SEASON SCHEDULE

THE PURPOSE

*You will become a better NBA Math Hoops coach by building your math skills! Every Basketball Skill that you complete, you earn **3 points** towards possible prizes!*

WEEK 1 (Pre-season)
How do I **earn prizes** by playing NBA Math Hoops?

WEEK 2 (Pre-season)
What is a Shooting Percentage?

WEEK 3 (Pre-season)
The NBA Draft: Understanding the Player Cards

WEEK 4
Game Play:
Choosing a Shooter
This week you will learn the NBA Math Hoops game rules!

WEEK 5
Game Play

WEEK 6
Game Play:
Shooting Free Throws
This week you will learn the fouling and free throw rules!

WEEK 7
Game Play:
This week you will introduce the shot clock to the game!

WEEK 8
Game Play:
Reflecting on your skills

WEEK 9
Trade Deadline

WEEK10
Game Play

WEEK 11
Maximizing your shot options:
Dividing and rounding numbers

WEEK 12
Basic:
Gameplay
Advanced:
Advanced Game Rules

WEEK 13
Basic:
Analyzing Statistics with the Game Score Sheet
Advanced:
The Probability of Passing

WEEK 14
Basic:
Gameplay
Advanced:
Offensive Rebounds

WEEK 15
March Madness:
Setting up a Tournament

WEEK 16
CHAMPIONSHIP WEEK

NBA MATH HOOPS

SPORTSMANSHIP CONTRACT

Welcome to the 2015-2016 NBA Math Hoops Season! During this season, you will play a lot of games, complete a lot of math problems, and enjoy a lot of victories. Along the way, you will also experience frustrations, challenges, and shortcomings. Through it all, it is important to show **SPORTSMANSHIP**. Sportsmanship means demonstrating fairness, respecting your opponent, and staying positive whether you win or lose. If you show sportsmanship through the ups and downs, you will learn how to become a true NBA Math Hoops Champion.

AS A PARTICIPANT IN THE 2015-2016 NBA MATH HOOPS SEASON, I AGREE TO DISPLAY SPORTSMANSHIP BY:

1. Positively encouraging my teammates and opponents.
2. Working to improve my own learning everyday, so that others can improve around me.
3. Celebrating everyone as "Winners and Learners."

SIGNATURE: _____

DATE: _____

For official use only

SIGNATURE: _____

DATE: _____

NBA MATH HOOPS

WEEK 1

BASKETBALL SKILLS

Learning Outcome:
Adding and multiplying positive numbers.

HOW *do I earn prizes by playing NBA Math Hoops?*

Welcome! YOU are on your way to being a math champion with NBA Math Hoops! During the season, you have the opportunity to win prizes by:

1. Playing NBA Math Hoops games! (1 Point)
2. Showing sportsmanship! (1 Point)
3. Completing the Basketball Skill Practices! (3 Points)

PRIZES INCLUDE

tickets to an NBA game or college game, NBA jerseys, t-shirts, hats, wristbands, and more!

WHEN

will I earn prizes by playing NBA Math Hoops?

NBA Math Hoops will reward prizes **5** times during the year:

November **13**	December **11**
February **5**	March **4**
CHAMPIONSHIP TOURNAMENT!	

Earn points today! Complete the Basketball Skills Practice on the next page!

HOW MANY POINTS CAN I EARN IN A WEEK?

The possibilities are endless!
Lebron James wanted to know how many points he could earn in a week, so he started playing NBA Math Hoops!

1) If Lebron James played 1 game on Monday, 3 games on Tuesday, no games on Wednesday and Thursday, and 2 games on Friday, how many points did he earn in that week?

Add: _____ + _____ + 0 + 0 + _____ =
Monday Tuesday Wednesday Thursday Friday

Lebron James earned _____ points that week!

2) The next week, Candace Parker wanted to see how many points she could earn. She played 3 games on Monday, no games on Tuesday, 1 on Wednesday, 1 on Thursday, and she completed 2 Basketball Skills Practices on Friday.

Add: _____ + _____ + _____ + _____ + 2 x 3 =
Monday Tuesday Wednesday Thursday Friday

Candace Parker earned _____ points that week!

3) Tim Duncan wants to earn 12 points in a week! How can he reach his goal? Fill in the blanks below with your own numbers.

Add: _____ + _____ + _____ + _____ + _____ = 12 points
Monday Tuesday Wednesday Thursday Friday

Great Work!

NBA MATH HOOPS

BASKETBALL SKILLS

WEEK 2

Learning Outcome:
What is a percent?

WHAT

Are Field Goal Percentages in NBA Math Hoops?

If Stephen Curry took 10 shots in a game and he made 5 of them, he shot 50 percent in the game!
A percent is part of a total!

WHAT IS A PERCENT?

5 out of 10 is 50 percent	5/10 is 50 percent	5/10 is 50%
50 out of 100 is 50 percent	50/100 is 50 percent	50/100 is 50%
25 out of 50 is 50 percent	25/50 is 50 percent	25/50 is 50%

The basketball chart below shows how to find a percent.

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE	PERCENT
Stephan Curry	5	10	5/10	50%
Brittney Griner	50	100	50/100	50%
Kyrie Irving	25	50	25/50	50%

Build your basketball skills! Fill in the chart below with the correct division and percent. Go as far as you can!

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE	PERCENT
Skylar Diggins	4	10		
Chris Paul	3	10		
Seimone Augustus	60	100		
Zach Randolph	70	100		
Candace Parker	30	50		
Russell Westbrook	20	50		

Great Work! Keep Going!

In NBA Math Hoops, you will see percents shown as decimals. Just like a percent, a decimal is part of a total! A decimal looks like this:

0.1	0.12	0.123
Tenths Place	Hundredths Place	Thousandths Place

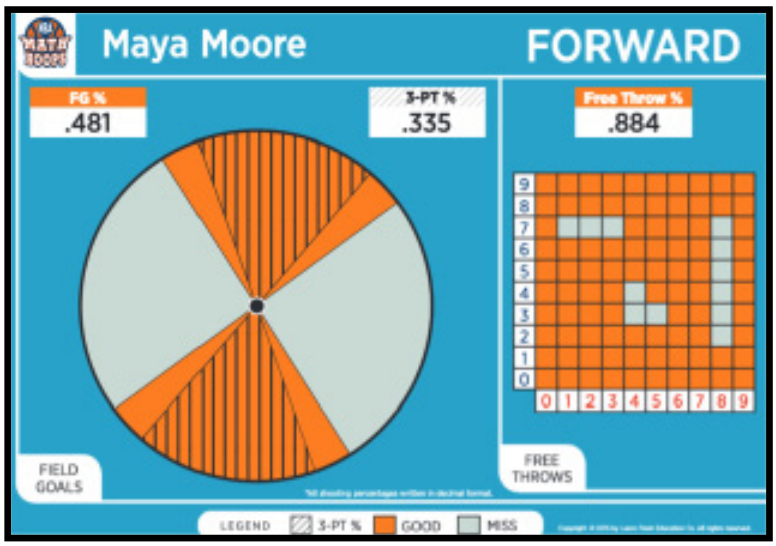
You can show percents as decimals! Look at the basketball chart below!

