   

Use any method to solve.

4. \(9 \div 2,359\)

5. \(2 \div 5,389\)

6. \(4 \div 1,648\)

7. \(5 \div 1,456\)

8. \(8 \div 2,506\)

9. \(6 \div 8,473\)

Solve.

10. Mr. James arranged his collection of 861 baseball cards in 7 equal rows. How many cards were in each row?

   

11. A shoe company has 9,728 pairs of shoes to be divided equally among 8 stores. How many pairs of shoes will each store get?
Write a number sentence that shows an estimate of each answer. Then write the exact answer.

1. \(413 + 382\) ____________________________
2. \(880 + 394\) ____________________________
3. \(7,056 + 798\) ____________________________

Sketch rectangles and solve by any method that relates to your sketch.

4. \(8 \times 415\) _________  
5. \(6 \times 853\) _________

Use any method to solve.

6. \(7 \div 325\)  
7. \(5 \div 7,390\)  
8. \(6 \div 9,329\)

9. **Stretch Your Thinking** Toby is choosing from two bead art projects. Project A uses equal numbers of red, black, and green beads totaling 825 beads. Project B uses equal numbers of black, blue, green, and yellow beads totaling 1,020 beads. Toby has 260 green beads and doesn’t want to purchase more green beads. Explain which of the two bead projects Toby should choose.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Solve.

1. 4)\underline{21}  4)\underline{22}  4)\underline{23}  4)\underline{24}  4)\underline{25}

2. 6)\underline{21}  6)\underline{22}  6)\underline{23}  6)\underline{24}  6)\underline{25}

3. Describe how the repeating pattern in row 1 is
different from the pattern in row 2. Explain why.

Use any method to solve.

4. 8)\underline{6,726}  5. 7)\underline{9,259}  6. 3)\underline{1,504}  7. 2)\underline{8,037}

8. 9)\underline{3,385}  9. 5)\underline{2,347}  10. 6)\underline{9,003}  11. 4)\underline{8,360}

Solve.

12. Altogether, the members of an exercise club drink
840 bottles of water each month. Each member drinks
8 bottles. How many members are there?

13. There are 7,623 pencils ready to be packaged in boxes
at a factory. Each box holds 6 pencils. How many full
boxes of pencils can be packaged?
Remembering

Subtract. Show your new groups.

1. \[ \begin{array}{c}
5,267 \\
- 1,390 \\
\hline
\end{array} \]

2. \[ \begin{array}{c}
9,000 \\
- 2,482 \\
\hline
\end{array} \]

3. \[ \begin{array}{c}
6,129 \\
- 5,773 \\
\hline
\end{array} \]

Cross out the additional numerical information and solve. Show your work.

4. Rick is selling fresh-squeezed lemonade for $2 a serving. Rick makes each serving with 2 lemons and 4 tablespoons of sugar. If he sells 27 servings of lemonade, how much sugar does he use?

5. An animal shelter receives 9 large bags of dog food every month for 14 years. Each bag weighs 55 pounds. How many pounds of dog food does the animal shelter receive each month?

Solve using any method.

6. \[ 3 \overline{\mid 452} \]

7. \[ 8 \overline{\mid 527} \]

8. \[ 4 \overline{\mid 3,693} \]

9. Stretch Your Thinking What is the greatest remainder you could have with the divisor 3? With the divisor 8? With the divisor 5? Explain.
Solve by any method on a separate sheet of paper. Then check your answer by rounding and estimating.

1. 3)246
2. 6)75
3. 7)60

4. 3)256
5. 4)805
6. 5)927

7. 4)325
8. 4)378
9. 6)432

10. 5)1,838
11. 4)2,715
12. 7)3,042

Solve.  
Show your work.

13. The area of Matt’s rectangular bedroom is 96 square feet. If the room is 8 feet wide, how long is it?

14. The fourth-grade students at Lincoln Elementary School are attending an assembly. There are 7 equal rows of seats in the assembly hall. If there are 392 fourth-grade students, how many students will sit in each row?

15. Pablo is packing books into crates. He has 9 crates. Each crate will contain the same number of books. If he has 234 books, how many books can he put into each crate?
Remembering

Add or subtract.

1. \[1,429 + 3,882\]
2. \[28,178 - 13,428\]
3. \[500,000 - 61,835\]

Sketch an area model for each exercise. Then find the product.

4. \[27 \times 59\]
5. \[36 \times 92\]

Solve using any method.

6. \[9)271\]
7. \[6)2,436\]
8. \[4)2,139\]

9. Stretch Your Thinking  Katherine is considering two new cell phone plans. She doesn’t want to spend more for minutes she won’t use. One plan allows up to 250 minutes per month for $49, and the other plan allows up to 350 minutes per month for $65. In the last 6 months, she used 1,470 minutes. Use estimating and an exact answer to determine the best cell phone plan for Katherine.
Solve. Write the remainder as a whole number.

1. \(7 \div 7,012\)  
2. \(9 \div 8,410\)  
3. \(2 \div 7,825\)

4. \(5 \div 3,512\)  
5. \(6 \div 6,618\)  
6. \(8 \div 7,225\)

Solve. Then explain the meaning of the remainder.

7. Principal Clements wants to buy a pencil for each of the 57 fourth-graders in her school. The pencils come in packages of 6. How many packages does Principal Clements need to buy?

8. Tyler has 71 CDs in his collection. He places the CDs in a book that holds 4 CDs on each page. If Tyler fills each page, how many CDs will be on the last page?

9. Amanda and her family are hiking a trail that is 46 miles long. They plan to hike exactly 7 miles each day. How many days will they hike exactly 7 miles?

10. Cesar makes 123 ounces of trail mix. He puts an equal number of ounces in each of 9 bags. How many ounces of trail mix does Cesar have left over?
The table shows the word count for each of five books in a series. Use the table to answer each question. Estimate to check.

1. How many more words are there in Book 2 than in Book 1?

2. What is the difference between the book with the greatest number of words and the book with the least number of words?

