5th Grade Inclement Weather Packet

Complete these steps.

_____ Read and hashtag the texts, "Energy Basics" and "What Are the Forms of Energy"

_____Complete questions 1-11 that go with those texts.

_____Complete the Math Learning Review Questions 1-8.

_____Complete the Math "Spider Search" page for multiplication.

_____Read independently for 20 minutes with a book of your choice. Then answer the prompt below.

Explore how the main character changed (especially in thinking or feeling about or toward someone/something) throughout the story. Make sure to write about the character before the change, what happened to cause the change, and the character after the change.

Learning Day 1- 5th Grade

Fifth Grade

1. from "Energy Basics"

from "Energy Basics"
from *The Harnessed Atom*
U.S. Department of Energy

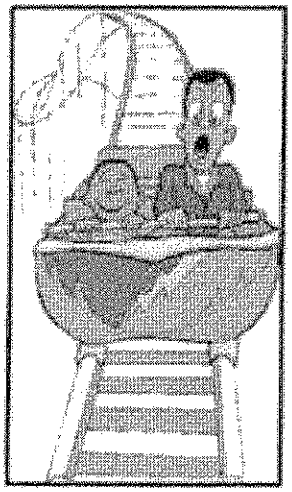
What is energy?

1 **Energy is the ability to do work. But what does that really mean?**

2 **You might think of work as cleaning your room, cutting the grass, or studying for a test. And all these require energy.**

3 **To a scientist, "work" means something more exact. Work is causing a change. It can be a change in position, like standing up or moving clothes from the floor to the laundry basket. It can be a change in temperature, like heating water for a cup of tea. Or it can be a change in form, like the water in tea changing from liquid to steam. All of these things are work and require energy.**

4 **We use energy all the time. Whenever work is done, energy is used. All activities involve energy.**



5 **We need energy to**

- **power our factories and businesses**
- **heat and light our homes and schools**
- **run our appliances and machines**
- **stay alive and keep our bodies moving**
- **build and fuel our cars, trucks, planes, and ships**
- **run televisions and videos**
- **power our phones, computers, music, and games**
- **make our clothes**
- **and do everything else that we do.**

What are the states of energy?

6 We can divide energy into two basic states: potential energy and kinetic energy. Potential energy is stored energy that is waiting to be used. Kinetic energy is energy of motion. A roller coaster at the top of the track has potential energy. When the roller coaster speeds down the track, the potential energy is changed into kinetic energy. Heat, light, and motion all indicate that kinetic energy is doing work. Potential energy is often harder to detect. It must be changed into kinetic energy before we can use it.

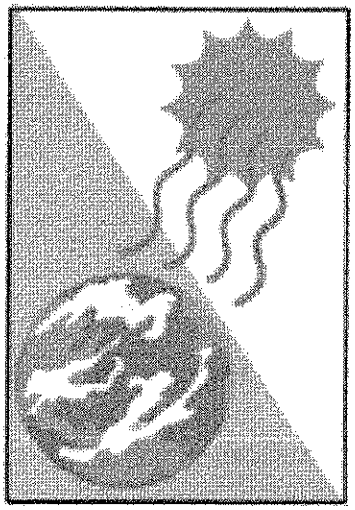
Where does energy come from?

7 Much of the Earth's energy comes from the Sun in the form of *radiant energy*. Plants convert this energy to *chemical energy* by a process called *photosynthesis*. This chemical energy is stored in the form of sugars and starches, which provide energy for the plant as well as people and animals that eat the plant. When we burn plants such as trees, stored chemical energy is converted and released in the form of heat and light, which we call fire.

> ***radiant energy***—a type of energy that is sent out in electromagnetic waves; for example heat, light, and radio waves
> ***chemical energy***—a type of energy that is stored in the atoms or molecules of plants
> ***photosynthesis***—the process plants use to make their own food

8 *Biomass* is the name for materials from plants and animals that have chemical energy stored in them. The energy in biomass originally came from the Sun. A biomass fuel we all know is wood for fireplaces and wood stoves. Other examples are crops such as corn and switchgrass.... By burning biomass, we release its stored chemical energy as *thermal* and radiant energy. We also can convert it to liquid fuel, such as *ethanol* and biodiesel. Biomass fuels provided about 4.6 percent of the energy used in the United States in 2012.

9 Radiant energy from the Sun's rays makes some parts of the Earth warmer than others. Air surrounding these warmer surfaces is heated, which causes it to rise. Cooler air then flows in to replace the heated air that has risen. We call this flow of air wind.



