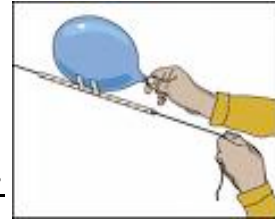


Name: _____



BALLOON ROCKET LAB

Newton's Third Law:

For every action there is an _____ and _____
_____.

Examples:

Swimmer pushes back with arms, but moves forward



Shuttle engines push flames down, but shuttle launches up



Test 1

Balloon Size (circumference)

- Blow up balloon to have a circumference of 30cm
- Pinch the end close to not let any air out
- Tape a straw to the side of the balloon
- Draw ceiling string through straw and hold balloon to the ground
- Un-pinch fingers and observe the launch
- Repeat steps a-e but make the circumference 60 cm.

1) HOW DOES THE DIFFERENCE SIZE IN CIRCUMFERENCE AFFECT THE LAUNCH OF THE BALLOON ROCKET?

2) COMPLETE THE FOLLOWING SENTENCE RELATING THIS EXPERIMENT TO NEWTON'S THIRD LAW:

THE BIGGER THE ACTION FORCE THE _____ THE _____ FORCE.

Test 2

Balloon Mass

- a) Blow up a balloon to 40 cm circumference
- b) Observe a launch with this balloon
- c) Blow up the same balloon to 40 cm again except this time tape 3 pennies to the balloon before launch
- d) Observe the launch

1) HOW DOES MASS AFFECT THE LAUNCH?

Test 3

Straw Size

- a) Blow up a balloon to 40 cm
- b) Observe one launch
- c) Blow up balloon to 40 cm again except this time draw sting through a short straw
- d) Observe the launch

1) HOW DOES A SHORTER STRAW AFFECT THE LAUNCH?

Test 4

Launch Angle

- a) This time you will create your own launch angle, blow up a balloon to 40 cm
- b) Grab a string and create different angles for your launches

1) HOW DOES STEEPER ANGLES AFFECT THE BALLOON ROCKET'S LAUNCH?