<table>
<thead>
<tr>
<th>Book</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82,647</td>
</tr>
<tr>
<td>2</td>
<td>91,313</td>
</tr>
<tr>
<td>3</td>
<td>109,842</td>
</tr>
<tr>
<td>4</td>
<td>73,450</td>
</tr>
<tr>
<td>5</td>
<td>90,216</td>
</tr>
</tbody>
</table>

Solve each multiplication problem using any method. Use rounding and estimation to check your work.

3. \(39 \times 52\)  
4. \(81 \times 76\)  
5. \(18 \times 63\)  
6. \(45 \times 91\)

Solve using any method. Then check your answer by rounding and estimating.

7. \(7 \div 65\)  
8. \(3 \div 289\)  
9. \(8 \div 5,024\)

10. Stretch Your Thinking Write a word problem that is solved by \(43 \div 5 = 8\ R3\), in which the remainder is the only part needed to answer the question.
When the Kent Elementary School fourth-grade classes were studying butterflies, they took a field trip to a butterfly garden.

Use the correct operation or combination of operations to solve each problem.

1. Nine buses of students, teachers, and parents went on the field trip. If 5 of the buses held 63 people each and the other buses held 54 people each, how many people went in all?

2. Some female butterflies lay their eggs in clusters. If one kind of butterfly lays 12 eggs at a time and another kind lays 18 eggs at a time, how many eggs would 8 of each kind of butterfly lay?

3. Teachers divided students into groups of 3. Each group of 3 wrote a report that had 9 pictures in it. The students used 585 pictures altogether. How many students were there in all?

4. Driving to and from the butterfly garden took 45 minutes each way. The students spent 3 hours in the garden and 30 minutes eating lunch. If the groups left the school at 9:00 A.M., what time did they get back?
Add or subtract.

1. \[5,833 - 2,159\]

2. \[49,802 + 15,658\]

3. \[98,139 - 27,345\]

Sketch rectangles and solve by any method that relates to your sketch.

4. \[5 \times 6,294\]

5. \[8 \times 1,375\]

Solve. Then explain the meaning of the remainder.

6. Vince has 138 artist trading cards. He is arranging them in an album that can hold 4 to a page. If Vince fills each page as he goes, how many cards are on the last page?

7. Amber is doing an online math drill program. She has exactly 300 seconds to complete as many problems as she can. If it takes Amber 7 seconds to do each problem, how many problems does she complete?

8. Stretch Your Thinking In the fall, Wesley swam a race in 58 seconds, and Aiden swam it in 54 seconds. In the spring, they swam the same race. Wesley did it in 53 seconds, and Aiden did it in 52 seconds. How much more of an improvement was one boy’s race time over the other boy’s race time? Explain.
Divide.

1. \(5 \div 456\)  
2. \(4 \div 1,247\)  
3. \(7 \div 829\)

4. \(6 \div 2,254\)  
5. \(3 \div 729\)  
6. \(8 \div 658\)

7. \(9 \div 4,437\)  
8. \(5 \div 3,649\)  
9. \(6 \div 875\)

Solve.

10. Sharon has 1,278 beads to make bracelets. She sorts them into 6 different containers so she can have an equal amount of beads in each container. How many beads will Sharon put in each container?

11. Kyle collects baseball cards. He places his cards into an album that has 9 cards on each page. He has a total of 483 baseball cards. He fills each page before putting cards on the next page. How many cards will be on the last page?
Answer each question about the information in the table.

1. What was the total amount donated to the theatre in 2007 and 2009 combined?

2. How much more was donated in 2010 than in 2006?

<table>
<thead>
<tr>
<th>Year</th>
<th>Donations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$26,304</td>
</tr>
<tr>
<td>2007</td>
<td>$28,315</td>
</tr>
<tr>
<td>2008</td>
<td>$63,418</td>
</tr>
<tr>
<td>2009</td>
<td>$53,237</td>
</tr>
<tr>
<td>2010</td>
<td>$86,061</td>
</tr>
</tbody>
</table>

Solve using any method and show your work. Check your work with estimation.

3. $26 \times 6$        4. $932 \times 7$        5. $2,107 \times 8$

Use the correct operation or combination of operations to solve the problem.

6. Selena sold 9 homemade bracelets for $12 each and 14 pairs of earrings for $8 each. How much did she make in sales?

7. Stretch Your Thinking At a skating rink, Emma makes 21 laps at a steady pace during a 5-minute song. She divided $21 \div 5 = 4 R1$ and says that means she did $4 + 1 = 5$ laps each minute. Explain Emma's error.
Homework

Simplify each expression.

1. \(11m - 9m = \)  
2. \(y + 8y = \)  
3. \(13s - s = \)

4. \(d + 2d + d = \)  
5. \((9b - b) - 2b = \)  
6. \(104z + z = \)

7. \(21 - (10 - 5) = \)  
8. \((900 - 100) - 100 = \)  
9. \(90 - (50 - 1) = \)

10. \(18 \div (27 \div 9) = \)  
11. \((63 \div 7) \div 9 = \)  
12. \(40 \div (36 \div 9) = \)

13. \((48 \div 6) \cdot (11 - 9) = \)  
14. \((3 + 17) \div (16 - 12) = \)

15. \((15 + 10) - (50 \div 10) = \)  
16. \((19 + 11) \div (9 - 6) = \)

Evaluate.

17. \(c = 3\)  
    \[4 \cdot (7 - c)\]

18. \(r = 2\)  
    \[(42 \div 7) \cdot (r + 1)\]

19. \(w = 7\)  
    \[(72 \div 9) \cdot w\]

20. \(m = 0\)  
    \[(12 \div 3) \cdot (5 - m)\]

21. \(h = 14\)  
    \[45 \div (h - 5)\]

22. \(p = 19\)  
    \[(p + 1) \div (9 - 4)\]

23. \(v = 6\)  
    \[(18 - 9) + (2 + v)\]

24. \(t = 1\)  
    \[(7 \cdot 2) \div t\]

25. \(g = 10\)  
    \[(g + 90) \div (17 - 13)\]

Solve for \(\square\) or \(n\).

