



MISSION TO KENNEDY SPACE CENTER
Field Investigation #8 – Balloon Rocket Fun!

Crew Members Present for Investigation:

Date of Investigation: _____

Problem: How will adding weight to a balloon rocket affect its speed and distance traveled?

Scientific Background: Space rockets work because of Newton’s Third Law: for each force, there is an opposite force (or for every reaction there is an opposite reaction). When a rocket pushes the fiery exhaust down toward Earth, the exhaust also pushes the rocket up to space! The same thing happens with this balloon rocket. When the balloon forces air out backward, the air pushes the balloon (and rocket) forward.

Acceleration is decreased by increased mass (hey, that’s Newton’s Second Law).

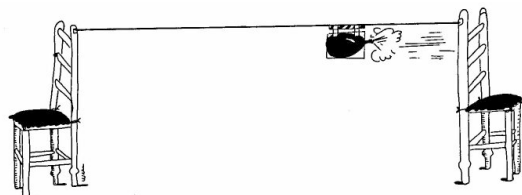
Materials: straw, long piece of string or fishing line, gallon zip-lock bag, balloons, tape, 2 chairs, watch or clock with second hand, measuring tape, weights such as marbles, beans, etc.

Procedure:

1. Thread the string through the straw.
2. Tape the ends of the string to two chairs and push them apart to create tension. The string will form the path of the rocket.
3. Tape the gallon bag to the straw. Make sure the top of the bag faces to one side.
4. Blow up the balloon and hold the end so the air does not escape. Place balloon in the bag with its opening facing out of the open

bag. Move your rocket assembly to one end of the string and release! 5. Record in your Journal how far and how long it took to travel.

6. Add weights to the bag and repeat steps 4 and 5.
- 7 You may also try launching your balloon rocket at an angle or vertically.



Journal: _____