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE	DECIMAL
Skylar Diggins	4	10	4/10	0.400
Chris Paul	35	100	35/100	0.350
Seimone Augustus	30	50	30/50	0.600

Build your basketball skills! Fill in the chart below with the correct division and decimal. Go as far as you can!

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE	DECIMAL
Zach Randolph	7	10		
Candace Parker	60	100		
Russell Westbrook	20	50		

EXTRA SKILLS CHALLENGE!



In NBA Math Hoops, you will see player cards like the one to the left.

Maya Moore's shooting percentage is .481 or 48.1%

1 If Maya Moore's shooting percentage is 48.1%, and she takes 100 shots in a season, about how many shots would she make?

Maya Moore would make about _____ shots.

2 Maya Moore's free throw percentage is 88.4%. Fill in the chart with the missing numbers.

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE!	DECIMAL
Maya Moore		50		0.884

WEEK 3

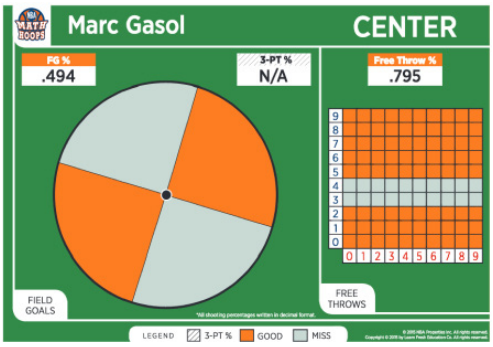
BASKETBALL SKILLS

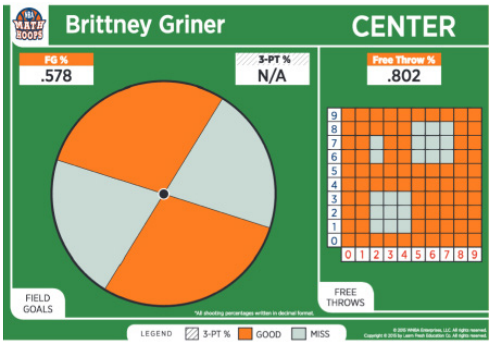
THE NBA DRAFT

Learning Outcome:
Understanding The NBA Math Hoops Player Cards

In NBA Math Hoops, you will draft 5 players to play on your team. You want to choose the players that are most likely to make the shot or free throw when called upon. Lets Compare the following players!

VS.





1

What is Marc Gasol's Field Goal Percentage (FG%)? Write your answer as a decimal.

For example: . 321

Marc Gasol's FG% is

_____.

2

What is Brittney Griner's Field Goal Percentage (FG%)? Write your answer as a decimal.

For example: . 432

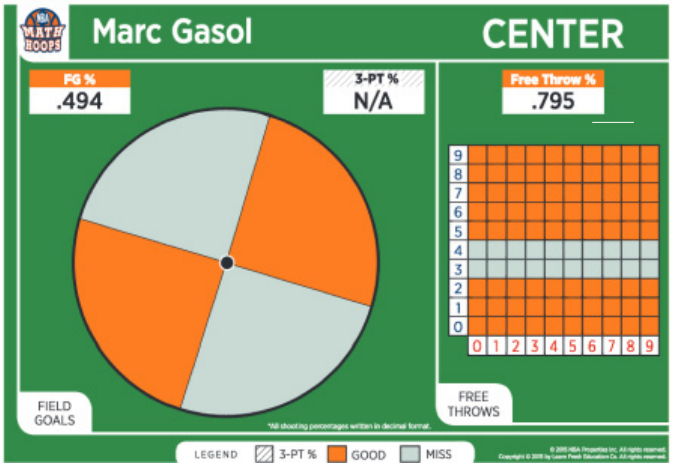
Brittney Griner's FG% is

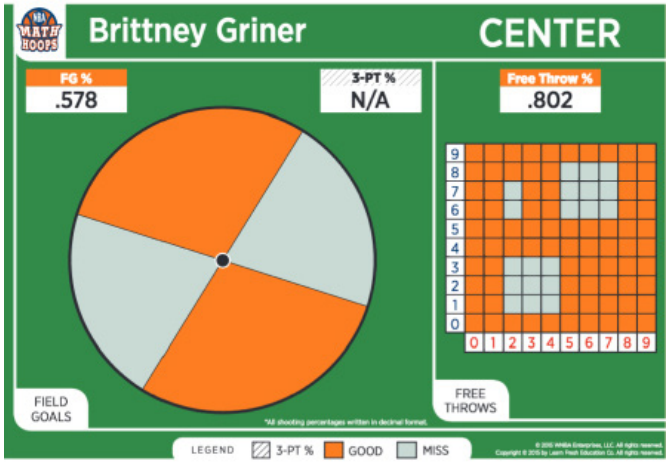
_____.

3

Who is more likely to make the shot? (Circle one of the player cards above).

NOW, LET'S LOOK AT FREE THROWS!





1

What is Marc Gasol's Free Throw %? Write your answer as a decimal.

Marc Gasol's Free Throw % is

_____.

2

What is Brittney Griner's free throw %? Write your answer as a decmal.

Brittney Griner's free throw % is

_____.

3

Who is more likely to make the free throw? (Circle one of the player cards above).

