

Name_____ Date_____ Period_____

Circular Motion Stations Lab

The three main concepts of circular motion are:

Read through each experiment and make a prediction about the results. Once you perform the experiment record your results and explain how your observation is related to one of the three main concepts.

Experiment 1- The Moses Demonstration

Place the accelerometer on the turntable and turn it on it's lowest setting. What does the liquid in the accelerometer look like? What if you turn it up to it's highest setting?

Prediction:

Actual:

Explanation:

Experiment 2- Gravitron Simulation

Use your hand to begin spinning the Gravitron. Carefully place Beaker inside the gravitron.

Prediction:

Actual:

Explanation:

Experiment 3- Whirling Coin

Balance a penny on the hook (hints: tails side down, use 2 fingers to support penny until it is balanced), put one finger in the corner of the square opposite the hook and then spin the coat hanger in a circle.

Prediction:

Actual:

Explanation:

Experiment 4- Cutting Loose

Place the marble inside the hoop. Gently move the hoop so that the marble begins to travel around the inside edge of the hoop. When the marble gets to the 12:00 position, pick up the hoop and observe the path of the marble. Draw a picture and describe in words.

Prediction:

Actual:

Explanation:

Experiment 5- Putting all your eggs in one basket

Place the egg in the can and spin it around in a large circle in front of you. What happens? Make the string as long as you can without hitting the ground. How does your technique change?

Prediction:

Actual:

Explanation:

Experiment 6- Playing it straight

Tape a piece of paper on the lazy Susan and begin spinning it. Move your arm in a straight line across the turntable to draw a straight line on the paper. What happens?

Prediction:

Actual:

Explanation:

Experiment 7- Salad Spinner

Soak the sponges in the bowl of water then place in the salad spinner. Spin the salad. What happens to the water?

Prediction:

Actual:

Explanation:

Experiment 8- You Spin Me 'Round, 'Round

Hold the book flat on the palm of your outstretched hand. Quickly turn it 90 degrees to face you while begin to spin around.

Prediction:

Actual:

Explanation:

Experiment 9- Broom ball

Place the bowling ball at the starting position. Give it a gentle nudge in the direction indicated by the arrow. Use the broom to prevent the ball from leaving the track. On the second try, start the ball moving with a bit more speed. Is it harder or easier to keep the ball on the track when it is moving faster?

Prediction:

Actual:

Explanation:

Analysis

1. When you have acceleration, it is because velocity is not constant. What are the two ways that you can produce acceleration?

2. In each experiment there is an object that wants to continue in a straight line and an object that applies a net force. Select one of the experiments above and draw a force diagram for the object that wants to continue in a straight line. (i.e. the bowling ball, or the egg) Be sure to include a sum of the forces equation.

3. Select one of the experiments above. Summarize the experiment and explain the results in detail.