LEARNING AS ONE NATION
Expanded Project

JHS LEARNING ACTIVITY

Name: _____ **Grade/Score:** _____
Grade and Section: _____ **Date:** _____

Subject *(Check or choose from below.)*

- ☐ Religion/Values Education
- ☐ Natural Sciences
- ☐ Araling Panlipunan
- ☐ Filipino
- ☐ English
- ☐ Math
- ☐ TLE / ICT
- ☐ MAPEH
- ☐ HGP _____

Type of Activity *(Check or choose from below.)*

- ☐ Concept Notes
- ☐ Skills: Exercise / Drill
- ☐ Performance Task
- ☐ Illustration
- ☐ Formal Theme
- ☐ Informal Theme
- ☐ Others: _____

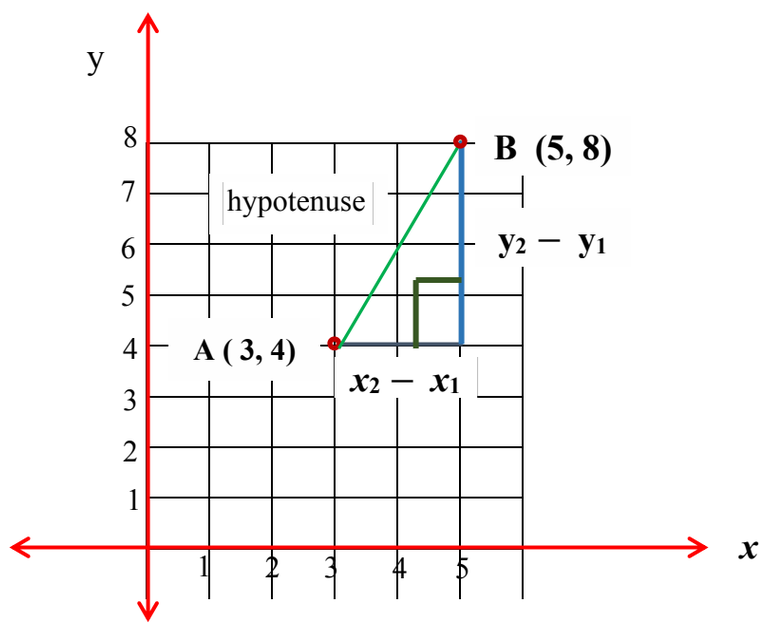
Activity Title: The Distance Formula

Learning Target: To derive the formula for the distance between two points on the Cartesian plane.

References: (Author, Title, Pages)
http://www.chilimath.com/algebra/intermediate/dist/derivation-of-distance-formula.html
V. G. Baja and M.V. Bernido, CVIF Learning Activities

Suppose on a Cartesian coordinate plane we are asked to find the distance between two points: point B (x_2, y_2) = (5, 8), and point A (x_1, y_1) = (3, 4). Here we will get the distance formula which we will use later for the equation of a circle.

First we connect the two points and then draw one vertical segment and one horizontal segment to form a right triangle as shown in the figure below.



Application: Based on the illustration above, study the following:

1) Let c = hypotenuse (longest side), a = length of the horizontal segment, and b = length of the vertical segment. Recall the Pythagorean theorem which gives us the equation for finding the hypotenuse of the right triangle: $a^2 + b^2 = c^2$.
2) Take a = $x_2 - x_1$ and b = $y_2 - y_1$. Using the Pythagorean theorem, write the equation in finding the distance **d** between the two points A and B.
3) Calculate the numerical distance between point B (x_2, y_2) = (5, 8), and point A(x_1, y_1) = (3, 4).