Let’s Start with a Problem!
Grades 3-5

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Problem Situations

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One Fish, Two Fish

3 Guppies $186
5 zebrafish $325

Are guppies or zebra fish cheaper?
Possible Solutions

Two Divisions

\[
\begin{array}{c}
\div 3 \quad 186 \\
\underline{\times 62} \\
\hline
1 \text{ guppy} \\
\text{cheaper} \\
1 \text{ zebra fish}
\end{array}
\]

Divide & Multiply

\[\$186 \div 3 = \$62 \text{ for 1 guppy}\]
\[5 \times 62 = 300 + 10 = \$310 \text{ for 5 guppies are cheaper}\]

Use Number Sense

Both about \$60.

Guppies \$6 over for 3 so cost \$62.
Zebra \$25 over for 5 so cost \$65.
Guppies cheaper.
Aunt Martha’s Cupcakes

- Aunt Martha has 5 trays of cupcakes.
- There are 100 total cupcakes on the trays.
- The first and second trays have 52 cupcakes.
- The second and third trays have 43 cupcakes.
- The third and fourth trays have 34 cupcakes.
- The fourth and fifth trays have 30 cupcakes.

How many cupcakes are on each tray?
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Can a picture help?

100 in all

52

43

34

30
Possible Scaffolding

- To help students get started
- To help students who are stuck
- To help students going down a wrong path
- To help students clarify thinking
Array-bow of Colors

- Act 1: Watch the video
Problems without Words
What’s Gone Wrong?

\[
\begin{align*}
37 \times 5 &= \underline{185} \\
\frac{3}{37} \times 5 &= \underline{1664} \\
406 \times 4 &= \underline{1624} \\
\frac{2}{406} \times 4 &= \underline{1624} \\
320 \times 6 &= \underline{1920} \\
\frac{1}{320} \times 6 &= \underline{1920} \\
315 \times 8 &= \underline{2520} \\
\frac{315}{4} \times 8 &= \underline{2520}
\end{align*}
\]
What’s Gone Wrong?

\[
\begin{align*}
3258 \div 6 &= 542.6666... \\
84 \div 2 &= 42 \\
180 \div 5 &= 36 \\
261 \div 3 &= 87
\end{align*}
\]
The Pencil Task

Mrs. Washington cleans her classroom on the last day of school and finds some pencils left over from the year. She knows there are 24 pencils in a full box. Mrs. Washington finds \( \frac{1}{4} \) of a box in her desk. How many pencils does she find in her desk?

Mrs. Washington finds \( \frac{3}{4} \) of a box of pencils in the closet of her classroom. How many pencils does she find in the closet?

Mrs. Washington finds \( 1 \frac{1}{8} \) boxes of pencils in the lost and found in her classroom. How many pencils does she find in the lost and found?
What fraction is blue?
Part of a Set - 3 of 13 pieces
Part of an Area - 6 of 36 triangles
Part of an Area
1 of 6 hexagons
Part of an area -
Blue is 1/3 of largest piece
NIM

- Goal is to make 21st tally mark.
- Two people take turns adding to one set of tally marks.
- On each turn, you may make 1, 2, or 3 tallies.