Name_____

Push or Pull

Let's see if we can use the force of gravity pull our car. We need to have a force that is greater than the force of friction on the parts of the car.

Procedure:

1. Make a punch hole in the front of your car.

2. Make a hook for the front of your car with a paper clip.

3. Make another hook with a paper clip. Tie it to a 100 cm string. Tie the other end of your string to the hook on the car.

4. Carefully put your car near the tapeline on the table. Hang the string and the hook off the end of the table. Make sure the car and the table are very still.

5. Make a prediction. How many washers do you think it will take to pull the car? _____
   _____
   _____
   _____

6. Put one washer on the hook very carefully. Does your car move? Do not bounce or pull it.

7. Next put another washer on the hook very carefully. Describe what happens. Do this for each washer until your car moves smoothly. Then stop.

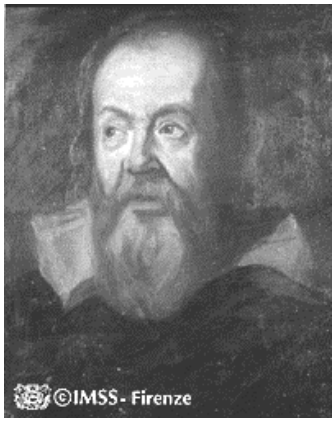
Trial	Number of Washers	What Happens?
1		
2		
3		
4		
5		

Galileo Galilei

Galileo Galilei is one of the most famous scientists of all time. He was born in Pisa, Italy in 1564. He studied mathematics in school. His first job was teaching mathematics at the university in Pisa.

When Galileo was still a young man, he invented many important tools. He built an instrument that could measure temperature. He called it a *thermoscope.* He also built a better *compass.* He built a *pendulum clock* that could tell time accurately.

Galileo's *telescope* was much better than any that people had before. It was smaller and could see the stars more clearly. Galileo found the four largest moons of Jupiter, and named them after Greek gods. He also named many of the mountains and valleys on the moon. He wrote that the Earth moved around the Sun—not the Sun around the Earth!



Galileo's most important work, though, was in a subject called *mechanics.* This is the study of forces and motions. Before Galileo, most people who wanted to learn about mechanics read books that were over 1500 years old! A Greek named Aristotle had ideas about how things moved that people believed for more than 15 centuries. He thought that heavy things fell faster than light things, and that forces were used up as objects moved.

But Galileo proved that Aristotle was wrong. He studied pendulums and dropped objects off tall towers. He did experiments and recorded data carefully. Galileo found that objects that are the same size fall at the same rate. He found that a pendulum's swing depended on how long the string was. He suggested that when a force moved an object, it could only be stopped by another force.

But in the 16th Century people did not always believe Galileo. They did not understand experiments. They thought he didn't respect Aristotle, who was ancient and wise. Galileo's writing got him in trouble. When he was old he was locked in his own home because of what he wrote. It was many years before people realized how important Galileo's experiments were to science.