

4th Grade Math: Dividing by a 1-Digit Number

Lesson Objective:

By the end of this lesson, students will be able to:

- Divide multi-digit numbers by a 1-digit number.
 - Understand and apply the steps of long division.
 - Solve word problems involving division by a 1-digit number.
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1. Introduction to Dividing by a 1-Digit Number

Explanation: When we divide a large number by a 1-digit number, we use a method called **long division**. This method helps us break down the division process into smaller, manageable steps. It involves dividing, multiplying, subtracting, and bringing down the next digit until the problem is solved.

2. Steps in Long Division

Step-by-Step Guide to Dividing by a 1-Digit Number:

Example 1: Divide **527** by **3**.

1. **Set Up the Problem:**

$$\begin{array}{r} 3 \overline{) 527} \end{array}$$

2. **Divide the First Digit:**

- Determine how many times **3** fits into **5** (the first digit of **527**). It fits **1** time. Write **1** above the line.

$$\begin{array}{r} 1 \\ 3 \overline{) 527} \\ \underline{- 3} \\ 2 \end{array}$$

3. **Subtract:**

- Subtract **3** from **5** to get **2**. Bring down the next digit, **2**, making it **22**.

$$\begin{array}{r} 1 \\ 3 \overline{) 527} \\ \underline{- 3} \\ 22 \end{array}$$

4. **Divide Again:**

- Determine how many times **3** fits into **22**. It fits **7** times (since $3 \times 7 = 21$). Write **7** above the line.

$$\begin{array}{r}
 3527-322-21 \\
 \hline
 3 \text{ \& } 527 \text{ \& } 3 \\
 \hline
 22 \text{ \& } 21 \\
 \hline
 3-52732221
 \end{array}$$

5. Subtract:

- o Subtract **21** from **22** to get **1**. Bring down the next digit, **7**, making it **17**.

$$\begin{array}{r}
 3527-322-2117 \\
 \hline
 3 \text{ \& } 527 \text{ \& } 3 \\
 \hline
 22 \text{ \& } 21 \\
 \hline
 17 \\
 \hline
 3-5273222117
 \end{array}$$

6. Divide Again:

- o Determine how many times **3** fits into **17**. It fits **5** times (since $3 \times 5 = 15$). Write **5** above the line.

$$\begin{array}{r}
 3527-322-2117-15 \\
 \hline
 3 \text{ \& } 527 \text{ \& } 3 \\
 \hline
 22 \text{ \& } 21 \\
 \hline
 17 \text{ \& } 15 \\
 \hline
 3-527322211715
 \end{array}$$

7. Subtract:

- o Subtract **15** from **17** to get **2**. There are no more digits to bring down, so **2** is the remainder.

Result: The quotient is **175** with a remainder of **2**. So, $527 \div 3 = 175 \text{ R}2$.

3. Practice Problems (Guided Practice)

Long Division Practice:

1. Divide **748** by **4**:
 - o Set up the problem.
 - o Perform the division and regroup if necessary.
2. Divide **936** by **6**:
 - o Set up the problem.
 - o Perform the division and regroup if necessary.

4. Word Problems

Example 1: Alex has **1,284** marbles and wants to share them equally among **6** friends. How many marbles will each friend receive, and how many marbles will be left over?

Solution: Use long division to find:

$1,284 \div 6 = 214$ with a remainder of **0**.
 $1,284 \div 6 = 214$ with a remainder of **0**.

Each friend receives **214** marbles with no marbles left over.

Example 2: A teacher has **357** pencils and wants to divide them equally into **9** pencil cases. How many pencils will be in each case, and how many pencils will be left over?

Solution: Use long division to find:

$357 \div 9 = 39$ with a remainder of 6. $357 \div 9 = 39$ \text{ with a remainder of } 6.
 $357 \div 9 = 39$ with a remainder of 6.

Each pencil case gets **39** pencils with **6** pencils left over.

5. Independent Practice

Long Division Practice:

1. Divide **1,253** by **5**.
2. Divide **2,184** by **8**.

Word Problem Practice:

1. Maria is organizing a book drive and has **4,567** books to distribute evenly among **7** libraries. How many books will each library receive, and how many books will be left over?
 2. A bakery made **2,345** cookies and wants to pack them into boxes that hold **12** cookies each. How many boxes can they fill, and how many cookies will be left over?
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6. Review and Wrap-Up

- **Recap Key Concepts:** Review the steps of long division, including dividing, multiplying, subtracting, and bringing down digits. Discuss how to handle remainders.
- **Discuss:** How can division help us solve everyday problems? Why is it important to check our work?