26. \(7 \cdot (3 + 2) = 7 \cdot \square\)
    \[\square = \]

27. \((9 - 1) \cdot 4 = \square \cdot 4\)
    \[\square = \]

28. \(8 \cdot (4 + 5) = \square \cdot 9\)
    \[\square = \]

29. \(6 \cdot (8 - 8) = n\)
    \[n = \]

30. \((12 - 6) \div 3 = n\)
    \[n = \]

31. \((21 \div 7) \cdot (5 + 5) = n\)
    \[n = \]
Remembering

Read and write each number in expanded form.

1. ninety-six thousand, one hundred thirty-seven

2. four hundred thirteen thousand, five hundred twenty-one

3. seven hundred eight thousand, fifty-three

4. six hundred thirty thousand, four hundred seventeen

Find the area (in square units) of a rectangle with the given dimensions.

5. $4 \times 6$

6. $4 \times 60$

7. $5 \times 9$

8. $50 \times 9$

Divide with remainders.

9. $9 \div 28$

10. $3 \div 17$

11. $6 \div 46$

12. $7 \div 54$

13. Stretch Your Thinking Evaluate the expression $(d - 10) + (d \div 3)$ for $d = 21$. Explain each step.

   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
Write $=$ or $\neq$ to make each statement true.

1. $5 + 2 + 6 \bigcirc 6 + 7$
2. $90 \bigcirc 110 - 9$
3. $70 \bigcirc 30 + 30$
4. $70 \bigcirc 95 - 25$
5. $2 + 8 + 10 \bigcirc 30$
6. $27 - 10 \bigcirc 14 + 3$
7. $51 + 99 \bigcirc 150$
8. $35 \bigcirc 100 - 55$
9. $50 \bigcirc 20 + 5 + 20$

10. Write the eight related addition and subtraction equations for the break-apart drawing.

```
48
/ \```
```
42 6```

Write an equation to solve the problem. Draw a model if you need to.

11. There were some people at the arts and crafts fair. Then 347 people went home. Now 498 people are left at the fair. How many people were at the fair to start?

12. A group of scientists spends 3,980 hours observing the behavior of monarch butterflies. They spend some more hours recording their observations. Altogether, the scientists spend 5,726 hours observing the butterflies and recording their observations. How many hours do the scientists spend recording their observations?
Solve.

1. What is 538,152 rounded to the nearest:
   a. hundred? ___________  
   b. thousand? ___________  
   c. ten thousand? ___________  
   d. hundred thousand? ___________

Draw a rectangle model. Find the tens product, the ones product, and the total product.

2. $3 \times 65$  
3. $8 \times 29$

Evaluate each expression.

4. $(12 - 4) \cdot (6 + 3) = $ ___________
5. $(8 \div 2) + (12 - 2) = $ ___________

6. Stretch Your Thinking  There were 381 books sold at a children’s used book fair. At the end of the day, there were still 493 books remaining. Samantha says there were 112 books at the start of the book fair. Explain her error. How many books were there at the start of the book fair?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
1. Write the eight related multiplication and division equations for the rectangle model below.

\[ \begin{array}{c}
15 \\
6 \quad 90 \\
\end{array} \]

\[ \begin{array}{cccc}
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\_ & \_ & \_ & \_ \\
\end{array} \]

Solve each equation.

2. \( r = 200 \div 5 \)
3. \( 12 \times d = 84 \)
4. \( 80 \div 10 = n \)

\( r = _________ \)
\( d = _________ \)
\( n = _________ \)

5. \( 120 = 10 \times m \)
6. \( 88 = 8 \times c \)
7. \( 100 \div q = 20 \)

\( m = _________ \)
\( c = _________ \)
\( q = _________ \)

Write an equation to solve the problem. Draw a model if you need to.

8. Lucy bought some shrubs to plant in her garden. Each shrub cost $9. If Lucy spent $216 in all, how many shrubs did she buy?

\[ \text{Show your work.} \]

9. Jeremiah has 592 flyers in stacks of 8 flyers each. How many stacks of flyers did Jeremiah make?

\[ \text{Show your work.} \]

10. The apples from an average-sized tree will fill 20 baskets. If an orchard has 17 average-sized trees, how many baskets of apples can it produce?

\[ \text{Show your work.} \]
Remembering

Use the Algebraic Notation Method to solve the problem. Complete the steps.

1. \(5 \cdot 68\) ____________

\[
68 = \_ + \_ \\
\_ \\
\]

\[
5 \cdot 68 = \_ \cdot (\_ + \_) \\
= 300 + 40 \\
= 340
\]

Solve. Use the Place Value Sections and the Expanded Notation Methods for division.

2. \(\_0 + \_ = \)

\[
3 \underline{234}
\]

3. \(\_0 + \_ = \)

\[
9 \underline{468}
\]

Write = or \(\neq\) to make each statement true.

4. \(40 + 40\) \(\bigcirc\) 90 
5. \(12 - 4\) \(\bigcirc\) 12 + 4 
6. \(4 + 7\) \(\bigcirc\) 4 + 2 + 5

7. \(26\) \(\bigcirc\) 30 - 4 
8. \(8 + 10 + 2\) \(\bigcirc\) 20 
9. \(85 - 25\) \(\bigcirc\) 65

10. Stretch Your Thinking Write a word problem about puzzle pieces using the equation \(9 \times p = 450\). Then solve the equation.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Use the shapes to answer Exercises 1–4.

1. How many squares? How many triangles?
   Use multiplication to find the answers.

2. Because $4 \times _____ = 12$, there are _____ times as many squares as triangles.

3. Write a multiplication equation that compares the number of squares $s$ to the number of triangles $t$.

4. Write a division equation that compares the number of triangles $t$ to the number of squares $s$.

Solve each comparison problem.

5. Stephen and Rocco were playing a video game. Stephen scored 2,500 points which is 5 times as many points as Rocco scored. How many points did Rocco score?

