Math 6

_____

Name _____

Date _____

A Fair Game Problem

With your partner, take turns rolling two dice. Player A scores a point if the sum of their two dice are even. Player B scores a point if the sum of their two dice are odd. Is this a fair game? If not, how could you make the game fair? Explain your reasoning.

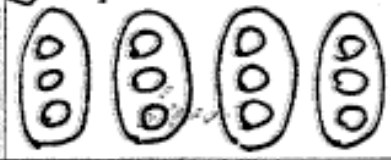
PART I: SEARCHING FOR A SOLUTION (Due _____)

Discuss your solution with your parent/partner. Explain your answer with writing, drawing, or numbers. Record all of the arrangements in the table below.

Partner's Initials: _____

PART II: SELF-EVALUATION (Due: _____)

With your partner, monitor the number of times you find evidence of the actions below.

#	Action	Example
	MATHEMATICAL REASONING: Evidence of explanation or justification in writing or through discussion	Perfect squares have an odd number of factors because one factor repeats itself. 16: 1, 2, (4), 8, 16
	MATHEMATICAL MODELING: Evidence of using pictures, tables, or graphs to represent mathematical reasoning	$4 \times 3 = 12$ ← total; groups; oranges 
	MATHEMATICAL FLEXIBILITY: Evidence of more than one strategy to solve the problem	$3 \cdot \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$ ✓  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{9}{4}$ ✓
	MATHEMATICAL ANALYSIS: Evidence of recognizing or correcting errors in reasoning	$\frac{1}{2} + \frac{1}{2} = \frac{2}{4}$ $\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$ 

MENTOR/PARTNER FEEDBACK (Optional):

Partner Initials: _____

PART III: REFLECTION

Record your classmates' alternative strategies here. Reflect on the multiple strategies presented. How has your understanding of the problem changed? How are the strategies connected? This section will be completed in class when we present solutions at the end of the week.

PART IV: CONVERSION PRACTICE (Due: _____)

MILD – Convert each fraction to a decimal (nearest hundredth) and percent.

Fraction	Decimal	Percent
$\frac{1}{2}$		
$\frac{1}{3}$		
$\frac{1}{4}$		
$\frac{3}{4}$		
$\frac{1}{5}$		
$\frac{4}{5}$		
$\frac{2}{3}$		
$\frac{7}{7}$		
$\frac{1}{8}$		
$\frac{23}{100}$		
$\frac{81}{100}$		
$\frac{70}{100}$		
$\frac{9}{10}$		

MEDIUM – Write the equivalent fraction, decimal (nearest hundredth) and percent.

Fraction	Decimal	Percent
		50%
$\frac{1}{3}$		
$\frac{1}{4}$		
$\frac{3}{4}$		
$\frac{1}{5}$		
		80%
$\frac{2}{3}$		
$\frac{7}{7}$		
$\frac{1}{8}$		
$\frac{23}{100}$		
		81%
$\frac{70}{100}$		
	0.9	
$\frac{6}{10}$		
$\frac{1}{6}$		
$\frac{14}{15}$		

SPICY ~ Place these fractions, decimals, and percents on a number line.

¾, 1%, 2/3, 1.23, 88%, 34%, ½, 0.8, ¼, 1/5, 2/6, 150%, 9/10, 7/8

1. What is 45% of 12?

2. What is 20% of 15?

3. What percent of 20 is 2?

4. What percent of 50 is 10?

5. 25% of what is 60?

6. 40% of what is 50?

PART V: EXTENSION (Optional, Due _____)

Play the paper, scissors, rock game with three players. All players make a fist and on the count of three, each player shows either:

- paper (by showing five fingers)
- scissors (by showing two fingers)
- rock (by showing a fist)

Decide who is Player A, Player B, and Player C and play twenty times with these rules:

Player A gets a point if all players show the same sign.
Player B gets a point if only two players show the same sign.
Player C gets a point if all players show different signs.

Player	Tally	Total
A		
B		
C		

Is this game fair? Which player would you rather be? How could you make the game fairer?

Partner's Initials: _____