

Q1

Station 1

This is a push or pull-

- A) force
- B) gravity
- C) friction
- D) magnetism

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Q2

Station 1

Which term is the force created by rubbing against an object?

- E) force
- F) gravity
- G) friction
- H) speed

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Q3

Station 1

This is the force that pulls things down to Earth-

- J) magnetism
- K) gravity
- L) friction
- M) speed

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Q4

Station 1

Which of the following is a force of attraction to objects with iron or steel?

- N) magnetism
- O) speed
- P) force
- Q) friction

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Q1

Station 2

Which of the following forces will pull a person back to the Earth's surface if they skydive?

- A) inertia
- B) pressure
- C) friction
- D) gravity

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Q2

Station 2

Which investigation question below can be tested reliably?

- A) What is the freezing point of water?
- B) How does changing the height of a ramp affect the distance a toy skateboard travels?
- C) How fast can a woodpecker peck?
- D) What is the mass of a graduated cylinder filled with 50 ml of a liquid?

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Q3

Station 2

The force of gravity between 2 objects is greater when-

- A) the distance between the 2 objects is less
- B) the distance between the 2 objects is more
- C) the masses of the 2 objects are the same
- D) the friction between the two objects is higher

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Q4

Station 2

Jason threw a football into the air. It followed a curved path across the sky and fell to the ground. Why did it do that?

- A) Jason did not throw the football very hard.
- B) Jason threw the football straight up in the air.
- C) The gravity changed the football's direction as friction from the air slowed it down.
- D) The football's mass changed as it flew through the air.

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Q1

Station 3

By rolling a ping pong ball down different surface types (i.e. wood, plastic, carpet), a student can see-

- A) how distance affects force
- B) how friction affects distance traveled
- C) how different objects roll down ramps
- D) how energy is transferred between objects

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Q2

Station 3

A variable in an experiment is-

- A) something that must stay constant
- B) something that is not measured
- C) something that changes during an investigation
- D) the prediction to what will happen in the investigation

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Q3

Station 3

How might you test the strength of a magnet?

- A) test how much it weighs
- B) pick up one paper clip
- C) measure its length
- D) test how many iron nails it can pick up

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Q4

Station 3

In science class, students are completing an experiment on how the mass of a cart affects its speed as it rolls down a hill without pushing it. Which is the best way to do that?

- A) Adding additional weight to the cart for each trial.
- B) Starting the cart from different parts of the hill.
- C) Pushing the wagon with as much force as possible each time.
- D) Getting a running start before sending the cart down the hill.

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Q1

Station 4

Students are investigating the speed of a Tech Deck (toy skateboard) rolling down a ramp. Which two tools will be needed to conduct this investigation on speed?

- A) meter stick and triple-beam balance
- B) stopwatch and graduated cylinder
- C) meter stick and stopwatch
- D) stopwatch and thermometer

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Q2

Station 4

Darren designed an experiment to determine how much force would be needed to move jars with 3 different masses across a smooth, wood table. Which procedure should Darren include in his design?

- E) Conduct 3 trials of each, using a different spring scale on each trial.
- F) Conduct 3 trials of each, changing between the table and floor each trial.
- G) Conduct 3 trials of each, pulling a different part of the jar each trial.
- H) Conduct 3 trials of each, pulling each jar in the same way each trial.

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Q3

Station 4

Brittany designed an experiment to measure the effects of forces on an object. The table displays the data she collected. Based on the data, which book will have the greatest change in motion?

- A) orange
- B) pink
- C) purple
- D) black

Color of the Block	Mass (g)	Push Force (N)	Friction (N)
Orange	75	20	8
Pink	50	20	8
Purple	90	20	8
Black	35	20	8

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Q4

Station 4

Todd is using a wind-up spring to push a toy car. He wants to see how far it will travel by winding it different amounts. What question is he answering?

- E) How does the number of wind-ups affect the amount of friction?
- F) How does the number of wind-ups affect the distance traveled?
- G) How does the distance traveled changed based on the mass of the toy car?
- H) How fast will the car travel with each wind-up?

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Q1

Station 5

Ian is riding his bike around the neighborhood. He notices that he rides faster on the paved roads than on the gravel roads. This happens because the smoother paved roads have-

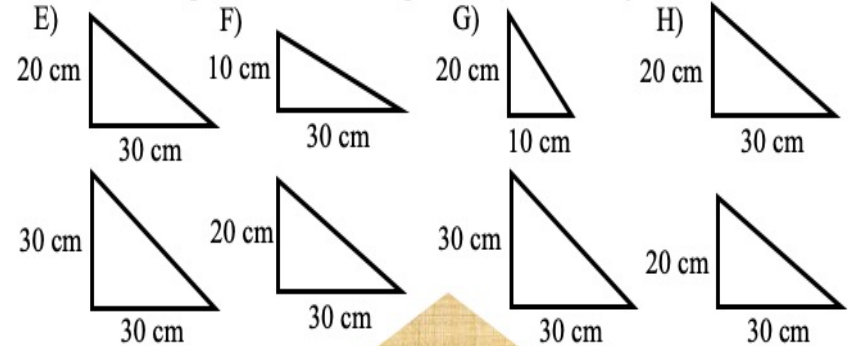
- A) more friction
- B) more gravity
- C) less friction
- D) less gravity

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Q2

Station 5

A science class is doing an investigation on how the speed of a ping pong ball compares to the speed of a golf ball rolling down a ramp. Which ramps should be used to perform a fair investigation?



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Q3

Station 5

Which best explains why a bicycle slows down when its brakes are applied?

- J) The brakes increase friction on the wheels of the bicycle.
- K) The breaks heat the rubber of the bicycle tires.
- L) The brakes increase the force of gravity acting on the bicycle.
- M) The brakes increase the energy of the bicycle.



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Q4

Station 5

Ms. Ryan's class is investigating the distance a Tech Deck travels after rolling down a ramp covered with aluminum foil, paper, and whiteboard. Which of these questions can students answer by analyzing the results of their investigation?

- P) How does the shape of the Tech Deck affect its movement when rolling down a ramp?
- Q) How does changing the surface of a ramp affect the distance a Tech Deck rolls?
- R) How does the mass affect the distance the Tech Deck moves after rolling down the ramp?
- S) How does changing the height of the ramp affect the distance the Tech Deck rolls?

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