

## Rocket Staging: Balloon Staging

### Student Data Sheet

**Team Name:** \_\_\_\_\_

**Team Members:** \_\_\_\_\_

Traveling into outer space takes enormous amounts of energy. In this activity you will demonstrate rocket staging that was first proposed by Johann Schmidlap in the 16th century.

### Procedure

1. Thread the fishing line through the two straws.
2. Stretch the fishing line snugly across a room and secure its ends.
3. Cut the coffee cup in half so that the lip of the cup forms a continuous ring.
4. Inflate the first balloon about three-fourths full of air and squeeze its nozzle tight. Pull the nozzle through the ring. Twist the nozzle and hold it shut with a spring clothespin.
5. Inflate the second balloon. Make sure the front end of the second balloon extends through the ring a short distance. As the second balloon inflates, it will press against the nozzle on the first balloon and take over the clip's job of holding it shut. Clip the nozzle of the second balloon shut.
6. Take the balloons to one end of the fishing line and tape each balloon to a straw with masking tape. The balloons should point parallel to the fishing line.
7. Remove the clip from the first balloon and untwist the nozzle.
8. Remove the nozzle from the second balloon as well, but continue holding it shut with your fingers.
9. Conduct a rocket countdown.
10. Release the balloon that you are holding.
11. Using your design sheet, design and describe your own multistage rocket.

## TOP VIEW

## SIDE VIEW

### DESIGN SHEET

Design a rocket that has at least two stages. In the space below, describe what each stage will do. Do not forget to include a place for payload and crew.

### DESCRIPTION

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

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