**NIGENIUS**
Digital Assistant For Teachers

## Subject

Mathematics

## Prepared By

[Instructor Name]

## Grade Level

5

## Overview

This lesson plan covers teaching content for;

1. Highest common factor of two digit whole numbers

## Objectives

Students should be able to;

1. Get the highest common factor of 2 digit number

## Activity Starter/Instruction

1. Write the definition of "factor" on the board (a whole number that divides exactly into another number).
2. Write the number 12 on the board. Ask pupils to shout out factors (i.e., "What numbers go into 12?").
3. Write the factors around the number and prompt pupils as needed to get all factors (1, 2, 3, 4, 6, and 12).
4. Explain, "These are all factors of 12. Factors are numbers we can multiply together to get another number. For example, 3 x 4 is 12, so 3 and 4 are both factors of 12."

## Guided Practice

### Day 2/ Lesson 2: 15 Mins

1. Use two sets of bottle tops, each of a different color, for the two given numbers. Arrange the two sets of bottle tops on either side of a demarcation line: arrange the smaller number of bottle tops on the left and the larger on the right.

## Teacher Guide

### Day 1/Lesson 1: 20 Mins

1. Tell pupils that they can use factor rainbows as a way to list factor pairs and find all the factors of a number, in order from least to greatest.
2. Make a rainbow with the factors of 12. Write another number, like 15, on the board. Remind pupils that 1 and the number itself are always factors of every number.
3. Draw a factor rainbow for 15 starting with 1 (Draw a big arch from 1 to 15, leaving room for other factors inside the first arch).
4. Ask pupils, "Is 2 a factor? Is 3 a factor? What times 3 is 15?" Draw an arch from 3 to 5 to continue the rainbow.
5. Tell pupils that when making a factor rainbow, they should keep counting up from 1 and adding factors until reaching a factor that is already listed (5 in this case). When they reach a factor that is already listed, the factor rainbow is complete.
6. Guide pupils through an example of a square number, like 16, and demonstrate how to make a rainbow when a factor is used twice

## Materials Required

- White board
- Marker
- Bottle tops
- Sheet of paper
- Marker

## Additional Resources

- http://www.teach-nology.com/lessons/lsn_pln_view_lessons.php?action 21
- http://www.mathblaster.com/parents/math-activities
- https://www.onlinemathlearning.com/hcf-lcm.html
- https://betterlesson.com/lesson/523215/greatest-cor
- https://www.teachsecondary.com/maths-and-science mathematics-highest-common-factor-lowest-common

## Additional Notes

2. For example, let us try to find the HCF of two numbers, 12 and 18. In the first step, we arrange 12 bottle tops in a vertical line to the left of the demarcation line. Arrange the 20 other bottle tops on the right, we find that we cannot arrange these in a rectangle. So 12 is not the HCF of 12 and 18.
3. Let them change the arrangement on the left to six rows of bottle tops each. They also change the arrangement of the 18 bottle tops.
4. Now we find that we can arrange the 18 bottle tops in six rows. Therefore 6 is the HCF of 12 and 18.

(i.e., write the factor once as the center number in the rainbow without an arch drawn above it).
7. Display factor rainbows for 12 and 16 side by side. Circle the common factors (1, 2, and 4) and explain, "When two numbers have factors in common, we call these common factors. The term highest common factor refers to the largest, or greatest, common factor between two or more numbers. In this case, 4 is the highest common factor."

## Guided Practice

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

1. Have pupils count off one through four and assign each number a different problem (i.e., if you are a number one, make a factor rainbow for 48; other numbers could be 56, 60, or 72).
2. Hand out a sheet of paper to each pupil. Instruct pupils to use markers to make a factor rainbow for their assigned number.
3. When pupils are finished, invite a few pupils up to share so that each of the four assigned numbers is represented.
4. Have pupils pair up with a partner whose assigned number was different from their own. Instruct partners to find the greatest common factor for their two numbers.

## Assessment Activity

Pupils need to be familiar with what a factor is. Make sure that pupils understand how to get the highest common factor.

## Summary

1. Ask for some pupils to answer some questions.
2. Discuss the answers with them for easy assimilation.

## Assessment Activity

Assess if pupil's can :

1.Find the HCF of 36 and 63