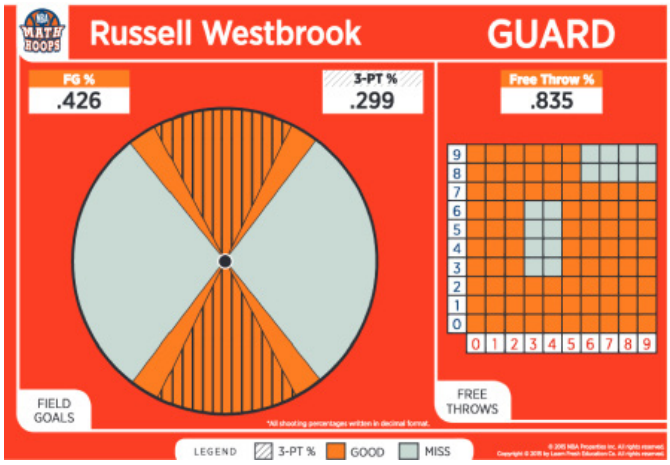
4

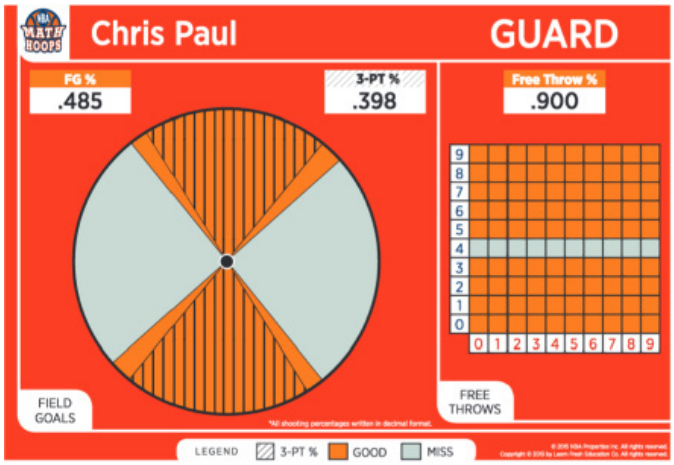
Overall, which player would you draft first? Brittney Griner or Marc Gasol?

I would draft

_____.

LET'S DRAFT! CHRIS PAUL OR RUSSELL WESTBROOK?





Look at both player cards closely. Based on what you notice, which player would you draft first? Why?

I would draft _____ **first, because** _____.

BASKETBALL SKILLS

WEEK 4

CHOOSING A SHOOTER!

Learning Target: Perform operations that result in positive numbers, negative numbers, and fractions.

In NBA Math Hoops, you use a special Shot Planner to decide your shot options as a coach! The rules say to record the roll of the dice by writing the largest number first. Why do you think this rule exists? Let's do some math to find out!

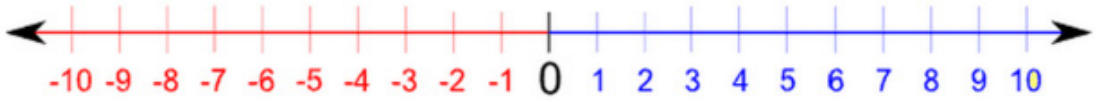
1

Imagine you just rolled the Math Hoops dice and got an 8 and a 4. Complete the two charts below by adding, subtracting, multiplying, and dividing the numbers.

			8+4	8−4	8×4	8÷4
ROLL	8	4	+	−	×	÷

			4+8	4−8	4×8	4÷8
ROLL	4	8	+	−	×	÷

**For adding and subtracting, you can use the number line below!*



2

Circle the operations that resulted in the same answer regardless of the order of 8 and 4.

Addition

Subtraction

Multiplication

Division

3

How are the answers for subtraction similar? How are they different?

The answers are similar because

_____

_____.

The answers are different because

_____

_____.

4

How are the answers for division similar? How are they different?

The answers are similar because

_____

_____.

The answers are different because

_____

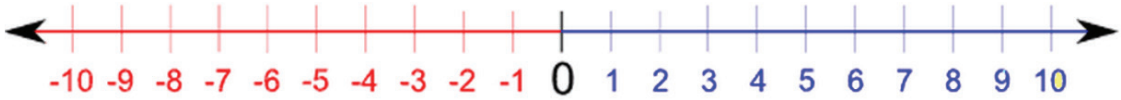
_____.

EXTRA PRACTICE

DIRECTIONS

Use the dice rolls below to figure out shot options for the Basic game. First record the roll from greatest to least, then from least to greatest.

SAMPLE 1	ROLL	2	6	▶	+	−	×	÷
	ROLL	6	2	▶	+	−	×	÷
SAMPLE 2	ROLL	9	3	▶	+	−	×	÷
	ROLL	3	9	▶	+	−	×	÷
SAMPLE 3	ROLL	5	1	▶	+	−	×	÷
	ROLL	1	5	▶	+	−	×	÷

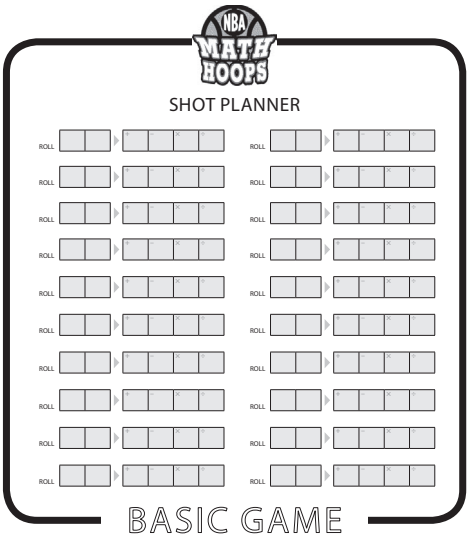


1 Now that you have completed more examples, can you explain why we always write the ROLL numbers from large to small?

_____

_____

_____



The basic shot planner

WEEK 6

BASKETBALL SKILLS

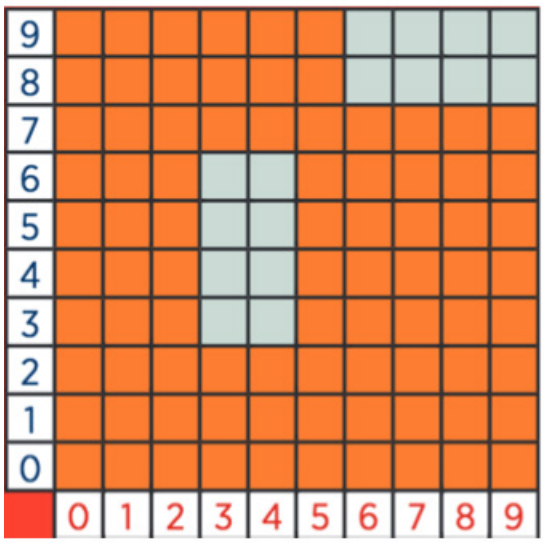
SHOOTING A FREE THROW

Learning Outcome:
Identifying points on a grid.

