**Activity Plan Template**

**Title:** *(Choose an informative and interesting title for the activity)*

What is the Pythagorean Theorem?

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**Topic**: *(e.g. the distance formula, the Pythagorean theorem)*

*Pythagorean Theorem*

**Connection to Core Curriculum**: *(Identify a specific content standard here)*

*Grade 8:*

*Standard 8.G.6*

*Explore and explain a proof of the Pythagorean Theorem and its converse.*

**Overview**: *(Briefly describe what the activity will accomplish)*

*This activity is designed to assist the student in their development of the Pythagorean Theorem. The activity will utilize the converse of the pythagorean theorem to develop their understanding of the theorem.The converse; Which is: “ that if the square of the length of the longest side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle.”*

**Objectives**: *(Indicate what participants will accomplish. Be specific, e.g. ‘participants will explain that the distance formula is the Pythagorean theorem used within the Cartesian coordinate system’ rather than ‘participants will explain the relationship between the Pythagorean theorem and the distance formula’)*

-Participants will explore relationships for the side lengths of a right triangle.

-Participants will engage in a technology activity to visually assist their development of the pythagorean theorem.

-Participants will know the pythagorean theorem.

**Materials Needed:** *(List any physical or virtual resources that are needed to complete the activity, e.g. scissors, applet address)*

Access to the following link by means of an electronic device. Computers are preferred.

<http://5010.mathed.usu.edu/Fall2020/NSelman/PythagApp.html>

**Technology:** *(What technology will be used in the activity – be specific)*

*We will be using an applet created in GeoGebra. The applet allows students to adjust the lengths of the legs of a right triangle and shows the areas of the squares that share the sides of the triangle.*

**Role of Technology:** *(What does the technology contribute to the activity?)*

*The applet allows students to discover the pythagorean theorem for themselves. Students will explore a vast amount of different side length sizes of right triangles in a short amount of time.*

**Web Reference:** (As appropriate)

<http://5010.mathed.usu.edu/Fall2020/NSelman/PythagApp.html>

[*https://calcworkshop.com/triangle-trig/converse-pythagorean-theorem/*](https://calcworkshop.com/triangle-trig/converse-pythagorean-theorem/)

**Activity Plan:**

*(Describe how the activity will be carried out. Be specific at each step. E.g. rather than saying ‘1. Review the Pythagorean theorem’ which could relate to history, implementation, or application; explain exactly what will be discussed. E.g. ‘1. Remind participants that the Pythagorean theorem is used to find the length of one side of a right triangle if the other two side lengths are known.’)*

1: Explain A brief historical background of the pythagorean Theorem. Then provide a few places it is used today.

2. Remind students of the definition of a triangle. That we would like to find a relationship about the side lengths of a right triangle.

3. , If possible, pair students together and provide the students with access to the link ‘<http://5010.mathed.usu.edu/Fall2020/NSelman/PythagApp.html>’. Allow Students 8 minutes to explore the Geogebra applet to deduce a plausible relationship for the side lengths of a right triangle.

4. Meet together as a class to discuss the findings and explain the intended result of the pythagorean theorem through the app if it is not achieved.

**Background:** *(Optional.* *This may include history, motivation, etc.)*

History: Euclid wrote *The Elements* around 300 B.C. This book contained a formal proof of the Pythagorean Theorem.

**Included documents**: *(e.g. task sheet, figures, discussion outlines)*

*A worksheet titled “The Pythagorean Theorem.”*

**References**: *(As appropriate. Reference all sources used in the preparation of your activity plan)*

Converse of the Pythagorean Theorem Explained (2019). (2020, January 21). Retrieved November 30, 2020, from https://calcworkshop.com/triangle-trig/converse-pythagorean-theorem/