10 Radiant energy from the Sun also causes water to evaporate into water vapor. The water vapor rises into the upper atmosphere where it forms clouds and rain. This is called the water cycle. The tremendous energy in storms and winds is actually caused by the Sun's radiant energy.

11 When it rains, the water flows down rivers. The energy in moving water can turn a watermill....

What are secondary energy sources?

12 There are also secondary energy sources that are produced by using primary energy. Electricity is a secondary source that can be produced from any of the primary sources listed. Ethanol is a secondary energy source made from biomass.

What are renewable and non-renewable energy sources?

13 We can further divide the primary and secondary energy sources we use into *renewable* and *non-renewable* sources. Renewable sources can be continuously replaced. Day after day the Sun shines, the wind blows, plants grow, and rivers flow. We use renewable energy sources in our wood stoves, to make electricity.... Non-renewable sources cannot be replaced. The supplies of coal, oil, natural gas, and uranium are limited. When we use up these resources, they will be gone. In the United States, most of the energy we now use comes from non-renewable sources. We use them to make electricity, heat our homes, move our cars, and to manufacture goods.

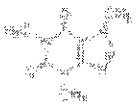
biomass—organic matter, like plants, that can be used as fuel
thermal—energy in the form of heat
ethanol—a type of fuel made from plants
renewable—able to be replaced by nature
non-renewable—not able to be replaced by nature

What are the forms of energy?

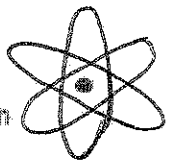
There are many forms of potential and kinetic energy. These include mechanical, chemical, thermal, electrical, radiant, and nuclear energy, as well as the energy of gravity.

Mechanical energy is the energy that moves objects by applying a force. It can be kinetic—the motion of a snapping mousetrap. Or it can be potential—the tension in a set mousetrap.

Chemical energy is the energy released when the chemical bonds of a material change. Wood stores chemical energy that is released when it burns.

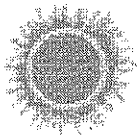


Nuclear energy is the energy stored in the center (nucleus) of an atom. It's the energy that holds the center together. The energy can be released when the center splits apart or when centers fuse together.



Electrical energy is the flow of tiny charged particles called electrons. Electrons move through a conductor, such as a copper wire.

Radiant energy is energy traveling as waves. It includes visible light, radio waves, x-rays, and gamma rays. The Sun's energy comes to us in this form.



Energy from gravity is the energy of position or place. The potential energy of water held behind a dam is changed to kinetic energy when it is allowed to flow downhill.

Thermal energy is heat energy. We use it to cook meals, to manufacture products, and to generate electricity.

Excerpt from "Energy Basics" from *The Harnessed Atom* from the U.S. Department of Energy. https://energy.gov/sites/prod/files/2014/08/f16/Student%20Edition_2.pdf (11/7/16).

1. **What text structure does the author use in paragraph 13?**

   The author uses cause and effect to explain that energy sources must be replaced on a regular basis.

   The author uses compare and contrast to explain the similarities and differences between two types of energy sources.

   The author uses chronological order to explain how different energy sources are created and then used.

   The author uses problem and solution to explain why people must learn how to use new types of energy sources.

2. **What is the meaning of the word *convert* as it is used in paragraphs 7-8?**

change into a different form

move out of position

ignore for a short period of time

turn in a new direction

3. **How do the images used in the "What are the forms of energy?" section help the reader understand the passage?**

The reader can see which types of energy are the most important.

The reader can see which types of energy are easiest to find.

The reader can see similarities between the different types of energy.

The reader can see examples of the different types of energy.

4. **What type of energy is being used when a cell phone is plugged in to charge?**

thermal

gravity

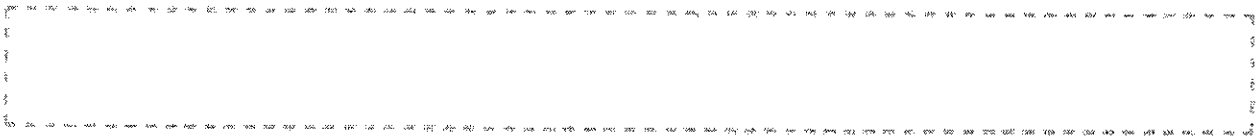
electrical

chemical

5. **For this item, drag the answers into the box.**

Determine *two main* ideas of the "Where does energy come from?" section, and drag the *main* ideas into the box.