In basketball, if a player is fouled while shooting the basketball, the player shoots free throws. The same is true in NBA Math Hoops!

To shoot a free throw in NBA Math Hoops, you must look at the Free throw grid. Look at Russell Wesbrook's free throw grid below.

Russell Westbrook



The **orange** boxes are **made** free throws

The **gray** boxes are **missed** free throws

1. If the dimensions of the grid are 10 by 10, how many squares are there in total?

10 x 10 = _____

Therefore, there are _____ squares in total.

Remember the definition of percent from Week 3 Basketball skills? Percent is part of 100. Since there are a total of 100 squares in the grid, the orange squares show the percent of free-throws the player makes!

2. What percentage of free throws does Russell Westbrook **make** in a season?

_____

3. What percentage of free throws does Russell Westbrook **miss** in a season?

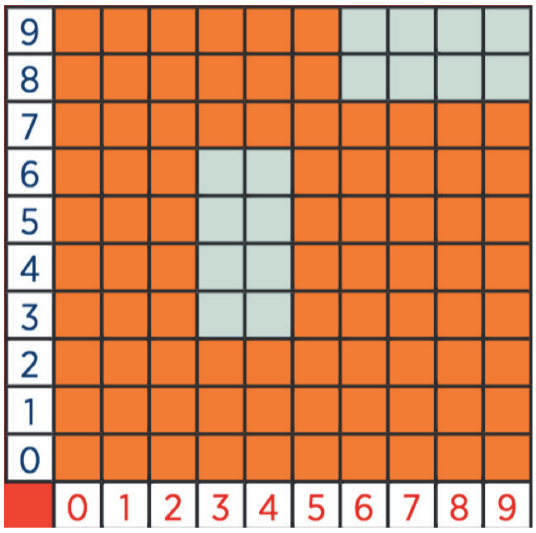
_____

EXTRA PRACTICE

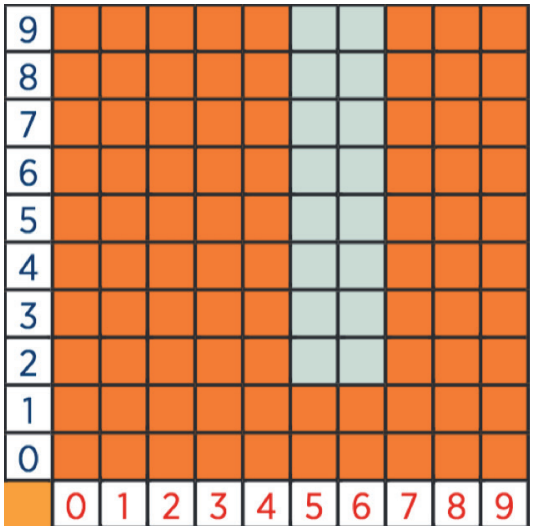
PERCENT CAN BE SHOWN IN DIFFERENT WAYS!

Below are the grids that show the free throw percentage for Skylar Diggins and Russell Westbrook. Take a minute to look at each grid.

Russell Westbrook



Skylar Diggins



1 What do the two grids have in common?

The grids both show the same _____.

2 Let's say Skylar Diggins is fouled and has to shoot free throws. You roll the dice and get the following for her 1st shot.

Red Roll	6
Blue Roll	4

TIME OUT!
After you roll the dice, always write the numbers in this way (Red number 1st , Blue number 2nd). This is called an ordered pair.

Write the ordered pair for the free throw above: (____ , ____).

Looking back at the grid, did Skylar Diggins make or miss the free throw? Circle your answer.

MAKE MISS

3 You shot a free throw that resulted in the following ordered pair: (8 , 7)

If Russell Westbrook took this shot for you, would he make or miss the shot? _____

If Skylar Diggins took this shot for you, would she make or miss the show? _____

WEEK 8

BASKETBALL SKILLS

FIRST HALF REFLECTION

Learning Target: Reflecting on your mathematical prowess

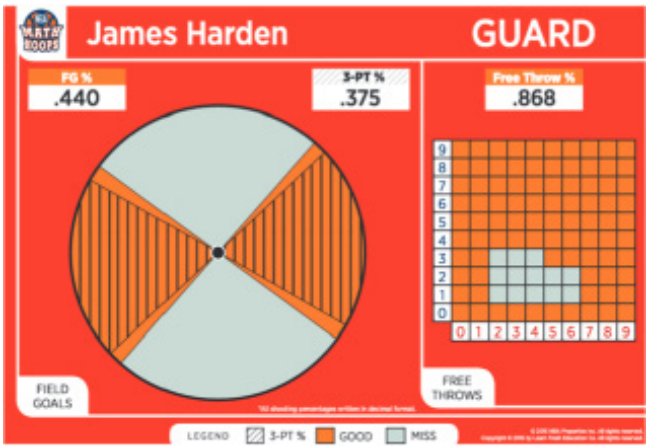
You are now at the end of the first half of the NBA Math Hoops season. Over the past few months, you completed a lot of math problems while playing the NBA Math Hoops game. You've also improved your math decision making ability and understanding by completing the "Basketball Skills."

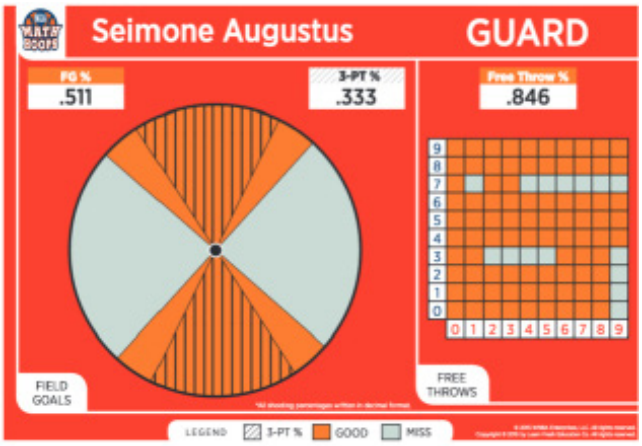
Directions: Answer the questions below. You can do it!

1. I feel that I am able to make quicker decisions in the game now. (Circle one of the options below)

Always *Often* *Rarely* *Never*

QUESTION: Analyze the player cards below. Which card would you choose? Why?





I would choose_____ because_____.

2. I am more comfortable working with fractions (Circle one of the options below)

Yes *Maybe* *No*

3 I am more comfortable working with decimals.
(Circle one of the options below)

Yes *Maybe* *No*

QUESTION: Find each players shooting percentage by dividing then converting your fraction into a decimal.

