

BYF

CONSTRUCTION CLUB

Session 3



Greeting

Huckle Buckle Beanstalk

Everyone puts their head down and closes their eyes.

One person hides an item in the room.

The item must be hidden where it can be seen without moving anything

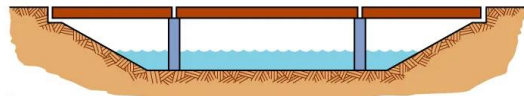
When the hider says, "Go!" everyone can get up to look for the item.

When someone finds an item, they quietly sneak back to their seat, sit down, and say
"Huckle Buckle Beanstalk!"

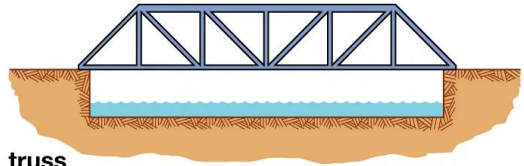
Once half the people have found the item, they can give "hot" and "cold" clues.

The person who found the item first gets to hide it the next round.

Today's project: Bridges



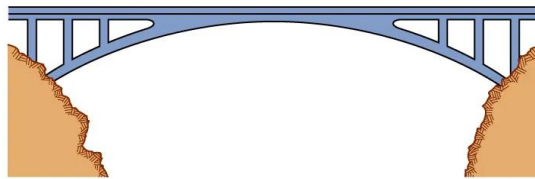
beam



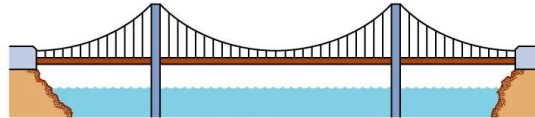
truss



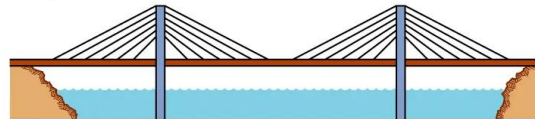
cantilever



arch



suspension



cable-stayed

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You will work with your group to create a bridge out of different materials.



Materials Needed

- Paper
- Craft sticks
- Glue
- Safety glasses
- Quarters?

Objectives

01

Problem Solving

Working through problems until they are solved

02

Critical Thinking

Evaluating solutions and choosing the best one

03

Structural Integrity

How much weight structures can hold

04

Engineering

Solving problems in new and creative ways

Vocabulary

01

Tension

Stretches the beam

02

Compression

Squishes the beam together

03

Deck of a bridge

Flat part where cars drive or people walk

04

Pier of a bridge

Pieces of land on which a bridge rests

But first, SAFETY

- Safety glasses on when “on-site”
- Be careful
- Stay in your area
- Clean up after yourself



Beam bridge

Example:

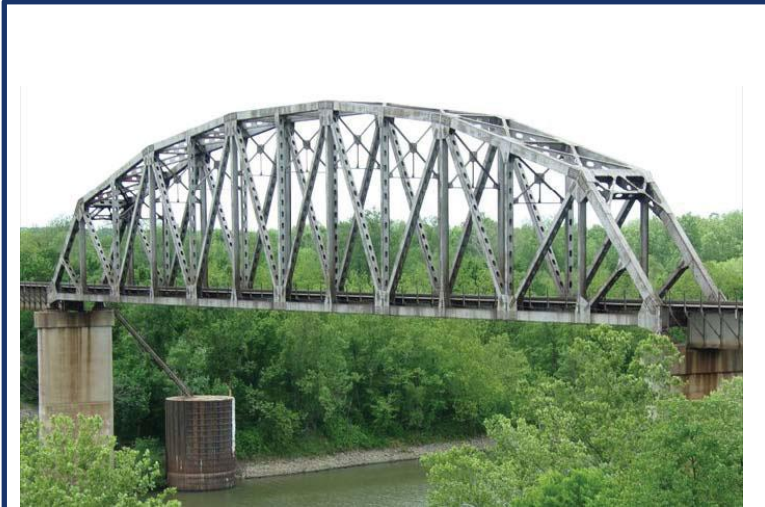


Question:

What are the advantages and disadvantages of a beam bridge?

Warren Truss bridge

Example:



Question:

What makes a truss bridge more stable?

Bridge Challenge Reflection

Which bridge was easier to build?

Which bridge held more weight?

What was the most difficult part of building a bridge?



The background features a stylized cityscape with various buildings in shades of blue, brown, and white. A white banner is positioned in the upper center, containing the text. The sky is dark blue with a few white clouds on the left. In the foreground, there are some faint outlines of buildings and a small red object.

JOB

EXPLORATION

Construction Careers

Commercial, Residential, or Civil?

