



Name _____

The Inclined Plane

Purpose: To observe how using an inclined plane makes work easier.

Question: Write a research question using effect or affect for this investigation:

Background Information:

- ⇒ Work is what happens when a force causes an object to move.
- ⇒ Work is calculated by multiplying force X distance: $W = F \times D$.
- ⇒ To change the amount of work done, either the force must change, the distance must change, or both.
- ⇒ An inclined plane is a slanted surface used to raise an object.
- ⇒ When an object is moved up an inclined plane, less effort is needed than if you were to lift it straight up, but, you must move the object over a greater distance. In other words, the distance & force change, so the amount of work changes.

Hypothesis: Write a hypothesis using an If, Then statement that shows how you think the independent variable will affect the dependent variable.

If _____,

Then _____.

Materials:

Spring scale or force sensor	Physics cart	Long board
Wood blocks	Meter stick	

Procedure:

1. **Read the procedure carefully so that you understand what you are going to change and what you are going to measure.**
2. Before you begin the investigation, make a data table to record your data. **Have your teacher initial the table before you begin.**
3. Use the spring scale or force sensor to measure the amount of force needed to lift the cart .5 meters.
4. Record how much force it took to move the cart to a height of .5 meters.
5. Use the wood blocks and board to make an inclined plane that is .5 meters high at the highest point.
6. Attach the spring scale or force sensor to the physics cart.
7. Put the cart at the bottom of the inclined plane.
8. Use the spring scale or force sensor to pull the cart up the inclined plane.
9. Record how much force it took to move the cart to a height of .5 meters.

Data:

Teacher Initials:

Data Analysis:

Make a graph to show the difference in your data. Remember **TAILS & DRY MIX**.

