My STEM Notebook

Name: _____

Homeroom Teacher:_____

Please Complete 1 of the choice projects below(Families can work together). Email all pictures of results to

Smatteo@sedelco.org; with family/student names in the subject line

Please reach out with any questions!

Paper Plate Engineering Challenge

Engineers are often given a chance to build something with limited materials and directions. Today, you are going to be the engineer, and your goal is to create the longest possible paper plate by cutting in with scissors BUT making sure it all stays attached. When you create your structure, measure it using a ruler or tape measure and take a picture of it if you can to email me!

Materials:

- Paper Plate (you may need more than 1)
- Scissors
- Adult supervision

Procedures:

1. Use scissors to cut your paper plate so that it is as long as possible AND still in ONE PIECE!

2. You may want to test out your experiment with a couple of different techniques.

Draw a Picture of your final engineered plate:

Reflection Questions:

1. How many different ways did you try to cut your plate before you were successful?

2. Can you think of any other ways to improve your design?

3. How long was your final product?

4. If you were given tape, do you think you could have improved your design? Why or why not?

Parent Signature: _____

The Strength of Paper

We are going to test the strength of paper folded in differently shaped columns (square, triangle, and circle) by piling books on top. This will simulate how columns are built to hold up buildings in construction. You may need some help folding/taping your paper from an adult.

Materials:

- Scotch tape

- 3 pieces of plain white print paper
- Books to pile on top.

Prediction/Before Question:

1. Which shape do you think will be the strongest? Why?

2. Why do you think buildings have columns?

Procedures:

1. Fold each sheet of paper (long ways to make it tall) into a square, triangle, and circle.
   a. To make a square column: Fold the paper long ways into 4 equal parts, gather them up and tape
   b. To make a triangle column: Fold the paper long ways into 3 different equal parts, gather them up and tape closed.
2. Secure each with a piece of tape on the top, bottom and middle.
3. Stand them up
4. Place books on top of each column. Continue to do this until the column collapses or falls.
5. Fill in the table below

Shape	Number of Books
Circle	
Square	
Triangle	

Reflection Questions:

1. Which column was the strongest?

2. Why do you think this worked best?

3. Can you think of a different shape you think may work better?

4. Name a building you know of that has columns. What shape are they?

Email me your results for the science behind the reason!