Energy

SC.5.P.10.1 - Investigate/describe basic forms of energy: light, heat, sound, electrical, chemical, and mechanical (energy of motion)

- **SC.3.E.5.2 - Identify that the Sun is a star that emits energy; some in the form of light (and heat)
- **SC.3.E.6.1 Sun's presence effects heating of objects
- SC.3.P.11.1 - Investigate/observe/explain that things that give off light often also give off heat.

SC.3.P.10.3 - Light travels in a straight line until it strikes an object or travels from one medium (material) to another.
SC.3.P.10.4 - Light is reflected, refracted (bent) or absorbed.

- SC.3.P.11.1 - Investigate/observe/explain that things that give off light often also give off heat.

SC.4.P.10.3 - Investigate/explain sound is made by things that vibrate (pitch = speed of vibration)

SC.5.P.11.1 - Investigate/illustrate a closed electrical circuit.
SC.5.P.11.2 - Identify/classify conductors and insulators.

SC.5.P.10.3 - Investigate/explain that electrically charged objects can attract or repel objects - (static electricity)

SC.4.P.11.1 - Recognize that heat flows from hot objects to cold objects and may cause temperatures to change.
SC.4.P.11.2 - Identify materials that conduct heat well or poorly

SC.5.P.10.4 - Investigate/explain that electrical energy is transformed into heat, light, sound and mechanical (energy of motion) energy.

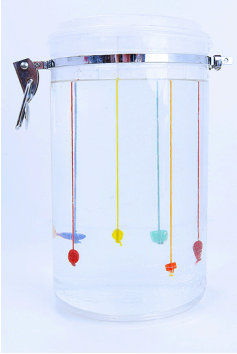
SC.5.P.10.2 - Investigate/explain energy causes motion or change

- SC.4.P.10.4 - Describe moving water and air as energy to cause motion or change

Day 1

Bellringer:

Chloe wonders what type of string is best for growing crystals. She uses four different types of string. She puts the string in identical containers with the same Borax solution. Over the next several days, she observes the crystal growth.



How do you know that Chloe is performing an experiment?

a. She will form a conclusion about the type of string that is best.
b. She is observing how well crystals grow on each string.
c. All conditions except the string type are constant.
d. Before she started, she made a plan.

Today's Focus
Basic Forms of Energy

I will be able to:

- Identify and describe some basic forms of energy including thermal (heat), light, sound, mechanical (energy of motion), electrical and chemical.

What is Energy?

What kinds of energy are represented in this picture?

_____

_____

_____

_____

Think About This!! - Forms of Energy

Name the Energy






In Mrs. Burns class, the students were learning about different forms of energy. She put the above pictures on the board and asked the students who could identify the different forms of energy.

Jayden said that the fire, light bulb, lighting and fireworks were the only type of energy because they gave off light.

Cindy said that the light bulb and machine were the only energy's because they are plugged in.

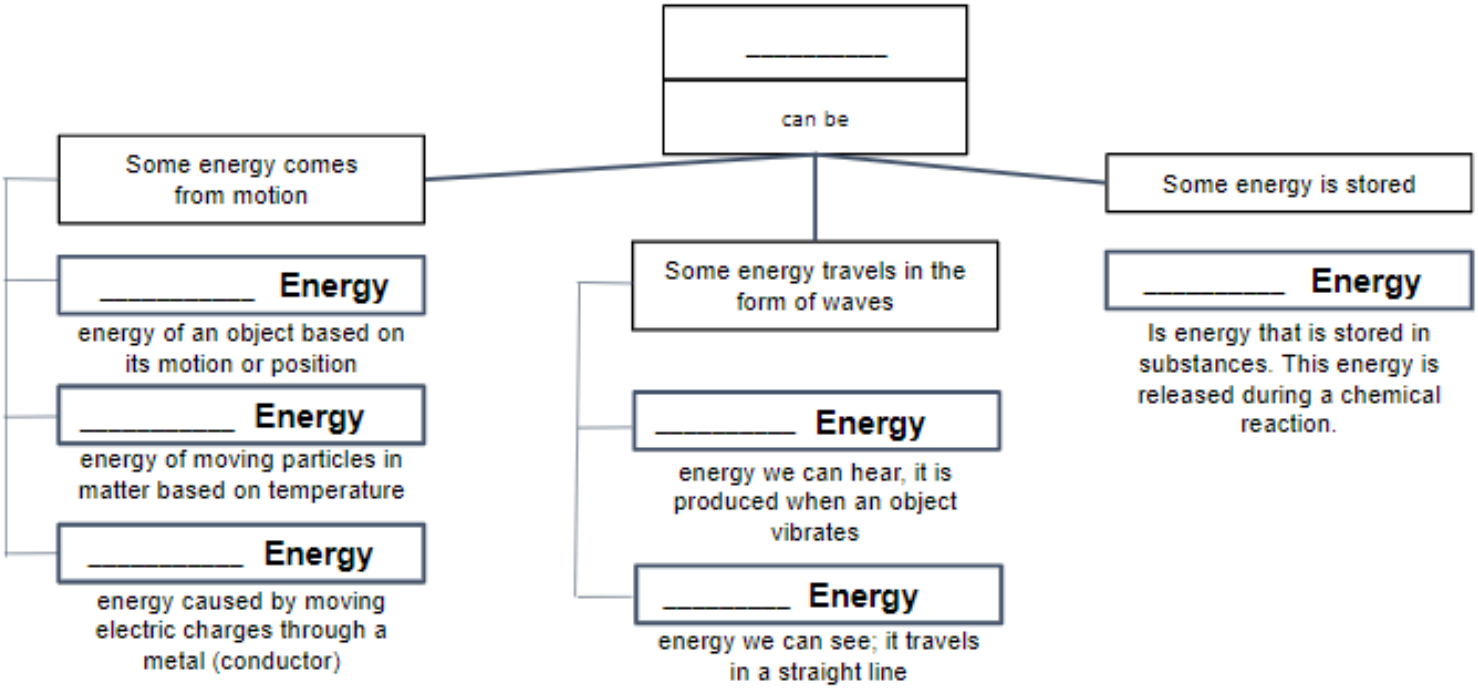
Destiny said that they are all forms of energy, they just have different sources.

