Accelerating Mass: F=ma

Use the link to watch the youtube video, then answer the questions.

<https://www.youtube.com/watch?v=WHEeGO9HVPc&t=1s>

1. What do each of the letters in the formula **F=ma** stand for?
2. What would you expect to happen to an object's acceleration if you increased the mass but did not increase the force?
3. What would you expect to happen to the mass of an object if you increase the force?
4. (a) If an object has a mass of 50 Kg and we apply a force of 100N to push it, what will the acceleration be?

(b)If I stop pushing on the same object and you can only push with 30N of force, what will the new acceleration be?

(c)If the mass remains constant, explain the relationship you will observe between force and acceleration.

Answer Key: Be sure to answer the questions above before viewing the answers below.

1. What do each of the letters in the formula **F=ma** stand for?

F- force

m- mas

1. acceleration
2. What would you expect to happen to an object's acceleration if you increased the mass but did not increase the force?

The acceleration of the object would decrease

1. What would you expect to happen to the mass of an object if you increase the force?

The mass would accelerate at an increased rate.

1. A. If an object has a mass of 50 Kg and we apply a force of 100N to push it, what will the acceleration be?

100N/50kg = 2 m/s

1. If I stop pushing on the same object and you can only push with 30N of force, what will the new acceleration be?

30N/50kg= .6m/s

1. If the mass remains constant, explain the relationship you will observe between force and acceleration. If force decreases the acceleration will decrease as well. In order for the acceleration to increase the force must increase. Force and acceleration are directly proportional to each other.