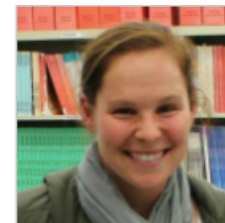




UTeach Maker - Showcase Lesson Overview

Amy Gross (Fall 2017)



Lesson Title	Pythagorean Theorem in Design
UTeach Maker	Amy Gross
Subject and grade level	Algebra Advanced 7/8 High Cap program
Link to lesson plan and materials	https://drive.google.com/open?id=1O576ndJmN3G7tw3IpCaAFTpo8qlx4DD7 https://drive.google.com/open?id=1KJTxCWlh_uvzRAiowU9mz-fqvclhj3f

Lesson Description:

Students learn the value of knowing right angles in design and use the converse of the Pythagorean Theorem (if $a^2 + b^2 = c^2$ then there is a right triangle) to prove their prototypes have right angles

Lesson Development:

I really wanted the value of the Pythagorean Theorem in construction to be felt by the students and understand that math is used everyday in some jobs.

Cornhole is a simple lawn game that is relative easy to construct so it seemed like a good jumping off point to get the students excited about design.

Students had lots of fun at the game night and overall it was a success!

Lesson Implementation:

Students learn what the game of cornhole is and identify the right angles within it.

Students brainstorm what makes a good lawn game (desirable level of difficult, easy to learn but hard to master, appropriate for all ages)

Students spend a week developing their prototype and updating their blueprint

Students created a Khan Academy style video blog to demonstrate their knowledge of the Pythagorean theorem (this replaced a typical quiz)

Students contributed to making a full sized class set of a cornhole variation game that students designed themselves. Students made a final blueprint on over sized paper that included a scale, evidence of the Pythagorean theorem, and multiple views of their prototype.

Students participated in a game night in which they have friends and family play their prototype game and got to play the games of their classmates in different period.

Connection to important concepts and skills within the discipline and/or across subject areas:

Scale Factor for the blue print

Pythagorean theorem and its converse

Measurement with a ruler

Presentation practice

Creation of video blogging

Reflection:

What Went Well

Students learned how to drill a screw into wood.

Students got to see the PT in action

Students had to showcase their work

Thoughts for the Next Iteration

Make the use of the PT more rigorous!

Make the students defend/present their work in a way that makes them reference the pythagoren theorem more.