



Science Virtual Learning

# 3rd Grade Forces and Motion

April 8, 2020



## 3rd Grade Science

Lesson: 4/7b/20

### **Learning Target:**

I can make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

## Background:

- Students learn to describe ways to change the motion and direction of an object and amount of force in 2nd grade.
- Students learn how to predict patterns of motions using Newton's Laws of Motions.

## Let's Get Started:

### Watch Videos:

1. [Anchor Lesson](#)
2. [Newton's Laws - Crash Course Kids](#)
3. [Newton's Second Law - Learning Junction](#)

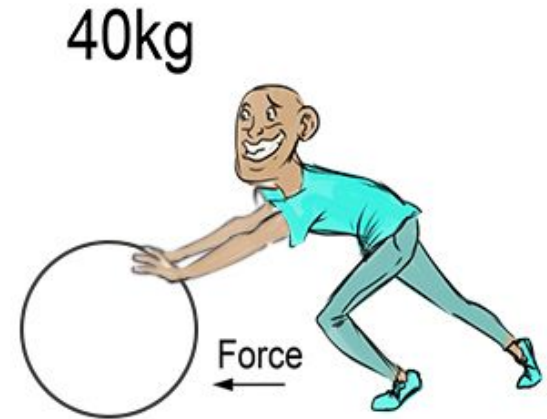
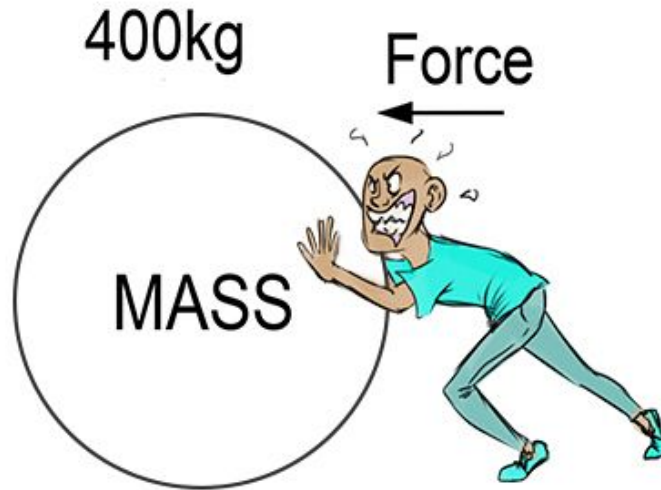
# Practice #1:

## How does this picture show Newton's Second Law of Motion?

Think back to the



- **Newton's Second Law** says that a greater force acting on an object is equal to the mass of the object multiplied by its acceleration (Force = mass x acceleration).
- **Accelerate** means to speed up or to slow down.



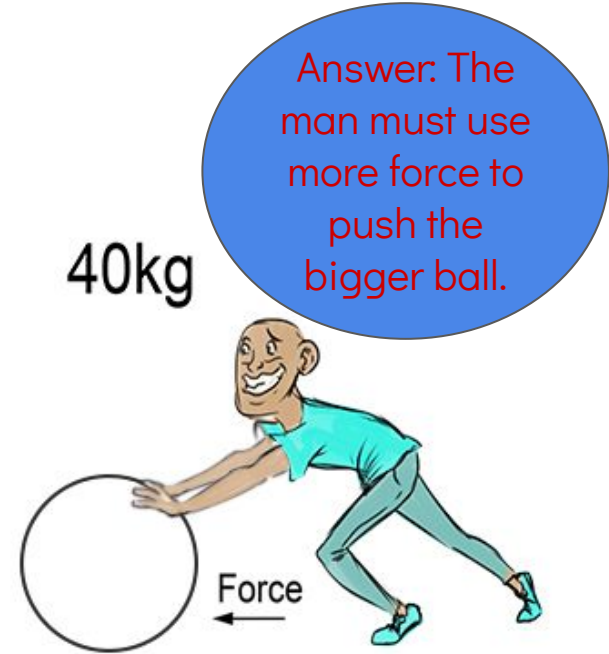
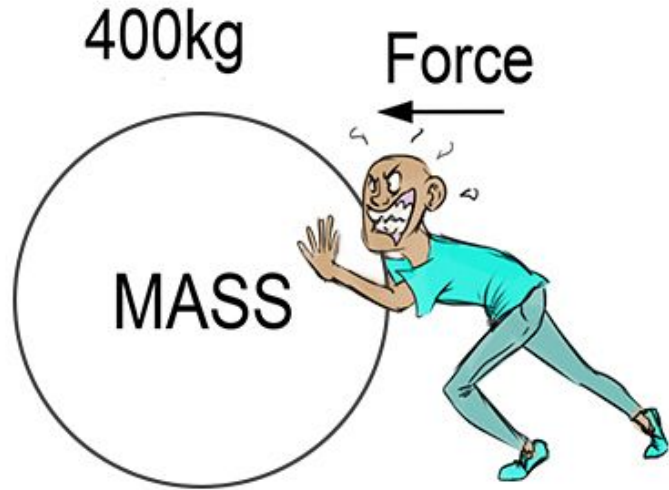
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## Practice #2:

How does this picture show Newton's Second Law of Motion?  
How do you know?

