# INVERSE PROPORTION

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## Subject

Mathematics

## Prepared By

[Instructor Name]

## Grade Level

5

## Overview

This lesson plan covers teaching content for;

1. Solving inverse proportion

## Objectives

Students should be able to;

1. Solve for inverse proportion

## Activity Starter/Instruction

1. Discuss that two measurements are considered to be inverse proportion or vary indirectly when as one unit increases the other decreases.
2. Use the x and y values in the table to highlight the y value decreases as the x increases.

| X | 12 | 8 | 6 | |
|---|---|---|---|---|
| Y | 2 | 3 | | 12 |

$Y \propto \frac{k}{x}$

$Y = \frac{K}{x}$

$2 = \frac{K}{12}$

$K = 24$

$Y = \frac{24}{X}$ => $y = \frac{24}{6} = 4$

Y = 4 when x = 6

3. $Y = \frac{24}{X}$ => $12 = \frac{24}{x}$

$12x = 24$

$X = \frac{24}{} = 2$

## Teacher Guide

**Day 1/ Lesson 2: 15 Mins**

1. Divide the class into 3 groups. Set two buckets far apart from each others. (Two buckets per group).
2. Fill one of the buckets with small balls while the other bucket is left empty. The number of balls in the bucket should contain equal balls for each group.
3. The group will divide themselves and nominate a member who will run carrying the balls one after the other from one end to the other end into the empty bucket.
4. The other members of the group will be split in such a way that some will stay counting down from the filled bucket while the other members count the number of balls entering the empty bucket.
5. The teacher sets a stopwatch to 1min after which the balls will be counted. Inverse proportionality should be established by stating that as the number of balls increase in one bucket, it reduces in the other.

## Materials Required

-White board

-Marker

-Buckets

-Small balls

-Thin dry sticks

## Additional Resources

- http://www.kwiznet.com/p/takeQuiz.php?ChapterID=
- https://www.onlinemathlearning.com/inverse-variati
- https://www.math-only-math.com/inverse-variation.h
- https://ideagalaxyteacher.com/proportions-activities/
- https://www.learner.org/workshops/algebra/worksho

## Additional Notes

12

X = 2 when y = 12

## Guided Practice

**Day 2/ Lesson 2: 15 Mins**

1. Last month, it took 3 gardeners 12 hours to fix up the gardens in the school. This month, the school has a bigger budget and can hire 6 gardeners. Knowing that it took 12 hours to finish the job for 3 gardeners, how much time will it take for 6 gardeners to fix up the gardens?
2. 3 gardeners – 12 hours a — b

   6 gardeners – x hours c — x

   For inverse proportion

   $X = \frac{ab}{C} \Rightarrow \frac{3 \times 12}{6} = 6$ hours
3. With 6 gardeners, the garden will be fixed up in 6 hours. As one quantity increases (number of gardeners), the other (number of hours) decreases in the same proportion

## Guided Practice

**Day 3/ Lesson 3: 20mins**

1. Tell pupils to bring a thin dry stick of any length. It is important that they can break the stick easily.
2. This activity works best when the sticks are of different lengths. If some pupils have stick of the same length, ask some of them to cut off a portion of their stick to shorten the length. Spare pieces can be given to pupils that did not bring a stick.
3. Put the pupils into pairs or small groups.
4. Ask pupils to answer the following questions in their groups or pairs:
   Who has the shorter stick?
   What is the difference between the lengths of shorter and longer sticks?
   How many times does the shorter stick fit into the larger stick?
5. In the questions above, the length of the shorter and longer sticks in two ways. What is the difference between these two comparisons?
6. Let some groups present their findings to the class to initiate a discussion, guided to pupils discovering the physical effects of multiplication.

| | | |
|---|---|---|
| | **Assessment Activity**<br>Pupils need to be familiar with inverse proportion and how to solve related questions. | **Assessment Activity**<br>Assess if pupils can:<br>1. Solve for inverse proportion |
| | **Summary**<br>1. Ask for pupils to share their answers to the activities carried out. | |
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