

# TRAIN GAME

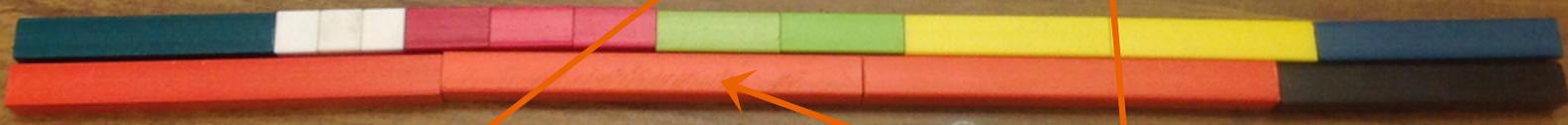
## OPERATION C

Add and subtract fractions with like denominators using models and symbols

These students grouped like numerators (rod size) and simplified prior to adding.

Handwritten work showing the addition of fractions:  $\frac{3}{10} + \frac{2}{10} + \frac{3}{10} + \frac{2}{10} = \frac{10}{10}$ . Below is a table of randomly drawn rods:

0	w	$\frac{1}{10}$	3 ✓
r	$\frac{2}{10}$	3 ✓	
g	$\frac{3}{10}$	2	
y	$\frac{2}{10}$	2	
d	$\frac{5}{10}$	2	



They added their simplified expression, which resulted in an improper fraction.

Notice the concrete model confirms the accuracy of their numeric representation.

Handwritten work showing the addition of fractions with grouping:  $\frac{1}{10} + \frac{2}{10} + \frac{2}{10} + \frac{3}{10} + \frac{3}{10} + \frac{3}{10} + \frac{5}{10} + \frac{6}{10} = \frac{27}{10}$ . Below is a table of drawn rods:

0	w	$\frac{1}{10}$	1
r	$\frac{2}{10}$	3	
g	$\frac{2}{10}$	3	
y	$\frac{2}{10}$	1	
d	$\frac{6}{10}$	1	

This sample shows flexible grouping when adding fractions with unlike numerators.

Handwritten work showing the addition of fractions:  $\frac{6}{10} + \frac{6}{10} + \frac{6}{10} + \frac{1}{10} + \frac{1}{10} + \frac{3}{10} + \frac{3}{10} + \frac{2}{10} + \frac{1}{10} = \frac{27}{10}$ . Below is a table of drawn rods:

Size of Whole	Randomly Drawn Rods			Number Sentence (representing train)	Sum
	Colour Code	Fraction Value (per rod)	# of colour rod drawn		
0	d	$\frac{6}{10}$	3	$d+d+d+y+y+y+r+w$	
r	y	$\frac{6}{10} = \frac{3}{5}$	2	$\frac{6}{10} + \frac{6}{10} + \frac{6}{10} + \frac{1}{10} + \frac{1}{10} + \frac{3}{10} + \frac{3}{10} + \frac{2}{10} + \frac{1}{10}$	
g	$\frac{3}{10}$	2			
10	r	$\frac{2}{10}$	1		
w	w	$\frac{1}{10}$	1		

Students reduced some of their fractions (e.g.,  $\frac{5}{10} = \frac{1}{2}$ ) to lowest terms and still added successfully.

The students combined two halves to make a whole, and were able to add this whole to their total (which included an improper fraction).