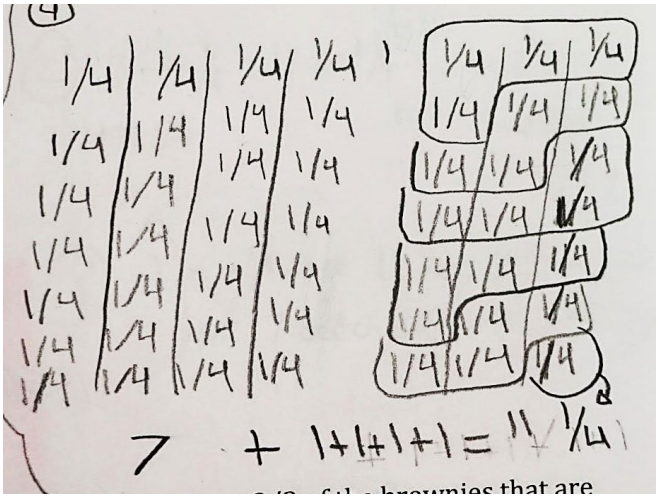
SUGAR COOKIES

OPERATION I Multiply any fraction by a whole number using models and symbols

Sample 1

This student has shown $1\frac{3}{4}$ seven times, decomposing each $1\frac{3}{4}$ into unit fractions. Each row represents $1\frac{3}{4}$. The student demonstrates an understanding that it takes 4 one-fourths to create a whole. Each row on the left represents one whole composed of unit fractions of $\frac{1}{4}$; there are seven rows, therefore, seven wholes in total. On the right, the student shows seven groups of $\frac{3}{4}$ using unit fractions again, grouping these unit fractions into groups of four to create wholes. In the final number sentence, the student appears to have miscounted these groups, showing an inaccurate final response ($11\frac{1}{4}$ instead of $12\frac{1}{4}$).



Sample 2

This student has used area models (squares partitioned into fourths) to show $1\frac{3}{4}$, repeated eight times in total (the first time to model the question, $1\frac{3}{4} \times 7$, followed by seven repetitions to model the quantities involved in the question). The student redistributes the unit fractions from two of the $\frac{3}{4}$ (on the right, the second and the sixth rectangles down) across the other representations of $\frac{3}{4}$ to create additional wholes. Arrows help identify where each of the fourths were placed. This demonstrates the importance of encouraging students to label and annotate their models. The student then adds the total number of wholes on the left, but accidentally includes the original representation of the question. Although the student has labelled the wholes produced by redistributing the $\frac{3}{4}$, he/she does not produce a number to represent the solution.