

# Mini Rockets: How does mass affect the performance of a mini rocket?

Lesson Plan of the Month Club • Volume 7 • June 2013

## Materials List:

- Plastic transfer pipettes (size 7ml and 4.5ml)
- 2 sizes of drinking straws. The launch tube is a bendy straw, and the rocket is made from a straw that needs to fit over the bendy straw.
- Masking tape
- Measuring tape
- Notebook
- Safety glasses
- Scissors

## Activity

- Attach the end of the bendy straw over the stem of the 7ml pipette. Secure with masking tape. Use a straw that will fit over the bendy straw to make a mini rocket. Cover the end of the rocket straw with a small piece of masking tape to make it air tight. The mini rocket is launched by sharply pressing on the pipette bulb. Caution students not to aim the rockets at another person. A separate launch area can be marked off on the classroom floor.
- Have students write a prediction on how far they think their mini rocket will travel on the first attempt. Then make a chart showing the length of the straw rocket and how far it travels on subsequent attempts. Students are usually surprised to find out that a long straw rocket will not fly, no matter how hard they press on the pipette bulb.
- For a second attempt, cut off part of the bottom of the mini rocket straw. Measure the straw, then launch it. Record information in your notebook.
- For each subsequent trial, cut the rocket straw and measure the length before launching. Eventually the rocket will be light enough to fly. Measure the distance it flies.

## Discussion

Q: How did the length of the mini rocket (and thus the mass) affect the distance the rocket traveled?

Q: How far did the rocket travel?

- Repeat the process using the 4.5 ml pipette. Have students predict which size pipette will be able to launch the rocket the longest distance. Why? A: The smaller pipette has a smaller bulb and cannot hold as much air for launching,

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