

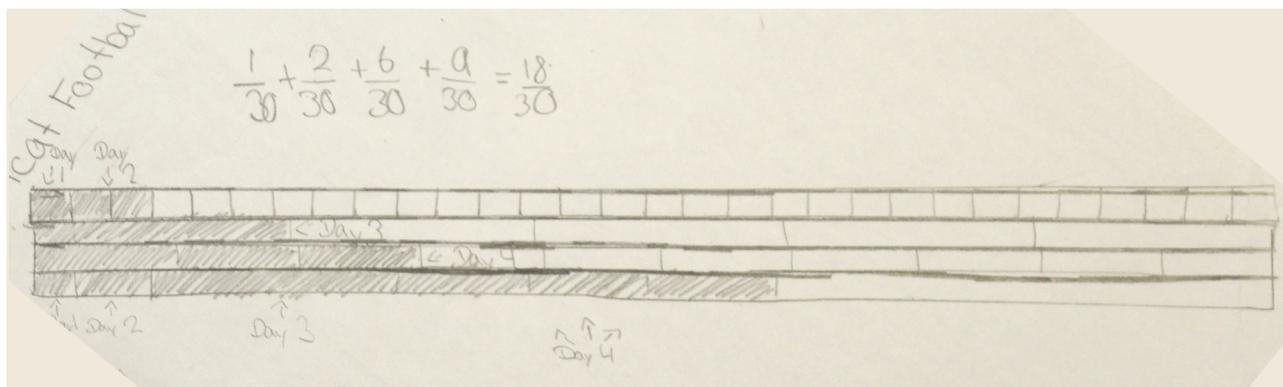
# TURF TOUCHDOWN!

## OPERATION E

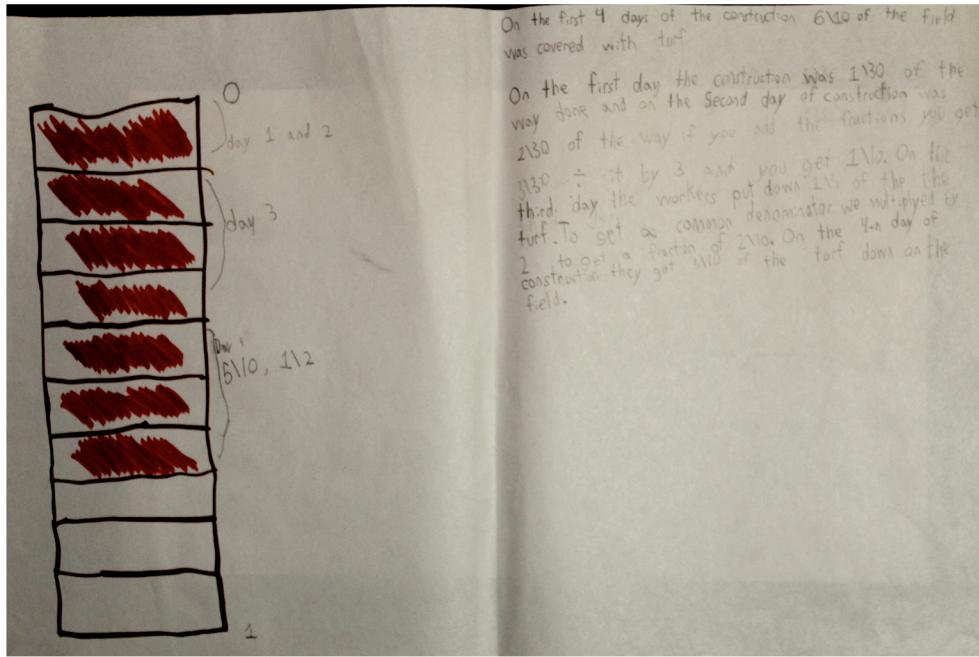
Add and subtract fractions with unlike denominators  
(e.g., 2 and 7) using models and symbols

### SAMPLE 1

These students created a 'stacked ribbon' model, starting by representing Days 1 and 2 using thirtieths. They added a ribbon of fifths for Day 3 and tenths for Day 4. They then created a new ribbon to show the individual amounts combined together. This strategy worked for Days 5 and 6.



### SAMPLE 2



These students recognized that for the first four fractions they could use tenths as the fractional unit. They didn't continue the task to Day 5.

### SAMPLE 3

These samples, from two different pairs of students, demonstrate consideration of the numerator in isolation from the denominator. In Sample A, the student returns to the fractional unit of thirtieths. In Sample B, the student expresses her answer as a decimal "1.5 of turf in two days". Note that the unit of thirtieths has not been included in this sentence resulting in a vague answer.

#### SAMPLE A

lets forget the numerator, 30 is the denominator and to find 1 half all we do is divide the denominator by 20 which is 15. now we know if the numerator is 15 its one half so  $\frac{15}{30}$  is  $\frac{1}{2}$  but its not  $\frac{15}{30}$  its  $\frac{18}{30}$

#### SAMPLE B