6. Nick’s dog weighs 72 pounds. Elizabeth’s cat weighs 9 pounds. How many times as many pounds does Nick’s dog weigh as Elizabeth’s cat weighs?
Remembering

Solve using any numerical method. Use rounding and estimating to see if your answer makes sense.

1. \[71 \times 4\]  
2. \[36 \times 5\]  
3. \[94 \times 8\]  
4. \[77 \times 6\]  

Divide.

5. \[6 \overline{)89}\]  
6. \[5 \overline{)485}\]  
7. \[4 \overline{)743}\]  

Solve each equation.

8. \[9 \times n = 108\]  
9. \[40 \div t = 10\]  
10. \[r = 56 \div 7\]  
\[n = \underline{\hspace{2cm}}\]  \[t = \underline{\hspace{2cm}}\]  \[r = \underline{\hspace{2cm}}\]  

11. Stretch Your Thinking Write and solve a word problem to match the comparison bars shown below.

   Grandfather  
   \[8\]  

   Grandmother  
   \[8 \quad 8 \quad 8\]  
   \[m\]
Write and solve an equation to solve each problem. Draw comparison bars when needed.

1. This year, a business had profits of $8,040. This is 4 times as great as the profits that the business had last year. What were last year’s profits?

2. In July, 74,371 people visited an art museum. In August 95,595 people visited the art museum. How many fewer people visited the art museum in July than in August?

3. Drake has 36 animal stickers. Brenda has 9 animal stickers. How many times as many animal stickers does Drake have as Brenda has?

4. A game is being watched by 60 adults and some children. If there are 20 more adults than children, how many children are watching the game?

5. During the first lunch period, 54 students ate hot lunch. This is 9 fewer students than ate hot lunch during the second lunch period. How many students ate hot lunch during the second lunch period?

6. The Jenkins Family traveled 750 miles by car during the summer. The Palmer Family traveled 3 times as many miles by car this summer. How many miles did the Palmer Family travel?
Remembering

Copy each exercise, aligning the places correctly. Then add.

1. 11,931 + 3,428  
2. 25,422 + 89,360

Draw a rectangle model. Solve using any method that relates to the model.

3. 3 × 428  
4. 7 × 519

Write and solve an equation to solve the problem. Draw comparison bars if you need to.

5. Virginia sold 84 rolls of wrapping paper this year. She sold 3 times as many rolls of wrapping paper this year as she sold last year. How many rolls of wrapping paper did Virginia sell last year?

6. Stretch Your Thinking There are 1,438 boys and 1,196 girls at a school. How many fewer girls are there than boys?

   Write the comparison question for this problem in a different way. Then write and solve an equation to solve the problem. Draw comparison bars if you need to.
The graph below shows the amount of snow recorded each month last winter. Use the graph for Problems 1–6.

1. During which month was the amount of snow recorded 12 inches greater than the amount of snow recorded in December?

2. How many fewer inches of snow were recorded in March than were recorded in February?

3. The total amount of snow shown in the graph is 4 times as much snow as was recorded during the winter of 2004. How much snow was recorded during the winter of 2004?

4. Write an addition equation and a subtraction equation that compare the number of inches of snow recorded during December ($d$) to the number of inches of snow recorded during March ($m$).

5. Write a multiplication equation and a division equation that compare the number of inches of snow recorded during November ($n$) to the number of inches of snow recorded during January ($j$).

6. On a separate sheet of paper, write a sentence about the graph that contains the words times as much.
Remembering

Sketch an area model for each exercise. Then find the product.

1. \(28 \times 45\)  
2. \(53 \times 96\)

Solve using any method.

3. \(9\overline{506}\)  
4. \(2\overline{538}\)  
5. \(7\overline{8,165}\)

Write and solve an equation to solve each problem. Draw comparison bars when needed.

6. Benjamin received 52 emails at work today. This is 4 times as many emails as he received yesterday. How many emails did Benjamin receive yesterday?

7. There are 327 third-grade students on a field trip at the history museum. There are 423 fourth-grade students on the same field trip. How many fewer third-grade students are there than fourth-grade students on the field trip?

8. Stretch Your Thinking  Look at the graph. Tatiana says there are 4 more dog owners than fish owners in the classroom. Explain Tatiana’s error. Then write an equation that compares the numbers of dog owners and fish owners in the classroom.
Use an equation to solve.

1. The soccer club has 127 members. The baseball club has 97 members. Both clubs will meet to discuss a fundraiser. The members will be seated at tables of 8 members each. How many tables will they use?

2. A hardware store pays $3,500 for 42 lawnmowers. Then the store sells the lawnmowers for $99 each. How much profit does the store make from the lawnmower sales?

3. George buys a set of 224 stamps. He gives 44 stamps to a friend. Then he places the remaining stamps into an album with 5 stamps on each page. How many pages does he fill in his album?

4. Shane and his family go to the movie theater and buy 6 tickets for $12 each. Then they spend a total of $31 for popcorn and drinks. How much did Shane and his family spend for tickets, popcorn and drinks at the movie theater?

5. Last year, 226 people attended the school graduation ceremony. This year, the school expects 125 more people than last year. The school has arranged for a van to transport people from the parking area to the ceremony. Each van holds 9 people. How many trips will the van make?
Solve each multiplication problem, using any method. Use rounding and estimation to check your work.

1. $22 \times 58$  
2. $34 \times 91$  
3. $63 \times 72$  
4. $17 \times 56$

Solve by using any method. Then check your answer by rounding and estimating.

5. $9\overline{39}$  
6. $4\overline{168}$  
7. $5\overline{4204}$

The graph shows the number of points Derek scored during his first five basketball games.

8. Write a multiplication equation and a division equation that compare the number of points Derek scored during Game 1 ($x$) to the number of points Derek scored during Game 4 ($y$).

9. **Stretch Your Thinking** There will be 138 people at a fundraising auction. Each table seats six. An additional 3 tables are needed to display the auction items. What is the minimum number of tables that are needed for the fundraiser? Which equation cannot be used to answer this question? Explain.

$$138 \div (6 + 3) = t \quad (138 \div 6) + 3 = t$$
Use an equation to solve.

