WHAT ARE WE GOING TO STUDY THE WEEK OF FEBRUARY  6  TO FEBRUARY 9, 2017

SCIENCE:​  *STUDENTS WILL DEMONSTRATE THE RELATIONSHIP BETWEEN THE APPLICATION OF A FORCE AND THE RESULTING CHANGE IN POSITION AND MOTION ON AN OBJECT.
A. IDENTIFY SIMPLE MACHINES.
B. USING DIFFERENT SIZE OBJECTS, OBSERVE HOW FORCE AFFECTS SPEED AND MOTION.
C. EXPLAIN WHAT HAPPENS TO THE SPEED OR DIRECTION OF AN OBJECT WHEN A GREATER FORCE THAN THE INITIAL ONE IS APPLIED.
​D. DEMONSTRATE THE EFFECT OF A GRAVITATIONAL FORCE ON THE MOTION OF AN OBJECT.*
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**ESSENTIAL QUESTIONS:**How can forces be used to make objects move, change direction, or stop? How is the motion of an object related to the size of the object and the amount of force that is applied to the object? What is gravity and how does it affect things on the earth? How do simple machines make work easier for people?

 Students learn that the harder that they throw a ball, the farther it will travel, and that big moving objects are harder to stop than small moving objects.

​Forces are pushes or pulls on objects that are needed to make an object change its motion. An object at rest will remain at rest unless a force acts on it and an object in motion will remain in motion unless a force acts on it.

Gravity is the earth’s pull on things. Things on or near the earth are pulled toward it by the earth's gravity. Gravity is always present.

Simple machines are tools that help us do work but they don’t do it for us. Simple machines make work easier for us changing the amount of force (pushing or pulling) needed to do certain kinds of work.
 CONCEPTS TO KNOW: Forces, motion of objects, gravity, simple machines.

VOCABULARY TO KNOW:
force, pull, motion, gravity, speed, position, direction, pull, mass, simple machines, lever, pulley, inclined plane, wheel and axle, wedge, screw

**What is force?**
A force is a push or pull upon an object resulting from the object's *interaction* with another object. Whenever there is an *interaction* between two objects, there is a force upon each of the objects. When the *interaction* ceases, the two objects no longer experience the force. Forces only exist as a result of an interaction.

**How can forces be used to make objects move, change direction, or stop?**
To do work, an effort or force greater than the resisting force of the object being moved must be applied.

**How is the motion of an object related to the size of the object and the amount of force that is applied to the object?**

* *The greater a force, the more it changes the motion of something.*
* *The smaller a force, the less it changes the motion of something.*
* *The more mass something has, the less a force will change its motion.*
* *The less mass something has, the more a force will change its motion.*

**What is gravity and how does it affect things on the earth?**
The force of gravity is an attraction between any two things made of matter.

**What is friction?**
Friction is a force which causes the motion between two surfaces to be reduced.

[studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/force-and-motion.htm](http://studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/force-and-motion.htm)
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[studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/inertia.htm](http://studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/inertia.htm)​

[studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/fgravity-and-inertia.htm](http://studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/fgravity-and-inertia.htm)
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​[sciencenetlinks.com/interactives/gravity.html](http://sciencenetlinks.com/interactives/gravity.html)​

[idahoptv.org/sciencetrek/topics/force\_and\_motion/facts.cfm](http://idahoptv.org/sciencetrek/topics/force_and_motion/facts.cfm)​

[www.learner.org/interactives/parkphysics/coaster/result.php3](http://www.learner.org/interactives/parkphysics/coaster/result.php3)​​

[www.buzzle.com/articles/how-to-build-a-toy-car-from-scratch.html](http://www.buzzle.com/articles/how-to-build-a-toy-car-from-scratch.html)

[quizlet.com/831950/4th-grade-unit-4-science-forces-and-motion-flash-cards/](https://quizlet.com/831950/4th-grade-unit-4-science-forces-and-motion-flash-cards/)

MATH:  ​

**Understand the relationship between fractions and decimals**

* ***23.NF.5****express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100 (e.g., express 3/10 as 30/100 and add 3/10 + 4/100 = 34/100)*
* ***24.NF.6****use decimal notation for fractions with denominators 10 or 100 (e.g., rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram)*
* ***4.NF.C.7****Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols > , = , or < , and justify the conclusions, e.g., by using a visual fraction model.*

* *I know that decimals can be written as fractions.*
* *I know that fractions with a denominator 10 or 100 are called decimal fractions.*
* *I can generate equivalent decimal fractions.*
* *I can name fractions (e.g., 7/10 is "seven tenths").*
* *I can add fractions with like denominators.*
* *I can add decimal fractions.*
* *I can compare two decimals by reasoning about their size.*
* *I can justify conclusions about the comparison of decimals using visual models and other methods.*
* *I can relate a decimal to a whole number.*
* *I can use what I know about fractions to help me compare decimals.*
* *I know how to read and write decimals through the hundredths.*
* *I know comparisons are valid when the two decimals refer to the same whole.*

**ESSENTIAL QUESTION:** How are fractions and decimals related?
What is the relationship between a fraction with a denominator of 10 to another fraction with a denominator of 100?

A fraction can be written as a decimal and a decimal can be written as a fraction. Understanding the meaning of fractions as decimals extends your understanding of the place value system.

How can we compare decimals?

Decimal comparisons are only valid if the whole is the same size. There are multiple ways to compare decimals (place value positions, visual models, estimation) just as there are multiple ways to compare whole numbers.

Here is the number *"forty-five and six-tenths"* written as a decimal number:

The decimal point goes between Ones and Tenths.
**45.6** has 4 Tens, 5 Ones and 6 Tenths
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**Finish the equations to make true statements. Write one number in each space.**

1. 1 tenth + 4 hundredths = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ hundredths
2. 4 hundredths + 1 tenth = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ hundredths
3. 5 tenths + 2 hundredths = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ hundredths
4. 5 hundredths + 2 tenths = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ hundredths
5. 14 hundredths = \_\_\_\_\_\_\_\_\_\_ hundredths + 4 hundredths
6. 14 hundredths = \_\_\_\_\_\_\_\_\_\_ tenths + 4 hundredths
7. 14 hundredths = 1 tenth + 3 hundredths + \_\_\_\_\_\_\_\_\_\_ hundredths
8. 80 hundredths = \_\_\_\_\_\_\_\_\_\_ tenths

[www.khanacademy.org/math/arithmetic/arith-decimals/arith-review-decimals-to-fractions/v/converting-decimals-to-fractions-1-ex-1](https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fractions-topic/cc-4th-fractions-unlike-denom/v/adding-fractions-with-10-and-100-as-denominators)

[www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fractions-topic/cc-4th-fractions-unlike-denom/v/adding-fractions-with-10-and-100-as-denominators](https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fractions-topic/cc-4th-fractions-unlike-denom/v/adding-fractions-with-10-and-100-as-denominators)

​[youtu.be/Mst8iZjIpFE](https://youtu.be/Mst8iZjIpFE)

​[www.mathsisfun.com/algebra/compare-numbers-decimals-1.html](http://www.mathsisfun.com/algebra/compare-numbers-decimals-1.html)

[www.mathsisfun.com/converting-decimals-fractions.html](http://www.mathsisfun.com/converting-decimals-fractions.html)

[www.mathantics.com/section/lesson-video/decimal-place-value](http://www.mathantics.com/section/lesson-video/decimal-place-value)