**Forces and Motion Connect Four Questions**

1. To calculate the speed of a car, you must know the time it travels and the weight.

FAKE – You must know DISTANCE and time.

1. A softball takes more force to throw than a whiffle ball.

FACT – An object with that has a bigger mass need more force to move.

1. Wind blowing against you as you walk is an example of friction.

FACT – The wind is a force opposing the direction of your motion.

1. Gravitational force exists between any two objects.

FACT

1. Small objects and large objects can have the same amount of force.

FACT – A small object traveling at a fast speed can have the same amount of force as a large object traveling at a slow speed.

1. When you stand still on the ground, you are pushing down on the ground with the same amount of force that the ground is pushing back on you.

FACT – The forces are equal and opposite.

1. All of the following are forces: gravity, friction and magnetism.

FACT- All can exert a push or pull on an object.

1. Miles per hour is a correct unit for speed.

FACT – To calculate speed, you need to know distance and time

1. Mass is the measurement of the force of gravity on an object.

FAKE – Weight is the measurement of the force of gravity on an object.

1. A gravel road has more friction than a blacktop paved road.

FACT – Rough surfaces have more friction than a smooth surface.

1. If an object is at rest, there are no forces acting on it.

FAKE – When an object is at rest, all the forces acting on it are equal and opposite.

1. I want to slow down the speed of my skateboard. I have to apply the stopping force in the opposite direction that I am going.

FACT - When a force is applied in the opposite direction of an object’s motion, the speed will decrease.

1. Speeding up and slowing down requires a force but changing direction does not.

FAKE - All changes in motion requires a force.

1. A soccer ball and a ping pong ball are kicked at a goalie from the same distance away. They are both traveling at 25 miles per hour. They will both hit the goalie’s gloves with the same amount of force.

FAKE –The soccer ball will have more force because it has more mass.

1. The moon is held in orbit around the Earth by the force of gravity.

FACT – The gravity of the Earth and moon are acting on each other keeping it in orbit.

1. Inertia can cause a moving object to change direction.

FAKE – Force is required to change direction or start something moving.

1. If you rode your bike a half mile to the store to get some Skittles and back home, your displacement would be 0 miles.

FACT - Distance is a how much ground an object has covered during its motion. Displacement is a quantity that refers to how far an object is compared to its original position. You started and ended in the same place.

1. You have two ramps. Ramp A is 25 centimeters high and Ramp B is 50 centimeters high. The force of gravity is twice as much on B than it is on Ramp A.

FAKE – The force of gravity is equal on both ramps.

1. The planets stay in orbits revolving around the sun due to the force of magnetism.

FAKE- The planets stay in orbit due to gravity.

1. You are on a hiking trail. The trail is 4 miles long. If you hike 1 mile in 15 minutes, you could complete the trail in 30 minutes.

FAKE – It would take you 60 minutes or one hour to finish the trail. 4 miles x 15 minutes = 60 minutes or

1 hour.