

## Capture the Wind

### Activity 6- Blast-Off Space Rocket

Materials need: The Blast-Off Space Rocket kit

#### Directions:

1. Open the Blast-Off Space Rocket and take out the cardboard.



2. Take out the three plastic bags with parts in them. The first bag is the foam rocket bag. The second bag is small parts bag with instructions and the third bag is the space launcher bag.



3. The back of the box is helpful for overall directions. Follow the instruction booklet for directions.



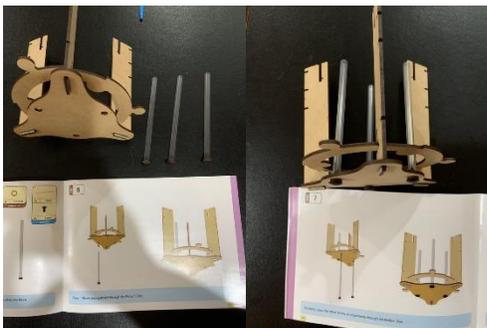
4. Punch out all the pieces of the launcher. Line up all of the little pieces from the rest of the bags. Punch out all the pieces of the rocket.



5. Put two pillars into the bottom triangle disc and secure with 2 blue rubber bands. Take the locking disc and put it into the pillars with the eaten away portion into the slots of the pillars. Take 1 pillar and insert it into the bottom disc and secure with a blue rubber band.



6. The locking plate needs to fit into the third pillar just like the other 2 pillars. Take 3 screws and put each one into a straw and then add a thin ring over each straw. Put each straw into each hole through the bottom disc. This is what it looks like with the three straws in the bottom disc.



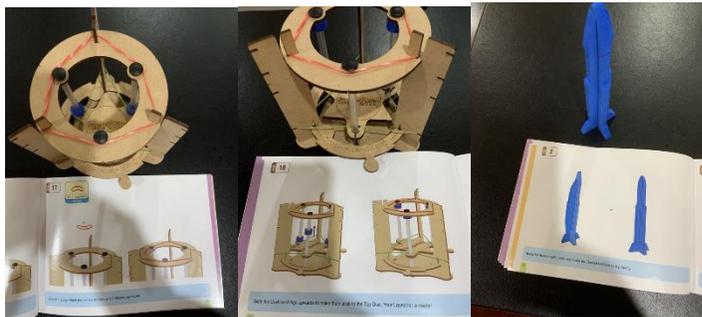
7. Place 3 medium bands over the notched edge of the plate. Place the star plate over the three straws. Place the medium green bands over the pillars closest to the bottom notch.



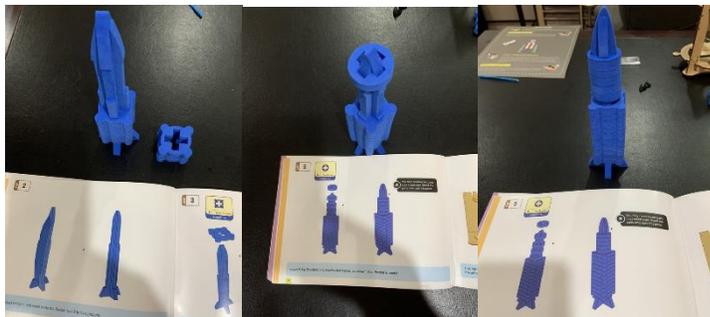
8. Peel the stickers off the three cushion rings. Take the cushion rings and place over each straw with the sticky side up. Take the top round disc and place over pillars and straws. Place a thin ring screw into the open end of the straw. Repeat 2 more time.



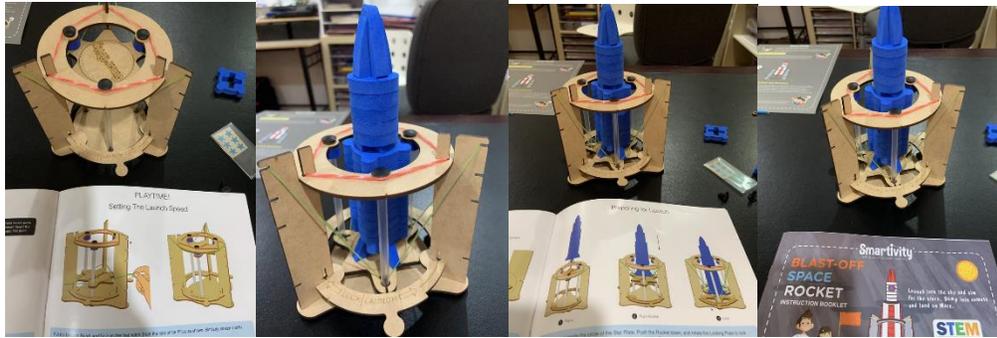
9. Stretch the red band around the 3 straws and pillars. Move cushion rings up to have it stick to the top disc. Insert the two-half rockets together. Bend one rocket to fit into the other.



10. Slide 10 square boosters onto the rocket. Now slide 5 top round boosters on the rocket. The rocket is now finished.



11. Take the green band and place it on the top notch. Repeat 2 more times with the other 2 notches. Put the rocket in the center of the star and press down and lock the plate by rotating it. To unlock the star plate, pull the locking plate the opposite direction for blast off. Get ready for blast off.



## STEM Connections

How does it work?

**Inertia and Weight-** When an object stays in one place until it is moved, that is called inertia. The heavier an object is, the harder it is to move it, the greater the inertia. The lighter an object is, the easier it is to move it, the less the inertia.

**Stored Energy-** When the star plate is pushed down, energy was stored in the green bands. When the locking plate is moved and the rocket launches, the energy from the green bands transfers or goes to the star plate and moves the rocket upward. The energy traveled from the green bands to the star plate to the rocket and thus launches it into the air. This is stored energy. The more the star plate is pushed down, the greater the chance the rocket will go higher. This stored energy is called potential energy.

Try to put the rubber bands into different slots on the pillars. Did you notice a difference in height between one slot and another? Did the rocket go higher or lower? Please explain.

Try to take some of the lower and top rings off the rocket. Will the rocket go higher or lower? Please explain.

Can you measure how high the rocket went? How many times did you try? Have others try and see how high their rocket goes.

## Other Rocket Sources

The following are available as **eBook** titles to check out.

[Rockets](#) by Ron Miller

[Building Rockets](#) by Rebecca Rowell

[Building Reusable Rockets](#) by Gregory Vogt

[Build Your Own Rockets and Planes](#) by Rob Ives

[Rocket Science and Spacecraft Fundamentals](#) by Kathy Furgang