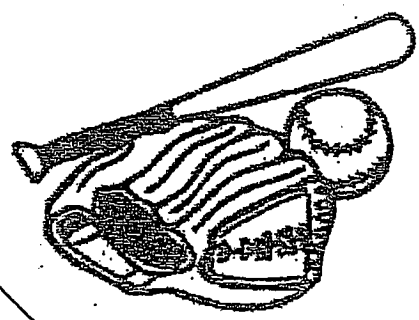
Fraction Baseball



Baseball Guide for Hits, Runs, Balls & Outs ~ No Strikes!

DICE VALUE	RESULT
1	Single
$\frac{1}{2}$	Double
$\frac{1}{3}$	Triple
$\frac{1}{4}$	Home Run
$> \frac{1}{2}$ and < 1 (between $\frac{1}{2}$ and 1)	Out
less than $\frac{1}{2}$ AND $\neq \frac{1}{3}$ or $\neq \frac{1}{4}$	Ball (roll dice again)

6. Ask students what the fractions on this number line represent and how the number line can help explain the game outcomes. Listen to their ideas and build on their thinking.

7. Ask students to predict what baseball outcome would be most common if all the class data was collected and counted. Listen to their ideas and have them explain why they made the choice.

8. On the board (or chart paper), write the baseball outcomes in a chart so that you can combine all the class data to get a larger sample size. For example:

Outcome	**Class Data** (from Partners Combined Rolls)	**Class Data Totals**
Ball		
Single		
Double		
Triple		
Homerun		
Out		

As partners report on the number times each of the results occurred, fill in the chart. Then have students calculate class totals for each result.

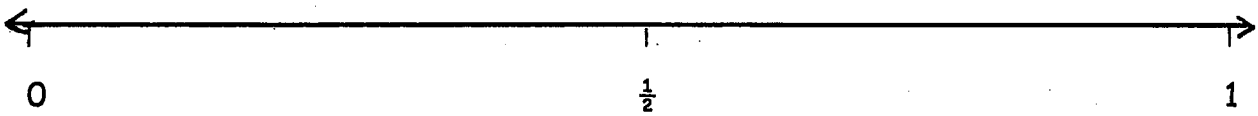
9. Ask students what information the class results provides. *Does it help to determine which outcomes are more likely and less likely? How? Why?*

10. Continue discussions with the following prompts (or your own) such as:
    - *Discuss why the game might have been designed the way it was.*
    - *Is this game like a real game of baseball? Why or why not?*
    - *How would you design the game using dice outcomes?*

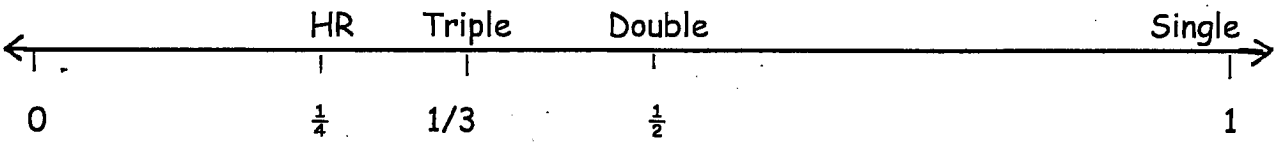
a. Choose a name and write it on the Scorecard for each team.
b. Roll 1 die and have a student roll one die. The lowest number determines who will bat first.
c. First player/team at bat puts a marker on home plate, and then rolls both dice and makes a fraction with two numbers (lowest number in numerator).
d. Using the Baseball Guide, determine what the fraction indicates the player will do in this game. Move the player accordingly,
e. The player/team not at bat records each play on the Scorecard to keep track of runs and outs. Have a student do this when you are at bat.
f. First player/team continues to roll and move markers around the bases according to outcomes of dice rolls until there are three outs.
g. Then there is a switch in roles. The other player/team takes a turn at bat while the first player/team keeps score. Play continues until there are three outs.

Play one full inning with the class to be sure they understand the game.

5. At the end of the inning, generate a number line with the students for them to reference during the game. Start with the benchmarks of 0, $\frac{1}{2}$, and 1.



Above the number line, label the 1 as a Single.
Above the $\frac{1}{2}$, label it as Double.
Have a student situate the $\frac{1}{4}$. Above the $\frac{1}{4}$, label it Homerun (HR).
Have students discuss where to situate the 1/3. Have a student locate that point and label it. Above the 1/3, write Triple.



Finally, have students identify the part of the number line where the fractions that result in a Ball are situated. Then locate where the fractions that result in an Out are situated.