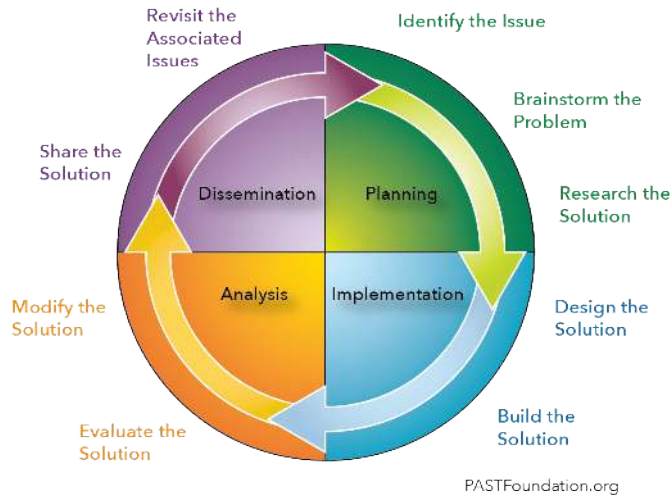


## 2 Liter Stomp Rocket Mini Challenge

Name: \_\_\_\_\_

Date: \_\_\_\_\_



### Problem Scenario:

How do you rapidly compress air into a rocket to launch it?

### Challenge:

How do we understand the relationship between:

1. Pressure
2. Kinetic & Potential Energy
3. Surface Area and Aerodynamics

### Criteria/Supplies:

- 1-5: 2 Liter bottles Various tape types/Paper towel roll/Card stock for nose and wings/PVC Pipe or tubing/Some way to support bottle/Markers and crayons
- Be able to demonstrate the relationship between the “stomp” and the distance of flight
- Be able to demonstrate the relationship between different size bottles

**1. Brainstorm:** Use the space below to brainstorm the design and approach to building a stomp rocket

- What makes a rocket work?
- How much air is in a 2 Liter bottle?
- How hard do you have to stomp to get air to exit quickly?
- How does the rocket fly?
- What shape does the rocket flight take?

## 2. Design:

You will use the paper towel roll, card stock, tape and hot glue to build your rocket. Use the space below to draw your rocket and the launch pad.

Think about the following as you design:

- What will the cone of your rocket look like? How will you attach the cone?
- How will you design the wings of your rocket? How will you attach the wings? - At what angle will your rocket need to launch for it to go up?
- How will you connect the rocket to your launcher (2 liter bottle)?

## 4. Evaluate:

Place your rocket on your stomp launch device.

Countdown 10 to 1 and stomp!

Name each of your launches below, and track observations on the chart on the next page.

## 5. Modify:

Between each flight adjust the angle of your rocket.

Other items to modify:

- Length of rocket body
- Cone geometry
- Wing design
- Angle of launch pad
- Type of bottle used for launch

## 3. Build:

Build your rocket and launch pad!

Attach your 2 liter bottle to your PVC pipe or tubing for launch. Get ready for launch!

## 6. Share:

Share your creation on Social Media!

Tag us on Facebook, Twitter or Instagram @pastfoundation Use the hashtag #ThisIsPAST or #DesignThinking

**4 (cont). Evaluate:**

Record your observations below

LAUNCH 1	
LAUNCH 2	
LAUNCH 3	
LAUNCH 4	