

A force is A Push or a pull

Change in Motion	Description of Force	Picture (use arrows to represent force and direction of motion)
Move Faster		
Change Direction		
Slow Down		
Stop		

The sum of all forces acting on an object is Net Force.

If forces are applied in the Same direction, then the forces are added together to find Net Force.

If forces are applied in the Opposite direction, then the lesser force is Subtracted from the greater force to find Net Force.



Find the Net Force for the Following scenarios:

1.
 5 N 8 N
 Net Force = 13N Right

2.
 5 N 8 N
 Net Force = 3N left

3.
 5 N 8 N
 Net Force = 3N Right

A balanced force

The objects motion does not change and the net force on the object equals to zero.

Gravity

The Force of attraction between two objects.

An unbalanced force

The objects motion changes and the net force is greater than zero

The SI derived unit used to measure force is a Newton. One Newton is equal to the force needed to accelerate a mass of one kilogram one meter per second per second.

Distance is

the amount of space between two points

Speed is

The distance traveled by an object in a given amount of time.

Formula for speed: $S = D \div T$

A car travels 490 miles in 7 hours. What is the car's average speed? 70 mi/h

Anne runs 400 meters in 66 seconds. What is her average speed? 6.06 m/s

An experiment is A controlled test that allows you to explore possible answers to a question.

A hypothesis is A possible explanation or answer to a problem that can be tested.
 A hypothesis should be written as an: If/then statement

Write an If/then hypothesis before testing the mystery boxes set up by the teacher.

If we push both box A & B with the same applied force then...

Now, write a hypothesis before testing both boxes empty, with box B being pushed on carpeting and box A pushed on the smooth floor.

If we push two empty boxes on two surfaces then...

Friction is A force that resists motion between two objects that are touching.
 Friction causes an object to slow or stop

A variable is any factor that can be controlled, changed or measured in an experiment

What was the variable in the first Mystery box experiment? mass of boxes

What was the variable in the second Mystery box experiment? surface

An independent Variable is the manipulated variable (what you change on purpose in an experiment)

A dependent Variable is the responding variable (what happens as a result of what was changed in the experiment)

What were the independent (IV) and dependent variables (DV) in the second Mystery box experiment?

IV = the surface the boxes were pushed on

DV = the amount of time it took for boxes to be pushed

A control is similar test where the independent variable is left unchanged

What were the controls in the first Mystery Box experiment? The size of the Box & Push

What were the controls in the second Mystery box experiment? The size of the Box & Push

The Mnemonic DRY MIX is used to help you know where to graph your experimental results.

D = dependent variable M = manipulated variable
 R = responding variable I = independent variable
 Y = Y-axis X = X-axis



Y-axis

X-axis

Newton's 1st Law of Motion Notebook Entry

1. State Newton's First Law of Motion (sometimes called the Law of Inertia):

An object at rest stays at rest and an object in motion stays in motion (same speed and direction) unless acted upon by an unbalanced force.

2. What causes motion to change?

A Force - Push or Pull

3. What is Inertia?

The tendency of an object to resist any change in its motion.

4. List 5 examples of (stubborn) Newton's 1st Law.

1. A car suddenly stops & you strain against the

2. seatbelt. A horse suddenly stops and you fly overhead

3. A magician pulls a tablecloth out from under a stack

4. of dishes. lawn bowling on cut grass vs. uncut grass

5. car turns left and you appear to slide to the right.

5. Mr. Zimmerman decided to buy a hot cup of coffee from Starbucks. Not knowing about laws of motion, he placed the cup of coffee in his lap and took off. Much to his surprise the coffee spilled and he crashed into the car in front of him. Using Newton's first law of motion, describe what happened to Mr. Zimmerman's coffee.

The coffee was moving at the same speed as the car until a force was applied. The sudden change in motion caused the coffee to (stop) spill.

6. Using Newton's first law, describe why we should wear seat belts in our car. Use the animation from class to help you answer the question.

A seat belt prevents your bodies tendency to keep moving at the same speed and in the same direction as the car.

7. What force causes objects to slow and stop? What would happen if that force was not applied?

Friction. Objects would continue moving at same speed and in same direction.

8. What is Mass?

The amount of matter an object contains

9. Does an object's mass affect the amount of inertia the object has? If so, explain how?

The greater the mass the greater the inertia
*and the greater the speed the greater the inertia

10. Roy says that if he flings his pudding with a greater force it will have more greater inertia. TJ says that inertia does not depend on the force, but

rather an objects mass.

Who is correct? Why?

They both are correct.

greater speed = greater inertia

greater mass = greater inertia

Draw A PICTURE below that represents Newton's 1st Law of Motion.

