

# BALLOON ROCKET STATION

**Note to Parents:** Please read the directions, the question, and each statement to your child.

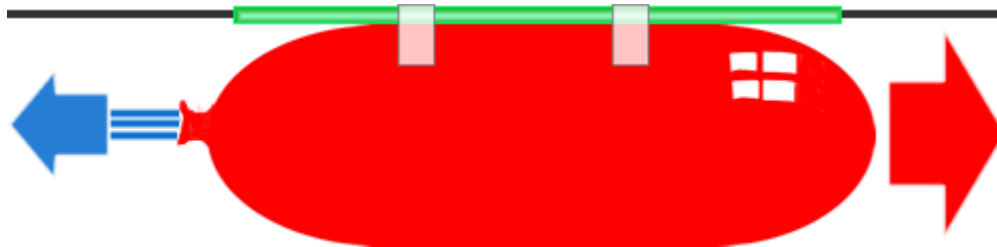
**Student Name:** \_\_\_\_\_

**Directions for Students:** Place a check ( ) in the blank space if you think the statement is true.

**What are some things that are true about preparing and using the Balloon Rocket?**

if Yes

- \_\_\_ The more air you blow into the balloon the greater energy it has to fly across the room.
- \_\_\_ The more air you blow into the balloon the less energy it has to fly across the room.
- \_\_\_ The potential energy of the air changes to kinetic energy when the balloon is released and moves forward.
- \_\_\_ As the air comes out of the balloon, it creates a forward motion called Thrust.
- \_\_\_ The force of the balloon pushing the air out and the movement of the balloon are in the same direction.



# VORTEX CANNON STATION

**Note to Parents:** Please read the directions, the question, and each statement to your child.

**Student Name:** \_\_\_\_\_

**Directions for Students:** Place a check ( ) in the blank space if you think the statement is true.

**What are some things that are true about Air and the Vortex Cannon?**

if Yes

- \_\_\_ The reason air does not take up space is because it is invisible.
- \_\_\_ Air has mass and takes up space.
- \_\_\_ Air moves out of a box when you push in or hit the sides of the box.
- \_\_\_ A person can squeeze and crush a plastic bottle completely when the air inside cannot escape.
- \_\_\_ A vortex ring that comes out of a circular hole in a box is considered a fluid as it flows through air.



# STOMP ROCKET STATION

**Note to Parents:** Please read the directions, the question, and each statement to your child.

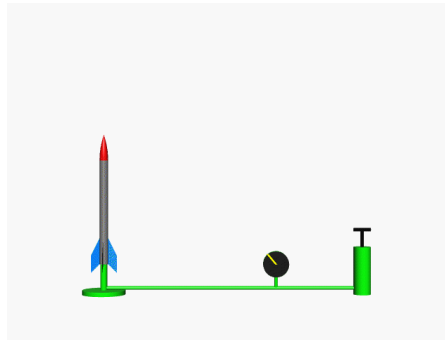
**Student Name:** \_\_\_\_\_

**Directions for Students:** Place a check ( ) in the blank space if you think the statement is true.

**What are some things that are true about the Stomp Rocket?**

if Yes

- \_\_\_ The foam rocket flies into the air because of the force of air that comes from stomping on the plastic bottle.
- \_\_\_ The harder you stomp on the plastic bottle, the greater the force of air is applied onto the foam rocket.
- \_\_\_ The foam rocket will still launch if it has a big hole on the top of it.
- \_\_\_ Using the same amount of "stomping" force, the foam rocket will fly farther at a 40 degree angle compared to a 20 degree angle.
- \_\_\_ The foam rocket will fly farther at a 20 degree angle than at a 40 degree angle.



# ANSWER KEY

## Balloon Rocket

The more air you blow into the balloon the greater potential energy it has to fly across the room.  
The potential energy of the air changes to kinetic energy when the balloon is released and moves forward.  
As the air comes out of the balloon, it creates a forward motion called Thrust.

## Vortex Cannon

Air has mass and takes up space.  
Air moves out of a box when you push in or hit the sides of the box.  
A vortex ring that comes out of a circular hole in a box is considered a fluid as it flows through air.

## Stomp Rocket

The foam rocket flies into the air because of the force of air that comes from stomping on the plastic bottle.  
The harder you stomp on the plastic bottle, the greater the force of air is applied onto the foam rocket.  
Using the same amount of "stomping" force, the foam rocket will fly the farther at a 40 degree angle compared to a 20 degree angle.

