DEFINE

Project Topic:
Driving Question:
Product:
What prior knowledge do you have about the topic or product you are creating?

- Notebook Entry: Collaborative list of all shared knowledge about towers, marshmallows, spaghetti, or any other relevant information.

What are questions that you need to answer before you move to the next step?

- Notebook Entry: A list of questions to research that you MUST have answers to before you can begin.
- Answers to the questions written in **detail**! (No one word answers, elaborate so you do not need to return to the source)

Need to Knows Questions and Answers:

What are the questions that will guide you in creating your product? What will be answered as you continue working on the product?

- Notebook Entry: Written questions that will guide your actions in the build and testing phase. This is what you want to learn about via your actions.

Sub-Questions:

PREPARE

Project Topic:
Driving Question:
Product:

What materials will you need to create your product?

How are you sourcing the materials for your product?

Experiment Design

Describe each variable for your experiment in the appropriate space below.
Independent Variable (Definition- A variable that stands alone or is not impacted by another variable. Also known as the input/X variable in math/graphing) :

Dependent Variable (Definition- A variable that changes based on another variable(s). Also known as the output/Y variable in math/graphing) :

Control Variables (Definition- Variables that do not change and have no resulting impact on the experiment. Also known as a constant.):

Experiment Procedure

Write a step by step plan for how you will set up your experiment and execute the data collection. What do you need to do before, during and after the experiment? Note how and when you will record data.

- Notebook Entry: Draw a diagram with labels designating marshmallow type, length of spaghetti, total count of all materials needed.
- Exploded view of a subset of the design to highlight structural principles being tested. Example: Shape being used/repeating patterns, joint or connection plan, angles, etc.
- Written description of the intended build in paragraph form.

TRY

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Data Collection

Record the data for your experiment below.

- Notebook Entry: Descriptive observations of the building process with highlights of what was successful and not successful. Record in sequence of build.
- Record of materials used and not used.
- Sketch of final (or intermediate) tower.
- Final height and cost.

REFLECT

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Data Analysis

What does your data mean? How will this change your next attempt? What did you learn through your actions?

- Notebook Entry: Summarize your findings in paragraph form that highlights what you want to preserve and what needs to change for trial number 2.
- Cite examples or evidence from your observations.

Collaborative Results

How did your results compare to your peers? Do you have agreement or disagreement? How were your trials or experiments different? Have you supported or refuted your driving question?

What specifically was successful during your trial?

What specifically was not successful during your trial?

Was there something that surprised you in your trial? Why was it a surprise? Does it change your sub-questions or goal of your next trial?

ITERATE

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Goal of Next Trial:

Are you still working to confirm your hypothesis? Are you looking to extend your experiment into new directions? Are you looking to take your experiment to the extreme?!?!?!?

What area is the primary target for improvement in your next trial?

What is your definition of success for your next trial? How would you define being done with the next attempt?