RATIO

3.20.2019

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

4

Overview

This lesson plan covers teaching content for;

1. Relationship between fraction and ratio
2. Quantitative aptitude problems related to ratio

Objectives

Students should be able to;

1. State the relationship between fraction and ratio.
2. Solve quantitative aptitude problems related to ratio

Activity Starter/Instruction

1. Practice writing equivalent fractions. Begin with unitary fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ and ask pupils to give you as many equivalent fractions as they can for each.
2. Write these on the board in a list. Ask them to consider the list, and tell you which is the 'simplest'.
3. Then introduce other fractions such as $\frac{2}{3}$, $\frac{3}{4}$,etc., and repeat the process.
4. Then write on the board the fraction $\frac{10}{25}$ and ask pupils to give you equivalent fractions.
5. If they do not suggest it, point out that $\frac{2}{5}$ is equivalent, to remind them that they can divide as well as multiply to get equivalent fractions.

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1.Explain that the word 'ratio' is used to describe the relative numbers of different things or parts.

2.So when observing a total of 6 vehicles there are 2 buses for every 4 cars, which can be written in the form: '2 buses:4 cars'.

3.The colon is used to separate the two parts of the ratio.

4.The two sides of the ratio behave in exactly the same way as a fraction, and so it can also be simplified (we can find an equivalent ratio).

5.In this case 2:4 can be simplified to 1:2, so the sentence could be written as 'Out of three vehicles, there is 1 bus for every 2 cars'. I.e. there are half as many buses as cars, or twice as many cars as buses.

6. Ensure that pupils understand the concept of ratio and the language used.

Materials Required

-Table of factors chart

- Number chart

- Sieve of Eratosthenes

Additional Resources

- https://www.math-only-math.com/basic-concept-of-r
- https://www.thoughtco.com/what-is-ratio-definition-2312529
- https://www.mathplanet.com/education/algebra-1/h linear-equations/ratios-and-proportions-and-how-to-s
- https://www.kullabs.com/classes/subjects/units/lesso detail/7034
- https://www.toppr.com/guides/maths/ratios-and-proportions/introduction-to-ratios-and-proportions/

Additional Notes

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Provide visual images for ratios then ask the pupils to describe the scenario using the language and notation of ratio, and vice versa. For example, ice cream cones have two scoops of chocolate ice cream to every one scoop of strawberry.
2. Use the color coded tiles/squared paper and ask pupils to put ratios of one color to another. E.g. The ratio of black tiles to white tiles is one to every three.
3. On a more immediate level, you could ask the pupils to work out the ratio of boys to girls in the class and, if possible, the ratio of boys to girls in the school.

Guided Practice

Day 4/ Lesson 2: 15 Mins

1. Explain to the pupils how ratio can be used to increase or decrease quantities in a regular way.
2. They should know that when they increase something they need to multiply it by a ratio, in the form of an improper fraction.
3. Explain that to decrease something they will multiply by a ratio in the form of a simple fraction.
4. Pupils must now be taught how to extrapolate ratios from a sentence or group of words.

Guided Practice

Day 3/ Lesson 3: 15 Mins

1. Work through examples showing how the ratio of 20:30 can be simplified by dividing both numbers by their highest common factor viz. 10.
2. Thus simplifying the ratio to 2:3. This is called scaling down.
3. Similarly, the ratio can be scaled up by multiplying both numbers in the ratio by the same scale factor e.g. 2. Therefore, 20:30 scaled up by 2 will become 40:60.
4. However, reinforce the concept that whether the ratio is scaled up or down does not matter as the ratio will remain the same.

	Assessment Activity 1. Listen to pupil's answers during the lesson 2. Establish whether they have understood how to calculate ratios. Give extra examples where needed.	Assessment Activity Make sure pupils understand how to create a ratio from a given word problem.
	Summary 1. Ask for volunteers to share their answers to the problems assigned. 2. As the problems are reviewed in front of the class, have the students check their answers for accuracy.	