

**GED 2002 Teachers' Handbook of Lesson Plans**

Content Area Mathematics	Lesson Topic/Theme Statistics and Probability	Correlation to Math Framework 05.07/05.08/05.16	Lesson Number - 53
<p><b>Title: Make That Shot!</b> <b>Objectives/Learner Outcomes</b></p> <p>At the end of this lesson, the learner will be able to</p> <ul style="list-style-type: none"> <li>• Use class data to calculate percentages</li> <li>• Participate in a group activity</li> <li>• Relate activity to NBA stats</li> <li>• Calculate selected percentages for NBA Finals data</li> </ul>		<p><b>Materials/Resources/Internet Sites/Handouts/Worksheets</b></p> <ul style="list-style-type: none"> <li>• Overhead projector</li> <li>• Transparencies</li> <li>• Waste baskets</li> <li>• Waste basket liners</li> <li>• Official "paper toss" paper</li> <li>• Handout – <b><i>NBA Data Worksheet</i></b></li> <li>• Sports pages from local newspapers or sports magazines with team or individual statistics</li> </ul>	
<p><b>Pre-Requisite Knowledge</b></p> <p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• Complete basic addition, subtraction, multiplication, and division problems</li> <li>• Calculate percentages</li> </ul>		<p><b>Key Words</b></p> <ul style="list-style-type: none"> <li>• Statistics</li> <li>• Percentages</li> <li>• Average</li> <li>• Mean</li> <li>• Median</li> <li>• Mode</li> </ul>	
<p><b>Anticipatory Set/Introduction</b></p> <p><b>Ask:</b> How many of you watch NBA basketball or another professional sport? How many of you ever read the various statistics in the newspaper about certain players or teams? How are those statistics used?</p>			
<p><b>Preview Questions for Lesson</b></p> <ol style="list-style-type: none"> <li>1. What is mean? Median? Mode?</li> <li>2. How do you statistics in your daily life?</li> <li>3. How are statistics used in the world of sports?</li> <li>4. Why are statistics important?</li> <li>5. Do statistics always tell the real story?</li> </ol>			

### **Instructional Outline**

**Say:** Today, we are going to work on figuring out basic percentages. However, we are going to use real-life activities on which to base our figures. In fact, we are going to use a technique very similar to the one used in sports to figure the averages that we see all of the time in the sports pages of the local newspaper. First, get into groups of four people. (Make sure that each group has the same number of people to ensure better accuracy in the percentages.)

Either orally provide the students with the directions to the activity or write the directions on the board or a transparency. Have students work through each of the different activities. Assist those groups who are having difficulty in calculating the average. You may also wish to expand the activity by having the students figure the mode and median of the groups as well.

### **Process/Activities**

#### **Activity 1:**

- Place baskets 8-9 ft. from a marked foul line.
- Select groups.
- Throw paper ball at basket three times per person for practice.
- Throw paper ball at basket ten times per person.
- Record number of hits per person within the group.
- List names and number of hits on board.
- Calculate individual and team percentages for ten shots.

#### **Activity 2:**

- Review or demonstrate how to calculate percentage for eight shots.
- Throw paper balls at basket eight times per person.
- Calculate individual and team percentages for eight shots.

#### **Activity 3:**

- Combine the number of hits per person for ten shots and eight shots and calculate individual and team percentages for eighteen shots.
- Determine the highest individual and team percentages.

#### **Expand the Activity**

- Have students figure the median and mode for each team member and the team as a whole.

#### **Expand the Activity**

- Get copies of NBA stats from the sports section of the local paper.
- Have students calculate percentages for individual players, teams, etc.

<b>Product/Evaluation/Summary</b>			
Have students provide a summary report of the mode, median, and mean scores for their team. Have them then graph the average scores from each team using an appropriate graph format. Students may wish to find additional sports statistics and share them with the class.			
<b>Teaching to Different Types of Learners</b>			
	<b>Visual</b>	<b>Auditory</b>	<b>Kinesthetic/Tactile</b>
<b>Learning Activity</b>	Provide students with a copy of the directions for each activity. If students are having difficulty in figuring percentage, give them the formula for finding mean, median, and mode and have them write down one example for each.	Provide all directions and examples orally as well as in writing. Students may wish to report their findings to the class orally, rather than in writing.	Allow students to use calculators or tally sheets to assist them in the calculation of percentages.  Model the activity for students prior to beginning.
<b>Special Differentiation Strategies</b>	Provide directions for activities in written format and allow students to report in writing as well.	Make sure that students have understood the directions by asking questions about each step.	Students may wish to use a calculator or other types of manipulatives to complete the calculations.
<b>Evaluation</b>	Have students write a short report on the results of the activities, along with drawing a graph of the results.	Allow students to orally report what occurred in each of the activities and how a winner was selected.	Provide students with a template from which they can develop a graph to show the results of the activities.
<b>The Family and Adult Literacy Connection</b>		<b>ESE/ESOL Accommodation</b>	
Parents can share this activity with their children. Instead of figuring percentages, they should play the game by figuring how many balls went into the basket and how many did not. This provides young children with the concept of so many out of so many, i.e. I got 4 balls into the can out of the 8 balls that I threw, whereas my brother got 5 balls into the can out of the 8 balls that he threw.		Allow students to use a calculator. Students may also need a template to follow when developing graphs. Make sure that ESOL students understand the concept of basketball and what the different terms mean.	