PLAYER	SHOTS MADE	TOTAL SHOTS	DIVIDE	DECIMAL
Skylar Diggins	7	10		
Candice Parker	60	100		
Stephen Curry	20	50		

4 My Multiplication skills in the game have improved
(Circle one of the options below)

Yes *Maybe* *No*

QUESTION

If there are 2 NBA teams in each of the following areas: New York City, Los Angeles, and Northern California, what is the total number of teams in all of the areas combined?

_____ x _____ =

5 My division skills in the game have improved.

Yes *Maybe* *No*

QUESTION

If there are 30 teams in the NBA, and 6 divisions in the NBA, about how many teams are in each division?

_____ x _____ =

6 I am a good teammate and show sportsmanship while playing NBA Math Hoops.

Always *Often* *Rarely* *Never*

NBA MATH HOOPS

WEEK 9

BASKETBALL SKILLS

TRADE DEADLINE

Learning Target:
Justifying Mathmatical Claims with Evidence

Welcome to the Second half of the NBA Math Hoops Season! It is time to take your basketball math game to the next level!

The NBA, like all professional organizations, is a business. Today, you will take part in a the **Trade Deadline,** which is when players move to different teams. This process occurs midway through every NBA season. You are going to take part in the process of trading some your player cards for new ones. **How will you decide?** You will use your knowledge of how your players performed in the past, and you will analyze their stats on the player cards.

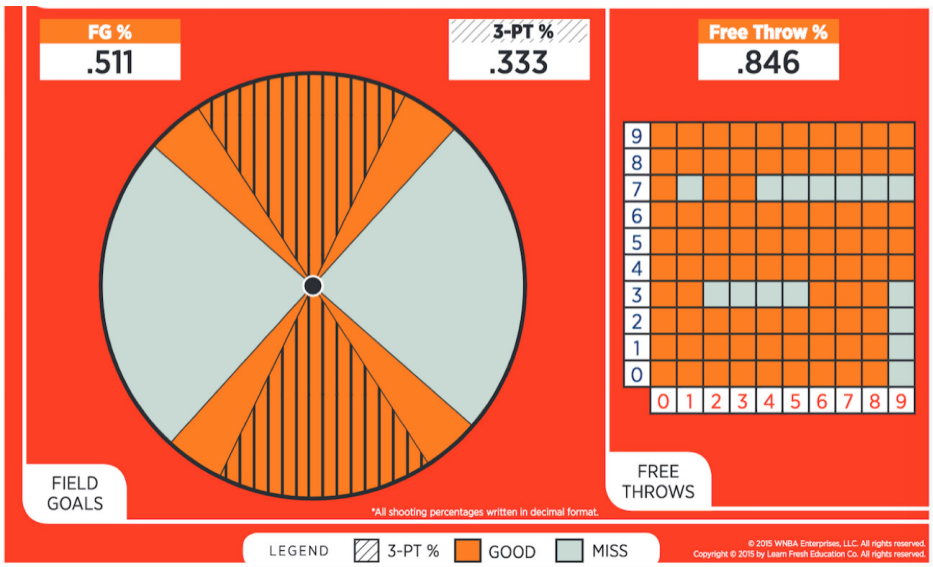
Think about why a specific player may or may not fill a need within your team.

Directions: Complete the chart below. Focus on Column F to justify your trades.

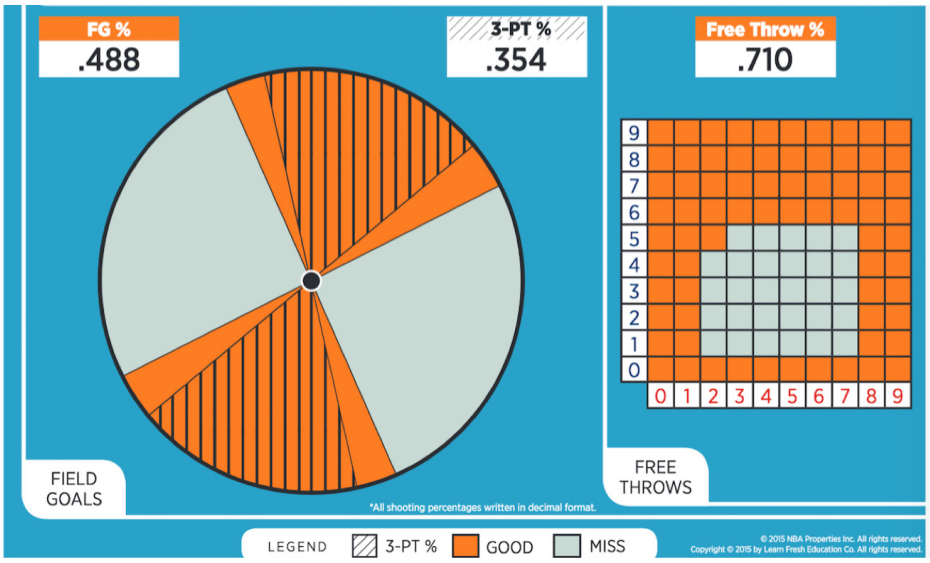
A	B	C	D	E	F
Position	***Player Name***	***FG%***	***3 - PT %***	***Free Throw %***	*Why should you trade or keep this player? Use Math Evidence to support your claim!*
Point Guard					
Shooting Guard					
Small Forward					
Power Forward					
Center					

Which player would you want to acquire if the two players below were available?

PLAYER 1



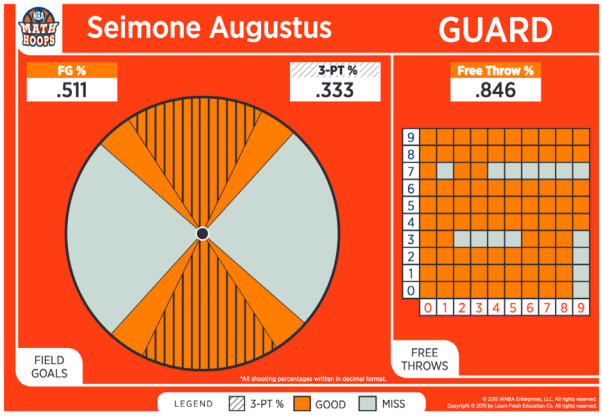
PLAYER 2

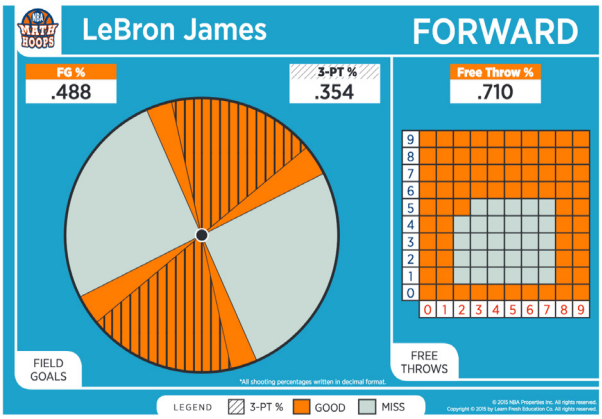


I would want Player _____ because_____

_____.

If you selected Player 1 over Player 2, you selected WNBA star, Seimone Augustus over NBA star, Lebron James! This is an example of making decisions based on stats rather than popularity.





