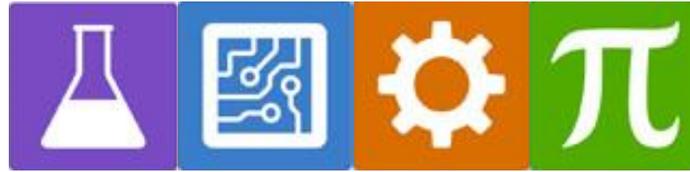# Stem
Student packet

Name _____

Section _____

STEM Vocabulary

. <u>Stability:</u> The ability of a structure to maintain balance and resist tipping or collapsing.

.<u>Load Distribution:</u> The way in which a load or weight is spread across a structure.

.<u>Structural Integrity:</u> The ability of a structure to withstand its intended load without failure.

.<u>Base:</u> The bottom or supporting surface of the tower that provides stability.

.<u>Center of Gravity:</u> The point at which the entire weight of an object can be considered concentrated.

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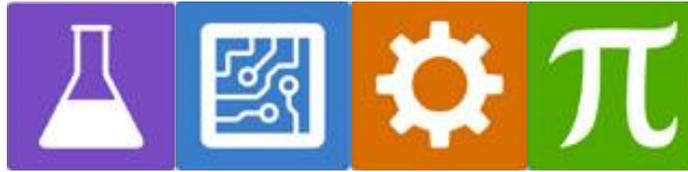
STEM- Index Card Tower

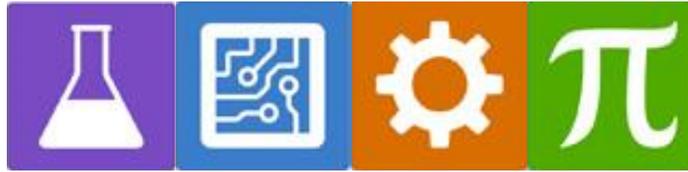**Building Background Knowledge**   **Working Packet**

Challenge: Build a 60cm high tower that will support the weight of at least 5 quarters, using only Index cards and tape.

Answer the following questions:

1- What important elements you need to consider when designing you tower?

2- What will make your tower stable?

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STEM
Grades 3-5

STEM- Index Card Tower

Research	Working Packet

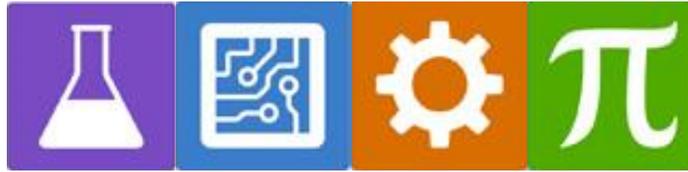**Group #_____** **Section: _____**

Student Name:

_____

Partner's Name:

_____

_____

Challenge: Build a 60cm high tower that will support the weight of at least 5 quarters, using only Index cards and tape.

==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.)
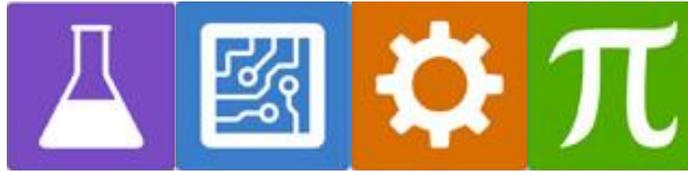
==Design the Prototype==

(Create a labeled diagram of your prototype.)

Materials

Design 1:

. Is the height of your tower at least 60 cm?

. How many quarters did you tower hold?

. How stable is you tower when the quarters are placed on the top?

Design 2:

. Is the height of your tower at least 60 cm?

.How many quarters did you tower hold?

.How stable is you tower when the quarters are placed on the top?

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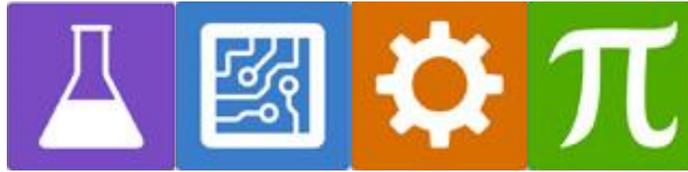
Improve the Prototype

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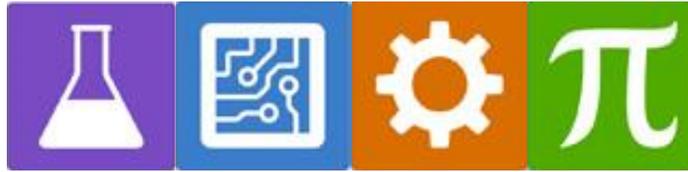
Materials
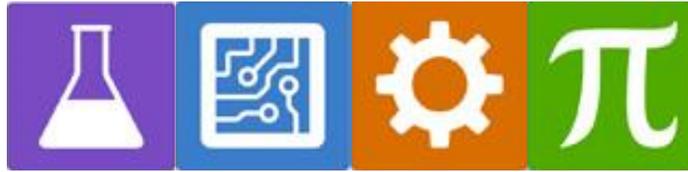
Reflection Questions

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.

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Grades 3-5

Make a Keynote – Use Keynote to create a presentation following the instruction below:

Parameters:
- At least five slides with colorful background.
- A title slide with the group number and team members.
- Three pictures of your design.
- 2 videos for testing (trial 1, and trial 2)
- 1 recorded audio explaining if your prototype worked and what would you do differently to improve it.