## GED 2002 Teachers' Handbook of Lesson Plans Statistics and the NBA

### STATISTICAL MINIMUMS TO QUALIFY FOR NBA LEAGUE LEADERS

Category	Minimums
SCORING:	70 games or 1,400 points
REBOUNDS:	70 games or 800 rebounds
FIELD GOAL %:	300 field goals made
FREE THROW %:	125 free throws made
3PT %:	55 three-point field goals made
ASSISTS:	70 games or 400 assists
STEALS:	70 games or 125 steals
BLOCKED SHOTS:	70 games or 100 blocked shots
MINUTES:	70 games or 2,000 minutes
ASST/TO RATIO:	200 assists
STLS/TO RATIO:	82 steals

### NBA Stats – League Leaders 2003-2004

2003-04 REGULAR SEASON FIELD GOALS MADE			
PLAYER	PCT	FGA	FGM
1. <a href="#">Kevin Garnett</a> ( <a href="#">Minnesota Timberwolves</a> )	.494	1,143	565
2. <a href="#">Tracy McGrady</a> ( <a href="#">Orlando Magic</a> )	.423	1,214	514
3. <a href="#">Zach Randolph</a> ( <a href="#">Portland Trail Blazers</a> )	.483	952	460
4. <a href="#">Tim Duncan</a> ( <a href="#">San Antonio Spurs</a> )	.495	926	458
5. <a href="#">Sam Cassell</a> ( <a href="#">Minnesota Timberwolves</a> )	.493	900	444
6. <a href="#">Predrag Stojakovic</a> ( <a href="#">Sacramento Kings</a> )	.480	919	441
7. <a href="#">Paul Pierce</a> ( <a href="#">Boston Celtics</a> )	.400	1,070	428
7. <a href="#">Michael Redd</a> ( <a href="#">Milwaukee Bucks</a> )	.439	974	428
9. <a href="#">Jermaine O'Neal</a> ( <a href="#">Indiana Pacers</a> )	.435	971	422
10. <a href="#">Shawn Marion</a> ( <a href="#">Phoenix Suns</a> )	.422	978	413
11. <a href="#">Stephon Marbury</a> ( <a href="#">New York Knicks</a> )	.446	924	412
12. <a href="#">Shareef Abdur-Rahim</a> ( <a href="#">Portland Trail Blazers</a> )	.485	845	410
12. <a href="#">LeBron James</a> ( <a href="#">Cleveland Cavaliers</a> )	.411	997	410
14. <a href="#">Baron Davis</a> ( <a href="#">New Orleans Hornets</a> )	.385	1,054	406
15. <a href="#">Carmelo Anthony</a> ( <a href="#">Denver Nuggets</a> )	.423	956	404
16. <a href="#">Allen Iverson</a> ( <a href="#">Philadelphia 76ers</a> )	.392	1,004	394
17. <a href="#">Vince Carter</a> ( <a href="#">Toronto Raptors</a> )	.410	953	391
18. <a href="#">Richard Hamilton</a> ( <a href="#">Detroit Pistons</a> )	.438	885	388
19. <a href="#">Dirk Nowitzki</a> ( <a href="#">Dallas Mavericks</a> )	.455	847	385
20. <a href="#">Joe Johnson</a> ( <a href="#">Phoenix Suns</a> )	.433	871	377

### 2003-04 REGULAR SEASON FREE-THROW PERCENTAGE

PLAYER	FTM	FTA	FT%
1. <a href="#">Predrag Stojakovic</a> ( <a href="#">Sacramento Kings</a> )	275	298	.923
2. <a href="#">Steve Nash</a> ( <a href="#">Dallas Mavericks</a> )	159	174	.914
3. <a href="#">Allan Houston</a> ( <a href="#">New York Knicks</a> )	140	154	.909
4. <a href="#">Earl Boykins</a> ( <a href="#">Denver Nuggets</a> )	99	111	.892
5. <a href="#">Ray Allen</a> ( <a href="#">Seattle SuperSonics</a> )	115	129	.891
6. <a href="#">Chauncey Billups</a> ( <a href="#">Detroit Pistons</a> )	296	334	.886
7. <a href="#">Sam Cassell</a> ( <a href="#">Minnesota Timberwolves</a> )	207	236	.877
8. <a href="#">Shareef Abdur-Rahim</a> ( <a href="#">Portland Trail Blazers</a> )	309	353	.875
8. <a href="#">Shawn Marion</a> ( <a href="#">Phoenix Suns</a> )	154	176	.875
8. <a href="#">Damon Stoudamire</a> ( <a href="#">Portland Trail Blazers</a> )	91	104	.875
11. <a href="#">Michael Redd</a> ( <a href="#">Milwaukee Bucks</a> )	229	262	.874
12. <a href="#">Richard Hamilton</a> ( <a href="#">Detroit Pistons</a> )	232	266	.872
13. <a href="#">Brian Cardinal</a> ( <a href="#">Golden State Warriors</a> )	173	199	.869
14. <a href="#">Reggie Miller</a> ( <a href="#">Indiana Pacers</a> )	103	119	.866
15. <a href="#">Dirk Nowitzki</a> ( <a href="#">Dallas Mavericks</a> )	236	273	.864
16. <a href="#">Kevin Ollie</a> ( <a href="#">Cleveland Cavaliers</a> )	125	145	.862
17. <a href="#">James Posey</a> ( <a href="#">Memphis Grizzlies</a> )	143	166	.861
18. <a href="#">Doug Christie</a> ( <a href="#">Sacramento Kings</a> )	90	105	.857
19. <a href="#">Corey Maggette</a> ( <a href="#">Los Angeles Clippers</a> )	350	410	.854
20. <a href="#">Andre Miller</a> ( <a href="#">Denver Nuggets</a> )	262	307	.853