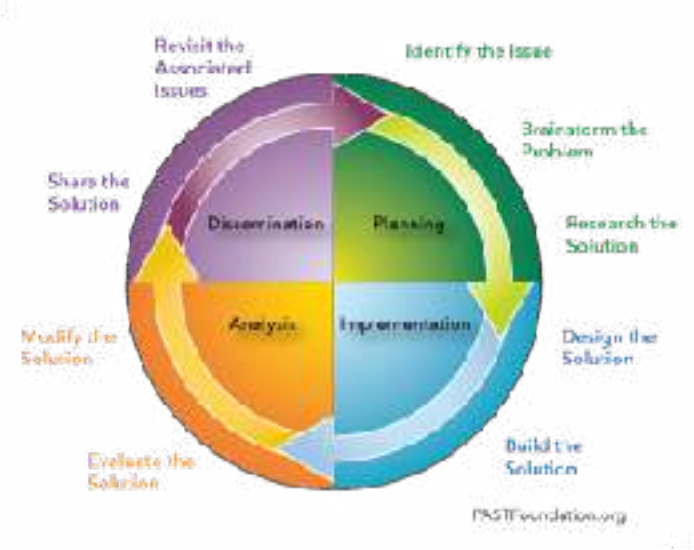
Name:_____

Date:_____

Germs and Soap Mini Challenge



Problem Scenario: There is a pandemic caused by a virus that has spread around the world. The best defense in this pandemic is to wash one's hands with soap and water. Yu must create a tool to demonstrate why soap and water are such a powerful weapon against this deadly pandemic.

Challenge: How do germs stick to hands and what role does soap play in keeping germs off of ones hands?

Criteria:
Your design must demonstrate how germs:

- Spread?
- Stick to your hands or surfaces?
- What exactly does soap do?

Materials:
Bowl of Water, Black Pepper, Dish or Hand Soap, Paper Towels, Pen and Paper

1. Brainstorm:*Use the space below to brainstorm the design and approach to maintaining neutral buoyancy.*

Questions to consider:

- What do germs even look like and why are they so small?
- What are different words for "germs"?
- What do you think fat has to do with this?
- How does soap work?
- What is saponification?
- What is static electricity?

2. Design:

1. Set out a clean bowl and fill it with water.
2. Gently sprinkle pepper on the surface of the water.
3. Keep a few paper towels on hand to keep things clean!

3. Build:

1. Place your clean finger into the water with pepper on it.
    - Record what happens when you do that.
2. Now put a drop of soap into the pepper.
    - Record what happens when you do that.
3. Place your clean finger into the area where the soap is on the water.
    - Record what happens when you pull your finger clear.

4. Evaluate:

When you test your pepper germ — Record what you THINK is going to happen

- What is the control?
- Just water and pepper?
    - Record what happened
- When you add the soap, what do you THINK is going to happen?
- Now when you add the soap, what happens?
    - Record all of that.

Why do you think that is? — Make sure you wash your hands!

5. Modify:

- What happens when you use soapy water and pepper?
- Can you see a difference between how hand soap and dish soap work differently?
- Does the type of material the bowl is made of matter?

6. Share:

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Use the hashtag #ThisIsPAST or #DesignThinking