1. Rosa and Kate both went shopping. Kate bought a jacket for $45 and boots for $42. Rosa bought jeans for $27, a sweater for $22, and sneakers. They both spent the same exact amount of money. How much were Rosa's sneakers?

2. Kyle works at a bakery on weekends. On Saturday, Kyle needs to make 120 muffins. Each recipe makes 8 muffins and uses 2 cups of flour. On Sunday, he needs to bake a large batch of cookies that uses 6 cups of flour. How many cups of flour will Kyle use to bake the muffins and the cookies?

3. A toy factory made 715 small stuffed bears and packed them in boxes with 5 bears in each box. Then they made 693 large stuffed bears and packed them in boxes with 3 bears in each box. All the boxes of small and large stuffed bears are loaded into a truck for delivery. How many boxes are loaded into the truck?

4. Last summer, Chris went to Europe and bought postcards from the cities he visited. In France, he visited 6 cities and bought 11 postcards in each city. In Italy, he visited 7 cities and bought 9 postcards in each city. In Spain, he visited 10 cities and bought 15 postcards in each city. How many postcards did Chris buy in Europe?

5. Three fourth grade classes went on a field trip to see a play. Each class had 19 students and 2 adults attending. The rows in the playhouse each seat 9 people. How many rows did the fourth grade classes and adults take up at the playhouse?
Remembering

Add or subtract.

1. 9,000 - 5,613

2. 317,492 + 36,057

3. 659,741 - 652,438

Solve. Then explain the meaning of the remainder.

4. Jessica needs to bake 50 muffins. Her baking pan holds 12 muffins. How many rounds of baking will she need to do?

Use an equation to solve.

5. At the fair, Hannah bought her family 5 hot dogs for $3 each and a pitcher of lemonade for $6. How much money did she spend in all?

6. Reggie is keeping 7 of his 31 stuffed animals and splitting the remainder of his collection evenly among his 3 younger sisters. How many stuffed animals does each sister get?

7. Stretch Your Thinking Write a word problem using the equation \((80 + 3 - 15) \div 4 = w\). Then solve the equation to solve the problem.
Solve each problem.

1. $5 \times 7 + 9 = t$

2. $9 \times (1 + 3) = m$

3. $7 - 2 \times 2 = k$

4. $(7 \times 2) + (4 \times 9) = w$

5. $(7 - 2) \times (3 + 2) = r$

6. $8 \times (12 - 7) = v$

7. Whitney and Georgia are at the snack bar buying food for their family. Sandwiches cost $4 each. Salads cost $2 each. How much money will it cost them to buy 5 sandwiches and 7 salads?

8. Lisa put tulips and roses into vases. Each vase has 12 flowers. The red vase has 7 tulips. The blue vase has twice as many roses as the red vase. How many roses are in the blue vase?

9. Pam has 9 bags of apples. Each bag contains 6 apples. There are 3 bags of red apples and 1 bag of green apples. The rest of the bags contain yellow apples. How many more yellow apples are there than red apples?

10. Clay works on a farm. He packaged eggs into containers that hold 1 dozen eggs each. He filled 4 containers with white eggs and 5 containers with brown eggs. How many eggs did Clay collect? Hint: one dozen eggs = 12 eggs
Remembering

Subtract. Show your new groups.
1.  3,146
   -1,960
   ______

2.  7,504
   -2,738
   ______

3.  6,000
   -5,241
   ______

Solve using any method and show your work.
Use estimation to check your work.
4.  23 \times 88

5.  71 \times 49

6.  62 \times 67

7.  15 \times 38

Use an equation to solve.

8. An audio book is made up of 8 CDs. Each of the first 7 CDs is 42 minutes long and the final CD is 26 minutes long. Mark plans to listen to the book the same number of minutes for 8 days. How many minutes each day will Mark listen to the audio book?

9. Stretch Your Thinking A sign shows the price per pound for several bulk food items. Use the information to write a word problem that requires at least 3 steps to solve. Then solve your problem.

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Cost per pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>mixed nuts</td>
<td>$5</td>
</tr>
<tr>
<td>dried fruit</td>
<td>$3</td>
</tr>
<tr>
<td>snack mix</td>
<td>$7</td>
</tr>
<tr>
<td>wild rice</td>
<td>$2</td>
</tr>
<tr>
<td>red lentils</td>
<td>$4</td>
</tr>
</tbody>
</table>
List all the factor pairs for each number.

1. 49
   
2. 71
   
3. 18
   
4. 57
   
Write whether each number is prime or composite.

5. 50
   
6. 29
   
7. 81
   
8. 95
   
9. 19
   
10. 54
   
Tell whether 6 is a factor of each number. Write yes or no.

11. 6
    
12. 80
    
13. 36
    
14. 72
    
Tell whether each number is a multiple of 8. Write yes or no.

15. 64
    
16. 32
    
17. 88
    
18. 18
    
Use the rule to complete the pattern.

19. Rule: skip count by 11
    11, 22, ____, ____, 55, ____, ____, 88, 99

20. Rule: skip count by 9
    9, ____, 27, ____, 45, ____, 63, ____, 81, ____

21. Rule: skip count by 8
    8, 16, 24, ____, ____, ____, ____, 64, 72, ____
Remembering

Draw a rectangle model. Solve using any method that relates to the model.

1. \(8 \times 1,593\)  
2. \(3 \times 6,247\)

Use the correct operation or combination of operations to solve the problem.

3. Melina has 4 sheets of wacky face stickers with 24 stickers on each sheet. Melina cuts each sticker individually from the sheet. She then divides them evenly into 3 piles to give to friends. How many stickers are in each pile?

Solve.

4. \(5 \times 4 + 7 = g\)  
5. \((3 \times 7) + (2 \times 10) = h\)

6. \(16 - (5 \times 3) = m\)  
7. \((9 - 3) \times (2 + 7) = l\)

8. \((12 - 8) + (3 \times 3) = p\)  
9. \((24 \div 4) + 19 = t\)

10. Stretch Your Thinking Use prime or composite to complete the sentence. Then explain your choice.

All even numbers greater than 2 are ____________________.
Use the rule to find the next three terms in the pattern.

