



Stem Student packet

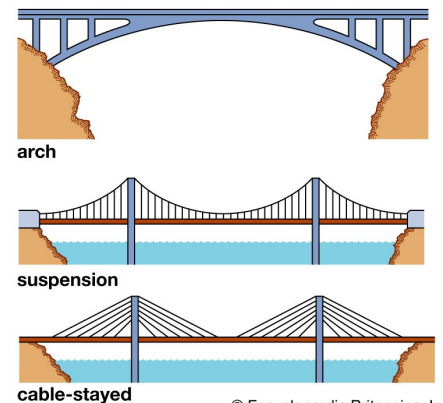
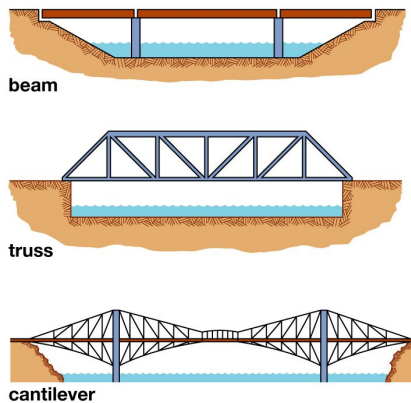
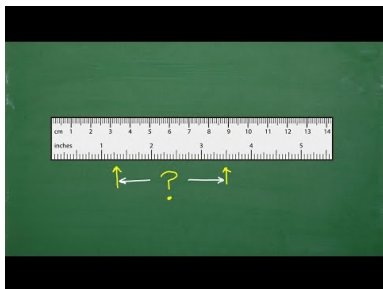


Name _____

Section _____

STEM Vocabulary

- **Measurement:** The process of determining the size, length, or quantity of an object or space.
- **Length:** The measurement of the dimension from one end of an object to the other.
- **Centimeter:** A metric unit of length equal to one-hundredth of a meter.
- **Weight:** The force exerted on an object due to gravity; often measured in units like grams or pounds.
- **Capacity:** The maximum amount that something can contain or hold.
- **Prototype:** A preliminary model of a design used for testing and refining.



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STEM- Build A 30 cm Bridge

Building Background Knowledge

Working Packet

Directions: After watching the video in class, answer the following questions.

Respond

1. What makes bridges so strong?
2. Name five different types of bridges with one characteristic for each?

STEM- Build A 30 cm Bridge

Research

Working Packet

Group # _____

Section:

Student Name:

Partner's Names:

Challenge: design and construct a 30-cm bridge using index cards, plastic straws, and tape, with the goal of supporting the weight of 50 pennies.

Research

(Sources: **Science Notebook, Elevate Science Textbook, and/or Discovery Education.** Note the **sources** you used, including **page numbers, titles, and/or links** in the provided space below.)

Group # _____

Section: _____

Student Name:

Partner's Name:

Give your project a title:

Design the Prototype

(Create a labeled diagram of your prototype.)

Materials

Group # _____

Section: _____

Student Name: _____

Partner's Name: _____

Test your Prototype - Collect your Data

Build a 30-cm bridge - Design 1

- Number of pennies added:
- The moment (after how many seconds) the bridge showed signs of stress:
- Any observations regarding the bridge's stability during testing:

Build a 30-cm bridge - Design 2

- Number of pennies added:
- The moment (after how many seconds) the bridge showed signs of stress:
- Any observations regarding the bridge's stability during testing:

Group #_____

Section: _____

Student Name:

Partner's Name:

Improve the Prototype

(Re-design your Prototype. Create a labeled diagram of your improved prototype.)

Materials

Group #_____
Student Name:

Section: _____

Partner's Name:

Reflection Questions

1. In what way did you improve your prototype?

2. Do you expect the improved prototype to pass the challenge? Why?

3. What did you learn? Discuss your success or lack of success and reasons for it.

Make a Ketnote

Use Keynote to create a presentation following the instructions below:

Parameters:

- At least five slides with colorful background.
- A title slide with the group number and team members.
- Name the type of bridge you are designing and write its characteristics.
- Five pictures of your design
- 2 videos for testing (trial 1, and trial 2)
- 1 recorded audio explaining if your prototype worked and what could you do differently to improve the design's stability and weight-bearing capacity.