AVERAGE SPEED

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Calculating average speed.

Objectives

Students should be able to;

1. Calculate Average speed.

Activity Starter/Instruction

1. Speed is a basic description of motion. In other words, it is a way to measure motion.
2. Average speed is simply a measurement of the distance something travels over a period of time.
3. It could be a bike being ridden down the sidewalk, or a ball traveling through the air, or even a pumpkin being flung from a catapult.
4. Average speed can be written as a math problem like this:
5. Average Speed = distance an object travels ÷ time from start to finish.
6. It can also be written as a fraction like this:
7. Average Speed = distance an object travels / time from start to finish.
8. Whichever way it is written, the answer is still the same!
9. Emma rides her bike to the park. The park is 8 miles north from her house. If Emma leaves her house at 8:00 a.m.

Teacher Guide

Day 1/ Lesson 1: 20mins

1. Teacher will arrange students in groups of four.
2. Teacher will create a horizontal track with meter sticks for each group and will ask each student in the group to walk at a normal pace the three meter distance from the beginning line to the end and back.
3. Teacher will ask students to observe each other walking and explain what motion is.
4. All students in the group will walk the three meters track from the starting line to the end and back. Each student will record his/her time and distance from the start line to the end and back.

Activity Log			
	Students	Distance	Time	Average Speed
1				
2				
3				
4				
Average Group Speed ----- -			

5. Teacher will write the formula S = d/t on the board for students to find their speed.

Materials Required

- White board
- Marker
- Meter sticks
- Masking tape
- Timers
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Additional Resources

- https://www.wikijob.co.uk/content/aptitude-tests/te speed-distance-time-questions
- https://www.onlinemathlearning.com/average-speed
- https://www.toppr.com/guides/quantitative-aptitude speed/
- https://www.braingle.com/brainteasers/teaser.php?c
- https://www.cimt.org.uk/projects/mepres/book8/y8s
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Additional Notes

and arrives at the park at 10:00 a.m., what is her average speed?

10. The distance Emma travels on her bike from her house to the park is 8 miles. The time it takes her to travel from 8:00 -10:00 is 2 hours.

11. Emma's Average Speed = 8 miles ÷ 2 hours = 4 miles per hour

12. This means that Emma travels, on average, a distance of 4 miles each hour.

Guided Practice

Day 2/ Lesson 2: 15mins

1. Suppose a truck travels in segments that are described in the following table

2.

Segment	Distance (miles)	Time (hours)
1	30	1
2	45	2
3	50	1
4	65	2

3. What is the average speed of the truck?

4. Based on the information given, its average speed over the four segments can be calculated as

5. Average speed = $\frac{\text{total distance}}{\text{Elapsed time}}$

6. $\frac{30 + 45 + 50 + 65}{1 + 2 + 1 + 2}$

7. $= \frac{190}{6}$

8. = 31.67 miles per hours

6. Students will work in their groups to find the average speed of the group.

Guided Practice

Day 4/ Lesson 4: 20mins

1. Students will work in groups of four.

2. The teacher will construct a two-meter track for each group using two meter sticks and masking tape to mark the starting line at the beginning of the track.

3. The teacher will provide a stopwatch and a constant speed battery-operated toy car to each group.

4. Each group will measure the distance their car travels after three different times (five, ten and fifteen seconds if cars are fast; ten, twenty and thirty seconds if cars are slow).

5. Students will do three trials with each car and record their measured distances in the data table for each trial.

6. Students will find the average distance traveled for each time and record this value in the data table.

7. The teacher will supervise students during calculations of average speed. Students will calculate the average speed for each of the three times of travel and compare these speeds (they should be the same, but reaction time errors may contribute to differences; if that is a significant issue, increase the times of travel).

8. Students should also calculate the average speed across all the trials (the average of the average speeds for each time of travel).

Summary	Assessment Activity	Assessment Activity
1. Go over activities with students, let students share their results and review with the whole class.	1. Teacher will walk around and observe students to ensure that students are taking accurate measurements and correctly recording data. 2. Teacher will assist students who are struggling with activities by explaining and clarifying misconceptions.	Assess if students can; 1.Solve for average speed correctly.