1. 2, 6, 18, 54, ...
   Rule: multiply by 3

2. 115, 145, 175, 205, 235, ...
   Rule: add 30

Use the rule to find the first ten terms in the pattern.

3. First term: 12
   Rule: add 25

Make a table to solve.

4. Jay saves $2 in June, $4 in July, $6 in August, and $8 in September. If the pattern continues, how much money will Jay save in December?

Describe the next term of each pattern.

5. 

6. 

UNIT 4 LESSON 11
Remembering

Subtract.

1. \[ 491,562 - 208,723 \]

2. \[ 392,119 - 48,319 \]

Solve.  

3. Sid unpacks 8 cartons of paper clips. Each carton contains 3,500 paper clips. How many paper clips is this altogether?

4. Camille unpacks 102 boxes of red pens and 155 boxes of blue pens. Each box contains 8 pens. How many pens does she unpack altogether?

List all of the factor pairs for each number.

5. 55

6. 14

7. Stretch Your Thinking During the first week of the year, Angelina’s dad gives her $10 and says that he will give her $10 more each week for the rest of the year. At the end of the year, how much money will Angelina receive from her dad? (Hint: 1 year = 52 weeks) Make a table to show the pattern, and explain your answer.
1. Design the blank pot below by drawing a pattern that meets the following conditions.
   - At least three different shapes are used.
   - The pattern begins with a square or a circle.
   - The pattern is repeated at least two times.
   - At least two different colors are used.

![Pot Diagram]

2. Describe your pattern.

   ___________________________
   ___________________________

3. Suppose 184 students from Wilson Middle School complete this page at home. If each student draws 9 shapes on his or her pot, how many shapes in all would be drawn?
Add or subtract.

1. \[ 8,500 - 1,265 = 7,235 \]  
2. \[ 24,187 - 14,856 = 9,331 \]  
3. \[ 683,519 + 292,744 = 976,263 \]  

Solve using any method and show your work. Check your work with estimation.

4. \[ 19 \times 82 = 1,558 \]  
5. \[ 649 \times 3 = 1,947 \]  
6. \[ 2,934 \times 8 = 23,472 \]  

Use the rule to find the next five terms in the pattern.

7. 3, 6, 12, 24, …  
   Rule: multiply by 2

8. 25, 60, 95, 130, …  
   Rule: add 35

Use the rule to find the first ten terms in the pattern.

9. First term: 18  
   Rule: add 12

10. **Stretch Your Thinking** For a cookie exchange, Kaiya bakes 2 pans of 12 chocolate chip cookies each, 3 pans of 16 lemon drops each, and 4 pans of 10 peanut butter cookies each. She is dividing the cookies into 8 tins, with an equal number of each type of cookie in each tin. How many of each type of cookie will be in each tin? How many cookies in all will be in each tin? Explain.
**Fiction Reading Response “Tic-Tac-Toe” Grades 3-5**

Complete one of the activities below in writing and mark it off with an X. The next time you do an activity, mark it with an O. Switch back and forth between X and O until you have a tic tac toe! You may read multiple books to complete your board.

<table>
<thead>
<tr>
<th>If you could meet the author of your book/story, what question would you ask for him/her? Please write three questions.</th>
<th>Compare the main character in this book to the main character in another book you have read. How are they alike/different?</th>
<th>Good readers always visualize the events in a story as they read. Illustrate your favorite part you read. Include details in your illustration. Write at least three sentences explaining why you selected this part.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the genre of your text? Give evidence from the text supporting your answer.</td>
<td>Complete a summary of your story. Make sure you include the setting, main characters, and the problem/solution. Be specific and use evidence from the text.</td>
<td>Think about the sequence of events in your story. Write the events in the order as they occurred using complete sentences.</td>
</tr>
<tr>
<td>What was the author’s purpose for writing this book? Support your answer with evidence from the text.</td>
<td>Create an imaginary Voki for the author telling why he/she wrote this book. Include details from the story. <a href="http://www.Voki.com">www.Voki.com</a></td>
<td>If you were able to meet one of the characters, whom would you choose and what would you talk about? What questions would you have?</td>
</tr>
</tbody>
</table>
Nonfiction Reading Response “Tic-Tac-Toe” Grades 3-5

Complete one of the activities below in writing and mark it off with an X. The next time you do an activity, mark it with an O. Switch back and forth between X and O until you have a tic tac toe! You may read multiple books to complete your board.

<table>
<thead>
<tr>
<th><strong>Interesting Facts</strong></th>
<th><strong>What I learned</strong></th>
<th><strong>Opinion</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Write down the most interesting thing you have learned. Write why it stood out to you. Be sure to use evidence from the text.</td>
<td>Write two new pieces of information that you learned and explain why these were important.</td>
<td>Write an opinion about the text. Did you like it? Tell why or why not. Use evidence from the text to support your opinion.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Main Idea</strong></th>
<th><strong>Vocabulary</strong></th>
<th><strong>Details</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the main idea of the text? Write a 2-4 sentence summary in your own words.</td>
<td>Find 2-3 words that are either new to you or are important to the main idea of the text. Define and draw a quick picture for each word.</td>
<td>Find 3 details that support the main idea of the text. List the details and then give evidence as to why these are important.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Questions</strong></th>
<th><strong>Visual Images</strong></th>
<th><strong>Summary</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Write two questions that you have after reading the text. These questions can be clarifying questions or I wonder questions.</td>
<td>Choose a diagram, map, chart, graph, or image from the text that is important and explain its significance to the text. Or, draw a quick picture about the text and example its significance to the text.</td>
<td>List answers (in complete sentences) to the follow about the text: Who or What, Where, When, Why, How.</td>
</tr>
</tbody>
</table>
The Amazing Potato

Potatoes make up one-third of the total amount of vegetables that Americans consume. In fact, it is estimated that the average American eats an average of 53 kilograms (117 pounds) of potatoes every year! That’s a lot of potatoes!