Think back to the



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## Practice #2:

How does this picture show Newton's Second Law of Motion?  
How do you know?

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- **Newton's Second Law** says that a greater force acting on an object is equal to the mass of the object multiplied by its acceleration (Force = mass x acceleration).
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Answer: With a bigger box, the man has to use more force in order to make it move.

## Practice #3:

How do these pictures show Newton's Second Law of Motion?  
Which picture shows the woman using more force? How do you know?

Think back to the video.



- **Newton's Second Law** says the greater force acting on an object is equal to the mass of the object multiplied by its acceleration ( $\text{Force} = \text{mass} \times \text{acceleration}$ ).
- **Accelerate** means to speed up or to slow down.





## Practice #3:

How do these pictures show Newton's Second Law of Motion?  
Which picture shows the woman using more force? How do you know?

Think back to the video.



- **Newton's Second Law** says the greater force acting on an object is equal to the mass of the object multiplied by its acceleration ( $\text{Force} = \text{mass} \times \text{acceleration}$ ).
- **Accelerate** means to speed up or to slow down.

**Answer:** This woman uses more force because the boy is bigger and weighs more.

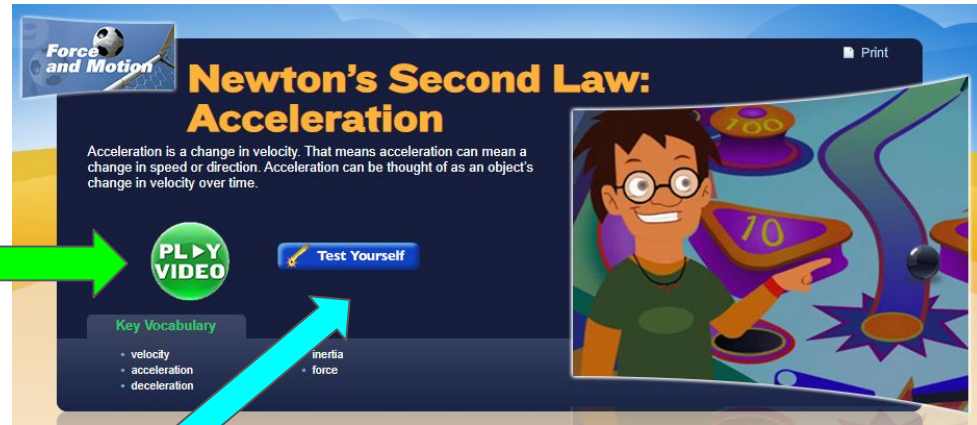


# Practice on your own:

Go to this website:

## [Acceleration](#)

1. Click the link to the website to investigate one of Newton's Second Law of Motion.
2. Click on the green "play video" button and watch the video.
3. After watching the video, return to the previous page by exiting the video.
4. Click on the blue "test yourself" button to answer questions about the video.



# Practice:

## Complete this page in your packet.

Come back to  
check sample  
answers on the  
next slide.

### Newton's Laws of Motion

Forces and Motion- Newton's 2nd Law



**Directions:** Using what you know about Newton's Laws of Motion, follow the investigation.

Newton's Second Law of Motion: The greater force acting on an object is equal to the mass of the object multiplied by its acceleration (Force = mass x acceleration).

**FIRST:** You will need something lightweight that can be thrown into the air (for example, a ball or stuffed animal). **Draw** a sketch of your item. Have an adult do this activity with you. You will need to be outside as well.

**SECOND:** Find an open space in your house or outside. **First**, throw the item with little force (lightly). Notice how far it went into the sky. Draw a sketch of this.

Then, throw the item with a lot of force. Notice how far it went into the sky. Draw a sketch of this.

**THIRD:** Explain what happened when you used more force to throw your item.

How does this show Newton's Second Law of Motion?

Show your work to a family member or stuffed animal and explain Newton's Second Law.

Click here to open  
worksheet.



# Practice: Sample Answers



1. You will need something lightweight that can be thrown into the air (for example, a ball or stuffed animal). Draw a sketch of your item. Have an adult do this activity with you. You will need to be outside as well.

2. Find an open space in your house or outside. First, throw the item with little force (lightly). Notice how far it went into the sky. Draw a sketch of this. Then, throw the item with a lot of force. Notice how far it went into the sky. Draw a sketch of this.

Little  
force



Lots of  
force



3. Explain what happened when you used more force to throw your item.

When I used more force to throw my teddy bear, it went higher into the air. It had a higher acceleration, but the mass of my teddy bear stayed the same.

How does this show Newton's Second Law of Motion?

Newton's Second Law of Motion says that force is equal to mass multiplied by acceleration. I used more force to throw my teddy bear the second time, which made its acceleration higher. Then, the teddy bear went higher into the air.

## Self Check:



1. This lesson was...

- easy
- just right
- hard

2. Act out Newton's Second Law of Motion and show it to someone in your home!

**Go tell someone in your home your answers.**