**Spaghetti Bridge**

**Objective:**

The objective is to allow grades 6 – 10 (and younger years) students the opportunity to explore trades and technology careers in a research fashion as well as to experience hands on practical application of skills. Teams of students will be tasked with a design/build situation or problem where they will need to work collaboratively as a team to ideate, design and construct a structure capable of holding a load for a prolonged period.

**Introduction:**

Bridges are structures built over a river, railroad track, road, or some other obstacle. They allow people or vehicles to cross from one side to another.

As well, Bridges are structures used by people and vehicles to make crossing areas easier in travel. Engineers build bridges over rivers, lakes, ravines, canyons, railroads, and highways.

Bridges must be built strong enough to safely support their own weight as well as the weight of the people and vehicles that pass over it. The bridge must also withstand natural occurrences that include weathering, earthquakes, strong winds, and freezing and thawing.

<http://www.42explore.com/bridge.htm> (Jan. 15, 2020)

Questions to consider:

* How do you design a structure to hold a load when it has to stretch over a space?
* What are the types of bridges or load designs that have been useful in the past? Where do we see them today?
* How do bridges work?

Learning Resources:

How bridges work: <https://science.howstuffworks.com/engineering/civil/bridge.htm>

Bridge Fact Monster: <https://www.factmonster.com/encyclopedia/science/tech/terms/bridge>

PBS Build a Bridge: <https://www.pbs.org/wgbh/nova/bridge/build.html>

Many bridge resources: <http://www.42explore.com/bridge.htm>

**Project Start:**

* Review the scope document with the students and then get the students into teams.
* Provide teams with all resources and review testing protocols.
* Give teams time to work
* Allow teams 1/2 kg testing station
* Once time is up, test all builds and follow testing rules on scope doc.