Vegetables are plant parts, but not the parts that contain seeds people eat for food. These parts include stems, such as celery stalks; roots, such as carrots; and leaves, such as lettuce. Potatoes grow underground, so you may think they are roots. But potatoes are tubers, enlarged stems that contain starch. Like most plants, potatoes produce flowers that make fruits. The fruits of a potato plant look a lot like cherry tomatoes. But don’t eat them! Except for the tubers, all parts of a potato plant are poisonous.

The Inca of Peru were the first people to grow potatoes as a crop between 7,000 and 10,000 years ago. Potatoes are now grown in cool climates or during cool seasons all over the world. Unlike many vegetable crops, potatoes are easy to grow and can grow in poor soil.

Potatoes need sunlight, water, air, and soil to grow and thrive. Just like other plants, potatoes absorb energy from the Sun though their leaves. Potatoes use this energy in the process of photosynthesis to produce a type of sugar called starch. The starch found in potatoes is a great source of carbohydrates. The human body uses carbohydrates for energy. In addition, a medium potato (about 155 grams, or 5.5 ounces) provides 45 percent of the vitamin C, 18 percent of the potassium, and 10 percent of the vitamin B6 that you need every day. Before they are processed or anything is added to them, potatoes are fat-free, cholesterol-free, and low in sodium (salt). In the United States, about two-thirds of the potatoes consumed are in the form of french fries or potato chips.

So, what makes the potato so popular? Some say it’s the ease of production. Others think it’s the variety of ways you can consume them. What do you think?

Questions
1. Potatoes were a popular food in Europe in the 1600s and 1700s. What characteristics of potatoes made them a good crop for these northern areas?

2. Janelle states that when she eats a potato, she is getting energy from the Sun. Tell whether you think this statement is true or false, and why.

3. What habitat would be best for growing potatoes? Why?
Agriculture

All living things need shelter and food. For example, birds build nests in trees and eat seeds, bats sleep in caves and eat insects, and people live in houses and eat a variety of foods. Where do the materials for our homes and food come from? Nature!

Agriculture is the science of producing crops for food, clothing, and other materials people use. You have probably bought food at a store that was grown on a farm. Commercial farmers use large areas of land to grow crops to sell to grocery stores and manufacturers. They manage their farms using different types of equipment to till the soil, plant seeds, repel pests, and pick ripe fruits and vegetables. Without commercial farms, many people would have to find a way to grow their own food to eat.

Believe it or not, the spaces where your house and school are built were once undeveloped. To develop the land, or make it useful for humans, trees and other natural resources are cleared by heavy machines. Once the land is cleared, schools, houses, and stores can be built. Land is also cleared in this way for agriculture. The removal of forest or trees for non-forest use is called deforestation. Although many natural resources like wood are recyclable and can be used for many purposes, removing trees changes the environment.

Homes and farms are important for humans to survive, but how big a price do we want to pay for this convenient way of living?

1. What is agriculture?

2. Explain how agriculture makes life easier for people.

3. Explain how agriculture interferes with the environment.

4. Explain why some organisms might be impacted by agriculture.
Human Impact: Factories

**Directions:** Read the article and answer the questions that follow.

**Factories**

Did you know that in the 1700s the cotton shirts people wore were made completely by hand? People had to pick cotton, spin it into thread, weave the thread into fabric, and then hand-sew the clothes they wore. In fact, many items a person used daily were made by hand.

Today, almost everything you use is produced in a factory. Many factories use big machines to manufacture things in large quantities in a short amount of time. This helps make the finished products less expensive. One benefit of factories is that products are more affordable and easier for people to obtain. For example, factories make it easy to prepare food for eating, cut boards of different sizes for constructing buildings, and even make the paper this article is on—all at a low cost!

Factories use a lot of energy to manufacture these products. Typically, this energy comes from burning natural resources like coal, oil, or other chemicals. When these materials are burned, smoke, dust, and chemicals are released into the air. Liquid waste must be removed and relocated. The air and the soil become contaminated with waste that is harmful to the environment.

Some scientists believe that the poisons released into the air by factories during manufacturing become trapped in Earth's atmosphere. These trapped gases are causing the average temperature on Earth to rise, a phenomenon that is called global warming.

1. What are factories?

2. Explain how factories make life easier for people.

3. Explain what factories do that interferes with the environment.

4. Explain why some organisms might be impacted by a factory.
Human Impact: Fossil Fuels

Directions: Read the article and answer the questions that follow.

Fossil Fuels

Have you ever wondered where the electricity in your house comes from? Fossil fuels provide electricity and heat for our homes, fuel for our cars, and energy to keep our factories running. You wouldn't be able to turn on your lights or keep ice cubes cold without fossil fuels!

To transport oil to different countries, oil tankers carry large quantities of oil across the ocean. During such a long journey, accidents may occur that result in oil spilling into the ocean. These spills are very difficult to clean because the oil spreads out in a thin layer on top of the water. It is insoluble, which means that it does not dissolve in water. Oil will stay in the water until it is cleaned up, which is a very difficult and expensive job. Even though some types of oil evaporate quickly, residue is still left in the water. The type of oil, the weather, and location of the oil all factor into the method for cleaning it up.

Fossil fuels such as oil were formed as organic materials were buried and compressed by sedimentary rock over millions of years. In order to get oil out of the ground, heavy machinery is used to drill deep into Earth's crust under the ocean and extract it. There is a risk of equipment failure. When this happens, oil will sometimes leak into the ocean.

1. What are fossil fuels?

2. Explain how fossil fuels make life easier for people.

3. Explain how fossil fuels can interfere with the environment.

4. Explain why some organisms might be impacted by fossil fuels.
Human Impact: Technology

**Directions:** Read the article and answer the questions that follow.

**Technology**

Technology is not just something you can plug in. Technology is anything that makes work easier and more efficient. The trays in your school cafeteria are an example of technology. Those trays make it easy for you to carry everything to your table at once. On your tray is another example of technology—the single-serving milk carton. Before individual milk cartons were invented, milk was delivered to people's doorsteps in glass bottles by a milkman. When a family finished drinking all the milk, the milkman picked up the used bottles, which were then refilled to be delivered again. Now, all you have to do is open the carton, drink, and throw it away when you are finished.