THE TRADE DEADLINE RULES

1. Students can swap up to 2 players from their team.
2. Students must swap at least 1 player from their team.
3. Students need to complete the form below explaining why they want to trade a player or group of players with their opponent. Then the Commissioner (teacher) needs to approve the trade. (Provide your students with time to investigate and analyze the player cards)

TRADE DEADLINE CARD

Directions: In one paragraph, detail which player(s) you want to trade and which players you want to trade for. Use evidence to support your trade.

_____

_____

_____

_____

_____

_____

Coach's Signature: _____ Team Name #1: _____

Coach's Signature: _____ Team Name #2: _____

Commissioner's (Teacher's) Signature: _____

WEEK 11

BASKETBALL SKILLS

Learning Target:
Dividing and Rounding Single Digit Numbers.

Maximizing your Shot Options: Dividing & Rounding Numbers.

The foundation of mathematical decision making starts with being able to add, subtract, multiply, and divide. Think about it! When you wake up in the morning, you may want to **add** a few minutes to your sleeping time by hitting the snooze button, then try to **subtract** some of the time it takes to get to school by taking the fastest route. We **multiply** when we buy 3 bags of our favorite snack for $2 each, and we **divide** when we share those 3 bags with 3 of our friends.

In NBA Math Hoops, you add, subtract, multiply, and divide in order to find a shooter. Often times, however, when we get to division, the numbers don't divide evenly. Look at the example below.

ROLL						
	6	5	+ 11	− 1	× 30	÷ /

The example above show us how, in the past, we did not complete the division problem since the result would not generate a whole number—a number without a decimal. This left us with only 3 numbers to analyze! **Today, however, we are going to improve two mathematical skills so that you can have 4 results every time! We are going to learn how to divide and round!**

Directions: Carefully follow the steps below for dividing and rounding. Use the empty column to copy the math as you go through each step.

STEP 1 Set up the division problem.	$6 \div 5$ or $5\overline{)6}$	
STEP 2 Ask yourself "How many times does five (the divisor) go into six (the dividend)?" and place that number on the top.	$5\overline{)6}$ 1	

STEP 3
Multiply the top number 1 by the outside number 5 (divisor). Place that result under the dividend.

$5 \times 1 = 5$

```
    1
5 ) 6
    5
```

STEP 4
Subtract the numbers.

$6 - 5 = 1$

```
    1
5 ) 6
   -5
    1
```

STEP 5
Check if 5 (divisor) goes into 1. If not, place a decimal after the top number, add a 0 to the 6 and bring the 0 down.

```
    1.
5 ) 6.0
   -5
    10
```

STEP 6
Ask yourself "How many times does 5 (divisor) go into 10?"and place that number on the top after the decimal.

```
    1.2
5 ) 6.0
   -5
    10
```

5 goes into 10 2 times!

STEP 7
Multiply 2 times 5 (divisor). Write the number below the 10, and then subtract them. Since the result is 0, we have our answer!

```
    1.2
5 ) 6.0
   -5
    10
   -10
     0
```

$2 \times 5 = 10$

$10 - 10 = 0$

STEP 8
Round your answer!

Rounding Rules:

If the decimal is 5 or greater, you round up.

If the decimal is 4 or less, you round down.

1.2 rounds to 1.

Therefore, the rounded answer to 6 divided by 5 is 1!

You did it!

ROLL

6	5	+ 11	- 1	× 30	÷ /

Now, instead of putting a slash in the last box, you would put a _____.

Directions: Divide and round the following numbers.

ROLL 7 4 ▶ + − × ÷

ROLL 9 2 ▶ + − × ÷

STEPS Show your division for 7 divided by 4.

STEPS Show your division for 9 divided by 2

STEP 8
Round your answer!

STEP 8
Round your answer!

Extra Skills Challenge: Complete the divisions problem below.

ROLL 7 2 ▶ + − × ÷

ROLL 9 6 ▶ + − × ÷

NBA MATH HOOPS

BASKETBALL SKILLS

WEEK 13

ANALYZING STATISTICS WITH THE GAME SCORE BOARD.

Learning Target: Calculating Averages.

For players and fans, statistics make sports what they are. And, math is at the core of creating and understanding statistics. In math and sports, the main way to analyze and understand stats is to find the **average.**

An average is a calculated central value of a set numbers.

Finding an average requires adding the numbers and dividing them by the amount of values. See the example below.

Set of Numbers: 1, 2, 3, 4, 5 $\quad \frac{1 + 2 + 3 + 4 + 5}{5} = \frac{15}{5} = 3$

Team standings are based on winning percentages. Below is a chart with the standings for the top 4 Eastern Conference NBA teams through the 2nd week of February.

Directions: Calculate the Winning Percentages.

Eastern Conference	Wins	Losses	Games Played	$\frac{\text{Number of wins}}{\text{Total games played}}$	Winning Percentage
Cleveland Cavaliers	36	14			
Chicago Bulls	27	23			
Miami Heat	29	23			
Toronto Raptors	34	16			

Directions: Fill in the blanks below.

Calculate the average Wins by these Eastern Conference teams: $\frac{\_\_ + \_\_ + \_\_ + \_\_ + \_\_}{5} = \_\_$

This week, you have been using the Game Scoresheet to keep stats. Use the Score Sheets to complete the charts below.

