Newton's Laws Stations

Newton's First Law

1. Place the card on top of the beaker. Make sure there is enough space to give one edge of the card a good flick without smacking your finger on the glass/cup.
2. Place a single coin on top of the card so that it rests over the cup's opening.
3. Flick an exposed edge of the note card. Don't flick the card from underneath. Flick directly from the side of the card's edge.
4. Observe what happens to the coin.
5. Repeat steps 1-4, add pennies to each trial and notice what happens as more pennies are added.

Newton's First Law

1. Bend your elbow and place your hand at your ear, so that your forearm is perpendicular to your face.
2. Place a penny on the flat portion of your elbow.
3. Throw your arm forward slowly and try to catch the coins with the same hand.
4. Repeat, this time moving your arm quickly enough to catch the coin.
5. Compare the results from the slow and fast trial.

Newton's First Law

1) Push the car with a small amount of force with the object on top toward the wood block. Observe what happens.
2) Increase the force that you push the car with the object on top. Observe what happens. Repeat several times.
3) How does this demonstrate the importance of seat belts?

Newton's Second Law

1) Compare the mass of the piece of paper and the rock.
2) Drop the wadded up piece of paper and the rock at the same.
3) Observe what happens. Did they land at approximately the same time?
4) Drop the wadded up piece of paper and the normal paper at the same time. Which one hit the ground first? Why do you think this happened?
5) What acceleration do you think is pulling these objects down?

Newton's Second Law

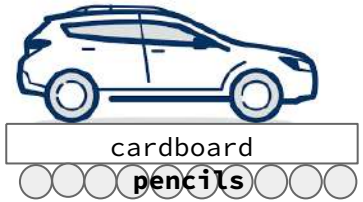
1) Send each car down the ramp at the same time. One car should have more mass than the other car.
2) Which car went farther? Why do you think this relates to Newton's Second Law?

Newton's Second Law

1) Roll the golf ball towards the dominoes. Observe what happens.
2) Roll the ping pong ball toward the dominoes. Observe what happens.
3) How does this relate to mass and force in Newton's Second Law?

NEWTON'S THIRD LAW

1. Line up 10 pencils next to each other in a row (side-by-side).
2. Place the piece of cardboard on top of the pencils.
3. Place the car on a flat surface and pull it back several times to wind up the car.
4. Place the car on the cardboard and let it go!



In terms of Newton's 3rd law, what is the action? What is the reaction? Describe the action of the cardboard. Why did the car and the cardboard move in this manner?

NEWTON'S THIRD LAW

Hold one spring scale up and hook 1 mass onto it. Record how many newtons it takes the spring scale to hold up the mass. Then add 1 more mass to the spring scale. Now how much force is required to hold two masses?

In terms of Newton's 3rd law, what is the action? What is the reaction? Explain the resulting force as you added more mass?

NEWTON'S THIRD LAW

Use the hooks to connect the two spring scales together. Have each person hold one end of a spring scale. Have one person try to pull GENTLY with a force of 2 Newtons and have the other person try to pull with a force of 8 Newtons.

In terms of Newton's 3rd law, is it possible to have one person pull with a force of 2 Newtons while the other person pulls with a force of 8 Newtons? Explain using Newton's 3rd law. What is the action? What is the reaction?