What build today was commercial construction?

What build today was residential construction?

What build today was civil construction?



PLAN IT



BUILD IT



FINISH IT



Plan It: Business Developer

Average Salary: \$45,000 to \$85,000 to \$300,000+

Description: Create and maintain relationships and seek out new business opportunities. The face of the construction-related company with an end goal to lead to more business

Education Options: Bachelor's degree in business, sometimes an MBA

Qualifications: Creative, persuasive, problem solving, spot trends and patterns, ability to perform under pressure, personable



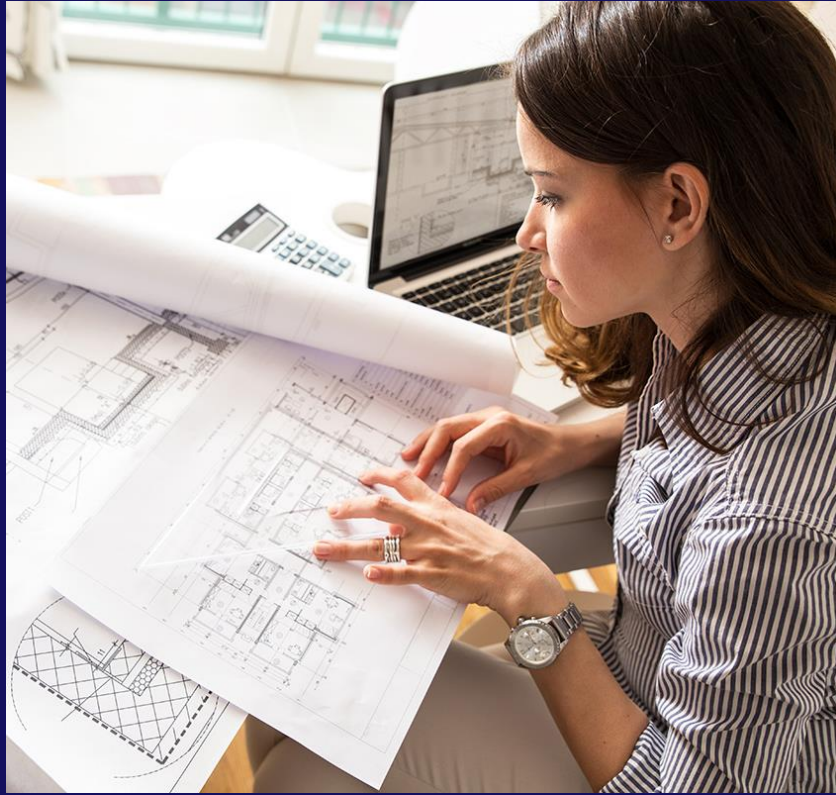
Plan It: Civil Engineer

Average Salary: \$91,790

Description: Design, construct, supervise, operate, and maintain large construction projects and systems including roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment

Education Options: Bachelor's degree, Master's degree, and Project Management Certification

Qualifications: Problem solving, critical thinking, creativity



Plan It: Architect

Average Salary: \$45,000 to \$75,000 to \$120,000+

Description: Listen to client needs and desires and prepare drawings/specifications for final product. Responsible for final design and budget as well as the engineering and math needed

Education Options: Bachelor's degree

Qualifications: Creative, problem solving, good with technology, enjoys research and working with others, enjoys math, communication

Build It: Structural Engineer



Average Salary: 60,000 to \$78,000 to \$120,000+

Description: Take the design from the architect and decide the best materials to use based on location and weather. Make sure the “bones” are appropriate for the environment and will keep standing.

Education Options: Bachelor’s degree

Qualifications: Creative, problem solving, ability to find trends and patterns, research

<https://youtu.be/BQzERXpnP00>



Build It: Welder

Average Salary: \$71,067

Description: Join objects together by applying heat or pressure; knowledge of welding principals and metals; use blueprints and drawings to build

Education Options: Technical School, Community College, Registered Apprenticeship Program, and Industry Training Program

Qualifications: Attention to detail, manual dexterity, coordination, ability to read blueprints and drawings

<https://youtu.be/BQzERXpnP00>

Build It: Ironworker

Average Salary: \$60,060

Description: Place and install iron or steel girders, columns, and other construction materials to form structures

Education Options: Technical School, Community College, Registered Apprenticeship Program, and Industry Training Program

Qualifications: Attention to detail, physical dexterity, coordination, good balance and agility, mechanical and mathematic aptitude



<https://youtu.be/ELeycZxidWY>

Wrap Up

- How much fun did you have today?



Google form:

<https://forms.gle/x84k3xZTWimNz7QT7>