Position: Player	Field Goals Made	Field Goals Taken	Field Goals Made / Field Goals Taken	Percentage
Guard				
Guard				
Forward				
Forward				
Center				

Calculate the average number of Field Goals Made by your team: $\frac{\_\_ + \_\_ + \_\_ + \_\_ + \_\_ =}{5}$

Position: Player	Three Pointers Made	Three Pointers Taken	Three Pointers Made / Three Pointers Taken	Percentage
Guard				
Guard				
Forward				
Forward				
Center				

Calculate the average number of Three Pointers Made by your team: $\frac{\_\_ + \_\_ + \_\_ + \_\_ + \_\_ =}{5}$

Position: Player	Free Throws Made	Free Throws Taken	Free Throws Made / Free Throws Taken	Percentage
Guard				
Guard				
Forward				
Forward				
Center				

Calculate the average number of Free Throws Taken by your team: $\frac{\_\_ + \_\_ + \_\_ + \_\_ + \_\_ =}{5}$

WEEK 13

BASKETBALL SKILLS

ADVANCED GAME NBA MATH HOOPS BASKETBALL SKILLS: THE PROBABILITY OF PASSING.

Learning Target: Using Statistics to Inform Basketball Decisions.

A unique addition of the Advanced Game is the pass option. In the Advanced Game, there are passing lanes that allow the ball to go back and forth between two players on the same team. While playing the Advanced Game, you will be making quick decisions throughout the game to determine whether to shoot or pass the ball.

Directions: Use the Game Board and the player cards on the next page to respond to the following questions.

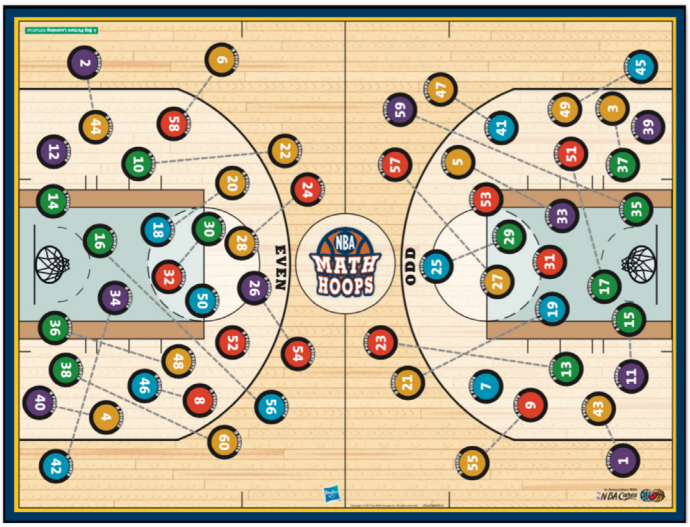
1 PLAYING ON THE ODD END OF THE COURT:

A. It's early in the game and you select the option of placing the ball on #13. Do you pass or shoot? _____

B. You've built up a six point lead midway through the half and place the ball on #55. Do you pass or shoot? _____

C. Your opponent has fought back to tie the game with a minute to go in the half. You have the ball and place it on #45. Do you pass or shoot? _____

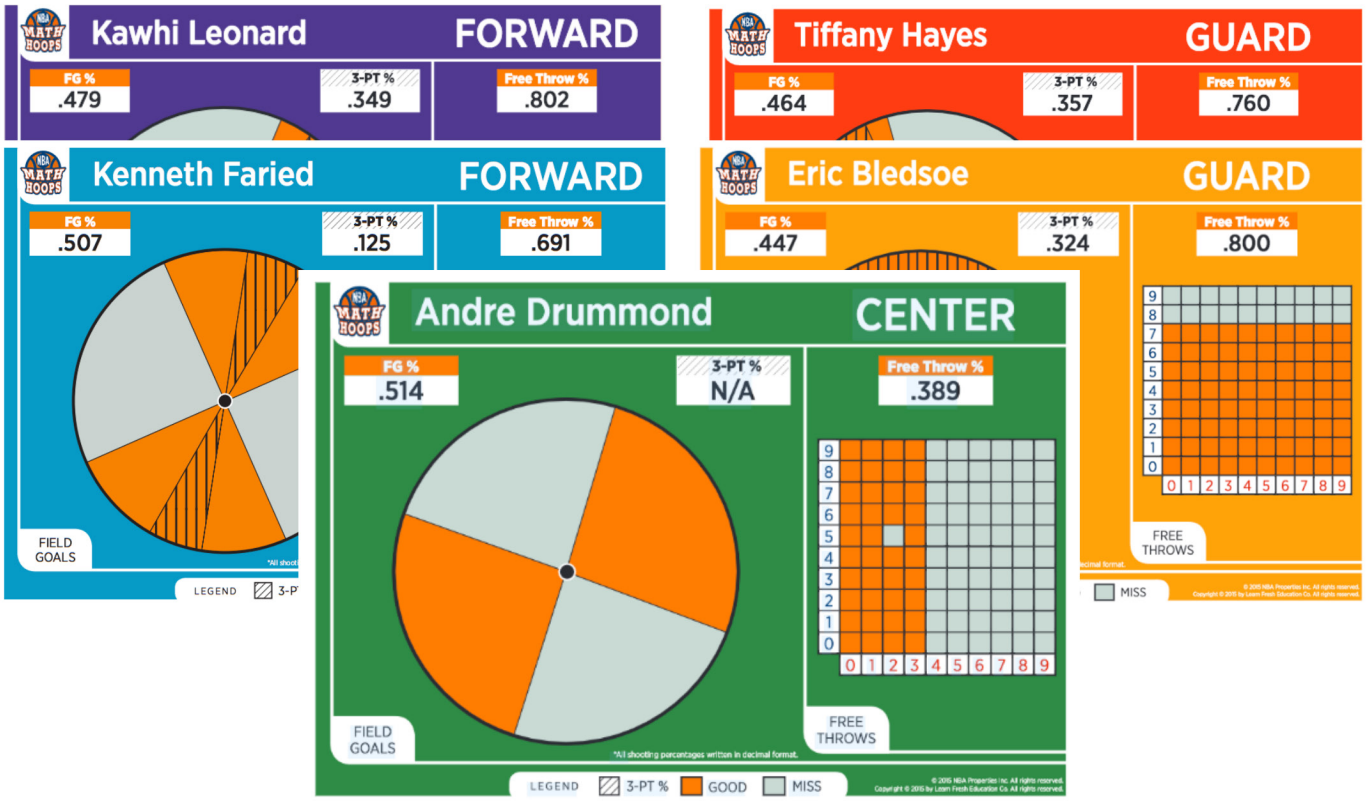
D. Ten seconds left in the first half and you're down by one. #11 gets the ball. Do you pass or shoot? _____



2 NOW PLAYING ON THE EVEN END OF THE COURT:

A. After scoring at the end of the first half and taking the lead, you start the second half with the ball on #16. Do you pass or shoot? _____

B. Opening up a ten point lead, your team is on fire. You have the ball and it goes to #34. Do you pass or shoot? _____



C Your opponent will not go away quietly. They've fought back to within one point with two minutes to play. You move the ball to #54. Do you pass or shoot?