What happens to your trash after it is collected? It goes to a landfill. A landfill is a large area designated to hold everything we throw away, including milk cartons, lunch trays, and food waste. Some of our garbage, like food waste, breaks down, or biodegrades. Other trash items, like plastics and electronic devices, take several hundreds of years to break down, if they do at all. When garbage is dumped into the landfill, it is often covered with soil, but some particles escape into the environment. For example, as the garbage breaks down in the landfill, liquids can seep into the soil and debris can blow easily in the wind.

As technology becomes more sophisticated and we continue to upgrade the items and devices we use, there becomes an increased need to control waste.

1. What is technology?

2. Explain how technology makes life easier for people.

3. Explain how technology interferes with the environment.

4. Explain why some organisms might be impacted by technology.
The Sad Tale of the Lonely Magnet

by Alden Wicker

You've got it pretty easy, being a human. Yeah, I know, sometimes your parents make you do things you don't want to do, like go to bed early. And sometimes you get stomachaches and bruises when you fall down—ouch!

But that's nothing compared to being a magnet. Yes, I'm a magnet. What does that mean? Well, you see, with magnets, we are attracted to a lot of things. It was kind of cool when I was little and climbed the jungle gym, because I could hang off the monkey bars with no hands. I hung by my magnetic head. Cool, right? Though, sometimes it made it hard for me to get down.

When I walk past something big and metallic like a school bus, I have to try really hard to move forward, because I start getting sucked toward it. When I visited San Francisco and wanted to see the Golden Gate Bridge (it's not actually made of gold; it's made of steel), I didn't want to get too close, or else I would get stuck to the big cables that help hold it up. They're the biggest bridge cables ever made, you know.

The real problem is when I try to hang out with other magnets. They also exert force, but in weird ways. When I see my best magnet friend, Rob, I always want to give him a hug, a high five, or even just a handshake. But I can't get close to him! It's like we're pushing each other away, without even using our hands.

Playing capture the flag gets boring, because I can grab the flag and run back to our side, and no one...
can capture me. So we don't play that very often. Instead, we play kickball, because we can throw the ball at each other and that works great, since the ball is rubber. We play baseball with a wooden bat instead of a metal bat, so we can drop the bat and run around the bases when we make a hit.

Ever since I started high school, I've wanted a magnet girlfriend. There are some smart and nice magnets in my class, but like I said, I couldn't figure out how to hold their hands! How can I invite one to the school dance? I guess our parents and teachers would be happy, because we can't dance too close to each other, but it was frustrating for me. So I kept my distance, and just passed them notes, or picked flowers for them and then threw them across the room and let them catch the bouquets.

Then one day, I was walking past the park and I saw a beautiful magnet. She was playing soccer with her friends, laughing a lot. When I looked at her, she seemed somehow different than the others.

When she was done playing her game, I started walking toward her, so I could say "hi" and talk to her and get to know her. (From five feet away, like usual). She saw me coming and smiled at me. Then something weird happened when I got close-we started being attracted to each other, literally!

I realized at that moment that she must be magnetized opposite from all my friends and me! Now, we're attached at the hip. She's perfect for me, and I'm perfect for her. We'll walk to the ice cream shop and share a milkshake, sitting side by side on the picnic bench out front. We're unstoppable when we play Red Rover-no one can get through!

Of course, we'll often pull apart so we can go to our different classes and play sports and hang out with our own friends. But we always come back together eventually.

It just goes to show ... opposites attract.
1. What is the magnet’s real problem with being a magnet?
   
   A. The magnet has to try really hard to move forward when walking past something big and metallic.
   
   B. The magnet had a hard time getting down from the monkey bars because he was attracted to the metal.
   
   C. The magnet had a hard time visiting the San Francisco Bridge because the steel cables would pull him close.
   
   D. The magnet can’t get physically close to his friends because their magnetic forces push each other away.

2. The magnet’s problem was that he couldn’t get too close to his magnet friends. How did the magnets solve this problem in order to play with one another?

   A. They play tag with one another but they can’t tag each other.
   
   B. They play capture the flag with one another although it can get boring.
   
   C. They play kickball and baseball by using equipment not made of metal.
   
   D. They pass notes to one another.

3. The magnet states that opposites attract.

Which evidence from the text shows that opposites attract?

   A. The magnet and his friends could not get too close to one another without pushing each other away.
   
   B. The magnet was instantly attracted and connected to another magnet that was magnetized opposite from him.
   
   C. The magnet and his friends don’t like to play capture the flag because they can’t capture each other.
   
   D. The magnet has to keep his distance from other girls in school and throw them flowers and notes.

4. Why are the magnet and his new girlfriend unstoppable when they play Red Rover together?

   A. They have a strong attraction, so nobody would be able to push through them when they are stuck together.
   
   B. They both are good athletes and work well together because they like each other.
   
   C. They are both very fast and the other magnets can’t catch them.
   
   D. They push away the other magnets with their forces.
5. What is this tale mostly about?

A. how humans have an easy life
B. how magnets are attracted to metallic objects
C. how opposites attract
D. how a magnet plays with his friends

6. How does the magnet tell the story?

A. like he is having a conversation with the reader
B. like he is trying to teach a really hard idea
C. like he is alone and is saying his thoughts out loud
D. like he is having a conversation with one of his magnet friends

7. Choose the answer that best completes the sentence below.

The Magnet and his girlfriend often pull apart, _____ they always come back together again.

A. so
B. certainly
C. instead
D. but

8. Why is the magnet unable to get close to his magnet friends?

9. Why are the magnet and his girlfriend able to be physically close?

10. How are the magnet's friends most likely magnetized when compared to the magnet? Explain your answer using evidence from the text.
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