Fifth grade students work with strategies when investigating division. One strategy that assists students is multiplying up.

This student has used the partial quotient strategy to divide this problem.

\[
634 \div 26 =
\]

<table>
<thead>
<tr>
<th>26</th>
<th>6 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2 6 0</td>
<td></td>
</tr>
<tr>
<td>-3 7 4</td>
<td></td>
</tr>
<tr>
<td>-2 6 0</td>
<td></td>
</tr>
<tr>
<td>-1 1 4</td>
<td></td>
</tr>
<tr>
<td>-5 2</td>
<td></td>
</tr>
<tr>
<td>-6 2</td>
<td></td>
</tr>
<tr>
<td>1 0</td>
<td></td>
</tr>
</tbody>
</table>

**Ans:** 24 R 10

Students in Grade 5 will use equivalent fractions in order to add and subtract.

\[
\frac{3}{8} + \frac{5}{8} = \frac{8}{8}
\]

A strategy a fifth grader might use for division is proportional reasoning.

\[
768 \div 16 = \quad \frac{768}{16} = \frac{\div 2}{\div 2} = \frac{384}{8} = \frac{\div 2}{\div 2} = \frac{192}{4} = \frac{\div 2}{\div 2} = \frac{96}{2} = \frac{\div 2}{\div 2} = \frac{48}{1} = 48
\]

Fifth graders solve fraction word problems. This example involves multiplication of a whole number and a fraction.

There are 4 sheets of colored paper, and I need to use \( \frac{5}{8} \) of each sheet to finish my art project. How much paper will I use?

\[
\frac{5}{8} \text{ four times means that } \frac{5}{8} \text{ of the paper is used which is } 3 \text{ whole sheets of paper and } \frac{5}{8} \text{ of the last sheet.}
\]

Fifth graders explore division of fractions. \( \frac{3}{8} \) is the result of \( 3 \div 4 \), and they should note that \( \frac{3}{8} \) multiplied by 4 is 3.

If 3 pizzas were shared equally by 4 people, each person has a share of size \( \frac{3}{4} \).
Math

Having worked with addition, subtraction, multiplication and division in both third and fourth grade, fifth grade students are expected to continue apply this understanding when working with decimals.

A strategy used in earlier grades is working with place value. This is a written example of what students are able to do in grade 5.

\[
1.8 + 2.86 \\
(1 + 0.8) + (2 + 0.8 + 0.06) \\
(1 + 2) + (0.8 + 0.8) + (0.06) \\
3 + 1.6 + 0.06 \\
4.66
\]

Fifth graders also do this with subtraction.

\[
2.86 - 1.8 \\
2 - 1 = 1 \\
1.86 - 0.8 = 1.06
\]

Students may solve a decimal subtraction problem by using an open number line. This strategy is still based on place value understanding.

\[
23.6 - 0.79 = 22.81
\]

The strategy doubling and halving is applied to decimal multiplication.

\[
8 \times 2.5 =
\]

A fifth grader should apply knowledge of multiplication working with decimals.

\[
\begin{array}{ccc}
\hline
2 \\
.3 \\
\hline
\end{array}
\]

Students will use a grid to show a model of a problem. The use of models continues as does working with the distributive property.

\[
1.2 \times 2.3 = 2.76 \\
(1.0 \times 2.0) + (1.0 \times 0.3) + (0.2 \times 2.0) + (0.2 \times 0.3) \\
2.0 + 0.3 + 0.4 + 0.06 = 2.76
\]

Fifth grade students are expected to be able to fluently multiply multi-digit whole numbers using the standard algorithm.

\[
\begin{array}{c}
326 \\
\times 34 \\
\hline
1304 \\
9780 \\
\hline
11084
\end{array}
\]

A student’s model of 1.2 \times 2.3 (which means 1 and 2-tenths of 2 and 3-tenths). Each section is labeled to show the product.