_____

D Five seconds remaining in the game and you've lost the lead. Down by two, the ball goes to #2. Do you pass or shoot? _____

3 Select one of the situations when you were on the odd end of the court where you chose to pass. Explain the reasoning behind choosing to pass.

_____

_____

_____

_____

_____

_____

4 Select one of the situations when you were on the even end of the court and where you chose to shoot. Explain the reasoning behind choosing to shoot.

_____

_____

_____

_____

_____

_____

WEEK 14

BASKETBALL SKILLS

ADVANCED GAME
NBA MATH HOOPS
BASKETBALL SKILLS: OFFENSIVE REBOUNDS

Learning Target:
Multiplication and Division of single-digit and two-digit numbers.

A unique addition of the Advanced Game is the offensive rebound option. In basketball, once a shot is taken, there's no telling who will come down with the ball. However, we do know the shot will either be a made shot or a missed shot. If the player misses the shot, someone on the same team still has a chance to grab the ball and shoot again. This is known as an offensive rebound.

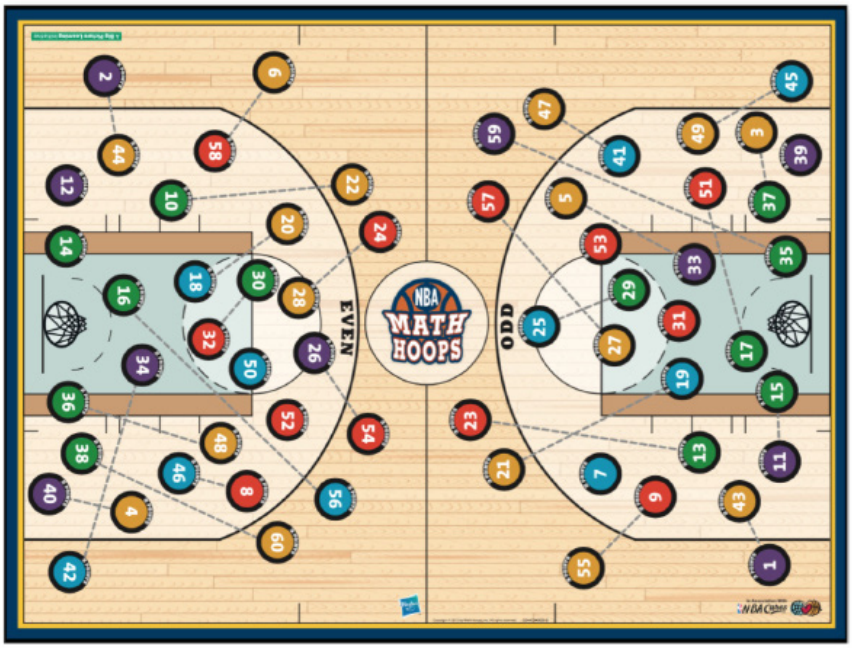
To go for your offensive rebound in NBA Math Hoops, there is a specific rule:
You have to choose a player whose circle is generated from multiplication or division ONLY.

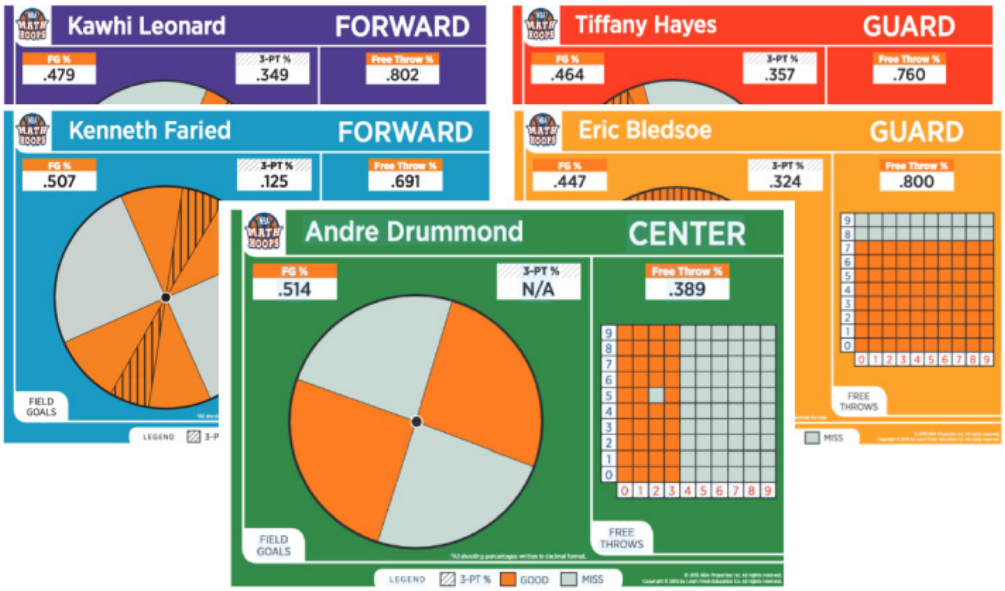
FOR EXAMPLE:
In order to go for your offensive rebound from the roll of 9 and 4 (look to the right), you would have to choose either: 60, 36, 2, 3, or 4.

ROLL: 9 | 4

BALL ON: 12

+ 13	− 5	× 36	÷ 3
+ 25	+ 17	+ 48	+ 15
− 1	− 7	− 24	− 9
× /	× 60	× /	× 36
÷ 2	÷ 3	÷ 3	÷ 4





Directions: Use the player cards above to answer the questions for each roll.

If you are shooting on the odd side of the board, which player(s) can you shoot with to get your offensive rebound?

_____

_____.

ROLL 5 2

BALL ON 23

+ 7	− 3	× 10	÷ 2
+	+	+	+
−	−	−	−
×	×	×	×
÷	÷	÷	÷

ROLL 7 3

BALL ON 37

+ 10	− 4	× 21	÷ 2*
+	+	+	+
−	−	−	−
×	×	×	×
÷	÷	÷	÷

If you are shooting on the even side of the board, which player(s) can you shoot with to get your offensive rebound?

_____

_____.