

Lesson Plan

NBA Averages

Book: *Luka Doncic: Basketball Star*

Series: Biggest Names in Sports

Level: Navigator

Objective

To help students practice calculating averages and explore real-world examples of how statistics such as averages are useful.

Supplies

- *Luka Doncic: Basketball Star* book
- Athlete Averages worksheet (attached)

Before the Activity

Read through the *Luka Doncic: Basketball Star* book, or assign it to students to read on their own. Print an NBA Averages worksheet for each student.

Activity

Page 20 of *Luka Doncic: Basketball Star* says that Doncic “averaged 14.5 points, 5.2 rebounds, and 4.6 assists per game” during the 2017–18 season. The next season, he averaged “21.2 points, 7.8 rebounds, and 6.0 assists” (p. 26). We can guess that Doncic improved his game over time, as each of the numbers went up. But what do these numbers actually mean?

Review the concept of averages with students, explaining that an average tells the typical number in a set of numbers. There are three different kinds of averages. Each one is calculated differently:

- The median is the value in the middle if all values are lined up from least to greatest.
- The mode is the value that happens most frequently.
- The mean is the total of all the values divided by the number of values in the set.

When people use the word *average*, they are usually talking about the mean. For example, Doncic’s average number of points per game is a mean. Explain that while the mode is always one of the numbers in the set, the mean is not—Doncic never got 21.2 points in one basketball game. Instead, 21.2 is the number you get if you add up all of Doncic’s points from every game and divide that total by the number of games he played.

Averages are useful in statistics. They provide a good way to look at a player's overall performance throughout the year. They also make it easy to compare performances from different years or with other players. For example, Doncic averaged 21.2 points per game in 2018. Comparing this number with his average in 2017 (14.5 points) can show how much he improved.

Have each student fill out the Athlete Averages worksheet to practice finding all three kinds of averages. Then come back together as a class for a short discussion. Have students think of one advantage and one disadvantage for each method for finding averages.

Evaluation

Use the attached answer key to give students up to 18 points for completing the worksheet, or 2 points for each correct answer.

Standards

This lesson may be used to address the Common Core State Standards' math standards, grade 6 (CCSS.MATH.CONTENT.6.SP.B.5).

Athlete Averages

1. In her first year playing basketball for Midtown High School, freshman Dalia Cortez scored the following points in the first nine games: 4, 10, 12, 18, 10, 16, 14, 20, 13. What was her mean score for these nine games?

2. What was Dalia's median score?

3. What was the mode?

4. Fellow freshman Katie O'Leary scored just 2 points in the first game and 6 points in the second. In the next seven games, she scored 9, 14, 0, 18, 26, 18, and 20 points. What was her mean score for these nine games?

5. What was Katie's median score?

6. What was the mode?

7. Junior Courtney Yang got a consistent start in the first eight games, scoring 13, 12, 14, 15, 12, 13, 12, and 16 points. Then she scored 56 points in the next game. What was her mean score for these nine games?

8. What was Courtney's median score?

9. What was the mode?

Athlete Averages **ANSWER KEY**

1. In her first year playing basketball for Midtown High School, freshman Dalia Cortez scored the following points in the first nine games: 4, 10, 12, 18, 10, 16, 14, 20, 13. What was her mean score for these nine games?

$$4 + 10 + 12 + 18 + 10 + 16 + 14 + 20 + 13 = 117$$
$$117 / 9 = 13$$

2. What was Dalia's median score?

arranged numerically: 4, 10, 10, 12, 13, 14, 16, 18, 20
13 (this number is in the middle)

3. What was the mode?

10 (this number appears most frequently—two times)

4. Fellow freshman Katie O'Leary scored just 2 points in the first game and 6 points in the second. In the next seven games, she scored 9, 14, 0, 18, 26, 18, and 20 points. What was her mean score for these nine games?

$$2 + 6 + 9 + 14 + 0 + 18 + 26 + 18 + 20 = 113$$
$$113 / 9 = 12.6$$

5. What was Katie's median score?

arranged numerically: 0, 2, 6, 9, 14, 18, 18, 20, 26
14 (this number is in the middle)

6. What was the mode?

18 (this number appears most frequently—two times)

7. Junior Courtney Yang got a consistent start in the first eight games, scoring 13, 12, 14, 14, 12, 13, 12, and 16 points. Then she scored 56 points in the next game. What was her mean score for these nine games?

$$13 + 12 + 14 + 14 + 12 + 13 + 12 + 16 + 56 = 162$$

$$162 / 9 = 18$$

8. What was Courtney's median score?

arranged numerically: 12, 12, 12, 13, 13, 14, 14, 16, 56
13 (this number is in the middle)

9. What was the mode?

12 (this number appears most frequently—three times)