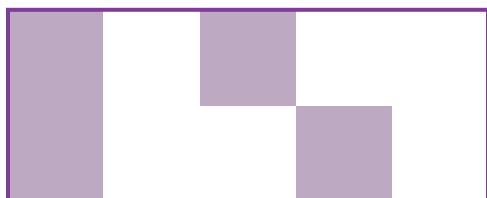


# Intentional Tasks to Develop Fractions Thinking

Current research in Ontario classrooms is revealing the rich learning opportunities afforded through the use of thoughtfully selected tasks. Such tasks allow students to draw on their mathematical intuition and to connect new learning to previous knowledge. This section contains a few examples intended to provide criteria for thoughtful selection and ideas on how to modify familiar tasks.

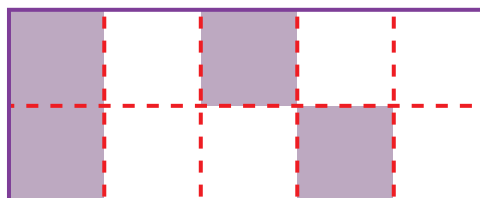
## *Ask students*

What fraction of the area in the figure is shaded?



## *Instead of*

Write the fraction shown below.



In the first question, it is clear what attribute (shaded area) is to be represented by the fraction, whereas in the second question, students could write a variety of fractions, including for the shaded area, the unshaded area and the whole. Also, notice that in the first question, students need to create the equi-partitions (establish the unit fraction) and then use this information to determine the fractional portion shaded. They could add the two smaller equal regions together to see that this is  $\frac{2}{5}$ , or they may see this as  $\frac{4}{10}$ . This fact can lead to a discussion of the equivalence of these two fractions and allow for a connection among the symbolic representations, the diagrams and the actions of equi-partitioning and merging or splitting.

In the second question, students can easily use a counting approach – count the number of shaded sections (one, two, three, four) and count the total number of sections (one, two, three, four, five, six, seven, eight, nine, ten). In this case, they may generate the correct answer ( $\frac{4}{10}$ ) but use no fractions thinking.

Consider how the suggested tasks require students to reason proportionally, and perhaps spatially, about fractions and to use their fraction number sense.

**Ask students**

Compare subtracting  $\frac{1}{2}$  from  $\frac{2}{7}$  with subtracting  $\frac{1}{8}$  from  $\frac{2}{7}$ . Which results in a larger difference? Explain your answer.

Consider  $\frac{2}{5}$  of  $\frac{11}{13}$ . Would you predict the answer to be  
a) less than  $\frac{11}{13}$ ? b)  $\frac{11}{13}$ ? c) more than  $\frac{11}{13}$ ?  
Explain your reasoning.

12 divided by  $\frac{2}{5}$  is 30. Will 12 divided by  $\frac{3}{5}$  be less than or more than 30? Explain your answer.

**Instead of**

Subtract the fractions and express your answer in its simplest terms.

$$\frac{2}{7} - \frac{1}{2} = \quad \frac{2}{7} - \frac{1}{8} =$$

Calculate  $\frac{2}{5}$  of  $\frac{11}{13}$ .

Calculate  $12 \div \frac{2}{5}$ .

Calculate  $12 \div \frac{3}{5}$ .