Who do you agree with and why? _____
_____
_____

What do you think work is? _____
_____

Source	Energy	Source	Energy
megaphone		bonfire	
gears		Light bulb	
fireworks		lightning	

Forms of Energy: Tree Map



Types of Energy

Description	Type of Energy
The only energy we can see. Waves travel in a straight line until they hit something and are reflected, bent, or absorbed.	
Energy within matter that is measured as temperature. As temperature increases, the energy within matter increases.	
Energy that is associated with the movement of electric charges.	
This is the energy possessed by an object based on its motion and position.	
Results when a force makes an object or substance vibrate; greater vibration speed creates a higher pitch	
Stored energy found in substances that is stored or released during a chemical reaction	

Activity: Online Tutorial: Energy Scavenger Hunt at an Amusement Park

Symbol	Form of Energy	Symbol	Form of Energy
			
			
			

Practice 1:

Check all that apply.

Source	Is energy being used?	
	Yes	No
Wind turbines		
Mechanical production line		
City lights		
Tractor driving on a farm		

Practice 2:

Check all that apply.

Source	Is heat or light energy being used?	
	Yes	No
Ticket sign		
Amusement ride light bulbs		
Popcorn machine popping corn		
Barbeque grill		

Practice 3:

Check all that apply.

Source	Is sound or electrical energy being used?	
	Yes	No
Music concert		
Juggling pins		
Bumper cars		
Ride control panel		

Practice 4:

Place a check under the correct heading.

Source	Chemical Energy	Mechanical Energy
Fireworks		
Cotton candy		
Arcade game		
Ride		

Amusement Park Energy

Identify the correct location in the park.

Energy Example	Location in the Park
Mechanical Energy	
Sound Energy	
Light Energy	
Chemical Energy	
Electrical Energy	
Thermal Energy	

Practice 5:

Identify the correct form of energy.

Source	Form of Energy
Drum	
Apple	
Stove top	
Flash light	
Motorcycle	
Charging phone	

Practice 6:

Identify the correct form of energy.

Activity	Form of Energy
It was so hot outside, especially the pavement. You could have cooked an egg on the ground!	
Your favorite time at the fair was at night when all the rides were lit up in different colored flashing lights!	
You went to a karaoke contest and sang your favorite song to win the prize!	
The battery died on your cell phone. You had to plug it into an outlet to charge it.	
It's lunchtime and you just ate a slice of pizza at the fair. You hope it digests soon so you can eat more treats later!	
To cause more spin on the tilt a whirl ride, you and your friend have to turn the wheel in your car faster and faster with your hands.	

Activity: Find Your Match: Card Sort

Image	Description	Form of Energy
Ear	Energy given off by a vibrating object; faster vibrations = higher pitch	
Eye	Energy that travels in a straight line until it strikes an object and is either bent, absorbed or reflected	
Cartoon bunny in an egg car	Energy of motion; total energy of an object based on its motion and position	
Battery	Energy that is stored or released as a result of chemical reactions	
Iced tea and hot tea	Measured as temperature; as temperature of matter increases, the motion of particles in matter increases	
Electric circuit	Energy caused by the movement of electric charges	

Activity: Examples Of Energy

Form of Energy	Examples (Give at least two examples found in your classroom)
Light	
Thermal (Heat)	
Sound	
Chemical	
Electrical	
Mechanical	

Revisit: Think About This!! - Forms of Energy (Refer to page 4 if needed)

Writing:

What is energy? Give an example of three different types of energy in your classroom.

_____
_____
_____
_____
_____
_____

Check What You Know

1. Tom's mother has asked him to vacuum the carpet in his bedroom. Tom carries the vacuum cleaner upstairs and plugs it into the wall outlet. He vacuums the carpet and then puts the vacuum cleaner away. What form of energy supplied the power to the vacuum to clean the carpet?
    A. Sound energy
    B. Electrical energy
    C. Magnetic energy
    D. Chemical energy

2. Margaret drew pictures to show four forms of energy.

Which picture is NOT a good example of mechanical energy?

A. An electric fan
B. A desk lamp
C. A child on a swing
D. A person in a sailboat