***Main* Ideas**



- Chemical energy is used to create most types of fuel.
- Most of the energy that exists comes from the Sun's radiant energy.
- Kinetic energy in the rivers is used to turn watermills.
- Radiant energy helps plants grow and creates weather.
- Many plants lose chemical energy when burned to make fuel.

6. **What does the word *continuously* mean as it is used in paragraph 13?**

causing slow growth

changing into new forms

happening without stopping

following an unpredictable pattern

7. **Part A**

What is the meaning of *produced* as it is used in paragraph 12?

created

discovered

planned

realized

8. **Part B**

Which phrase from paragraph 12 supports the answer to Part A?

"...also secondary energy sources..."

"...that can be..."

"...primary sources listed."

"...made from..."

9. **Which quotation from the passage supports the inference that some forms of energy can create other types of energy?**

"Biomass is the name for materials from plants and animals that have chemical energy stored in them." (paragraph 8)

"Other examples are crops such as corn and switchgrass.... By burning biomass, we release its stored chemical energy as thermal and radiant energy." (paragraph 8)

"Radiant energy from the Sun's rays makes some parts of the Earth warmer than others. Air surrounding these warmer surfaces is heated, which causes it to rise." (paragraph 9)

"We can further divide the primary and secondary energy sources we use into renewable and non-renewable sources." (paragraph 13)

10. **How are potential energy and kinetic energy connected?**

Potential energy leads to kinetic energy.

Potential energy is left over from kinetic energy.

Potential energy uses up kinetic energy.

Potential energy occurs at the same time as kinetic energy.

11. **Part A**

How does the author support the point that energy is used in every activity?

by providing a chart that details which activities use the least energy

by listing examples of regular activities that require the use of energy

by describing which activities use up energy that cannot be replaced

by explaining that thrilling activities use more energy than other activities

5th Math Learning Review 1

1. **The table shows each digit in the number 99.999 assigned to a letter.**

9	9	.	9	9	9
v	*w*		*x*	*y*	*z*

Which statement about the value of each digit is true?

A. v is $\frac{1}{10}$ the value of w

B. x is $\frac{1}{10}$ the value of w

C. y is 10 times greater than x

D. z is 10 times greater than x

2. **Which equation is true?**

A. $12.6 \times 10^4 = 1,260,000$

B. $12.6 \times 10^3 = 12,600$

C. $12.6 \times 10^1 = 1,260$

D. $12.6 \times 10^5 = 126,000$

3. **What is 245.08 written in expanded form?**

A. $2 \times 100 + 4 \times 10 + 5 \times 1 + 8 \times \left(\frac{1}{100}\right)$

B. $2 \times 100 + 4 \times 10 + 5 \times 1 + 8 \times \left(\frac{1}{10}\right)$

C. $2 \times 10 + 4 \times 1 + 5 \times 1 + 8 \times \left(\frac{1}{100}\right)$

D. $2 \times 1 + 4 \times 1 + 5 \times 1 + 8 \times \left(\frac{1}{10}\right)$

4. **When rounded to the *nearest* hundredth, which number will result in 12.64?**

A. 12.651

B. 12.649

C. 12.642

D. 12.634

5. On Saturday, there are 734 people who buy tickets to enter the zoo. The cost for a ticket is $18 per person.

How much money does the zoo make selling tickets on Saturday?

A. $13,212

B. $12,982

C. $12,112

D. $10,072

6. Melanie is asked to find the quotient of $5,684 \div 28$. If Melanie finds the quotient *correctly*, what is her answer?

A. 23

B. 32

C. 203

D. 302

7. Josh gives the waitress $20 to pay for his meal. The total of the meal is $14.06.

How much change will Josh receive from the waitress?

A. $5.40

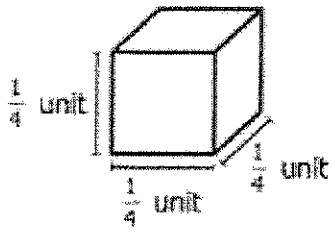
B. $5.94

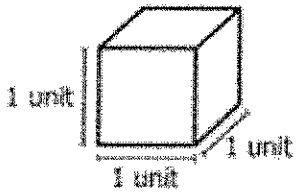
C. $6.40

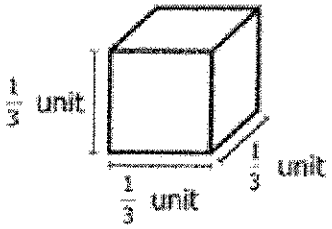
D. $6.94

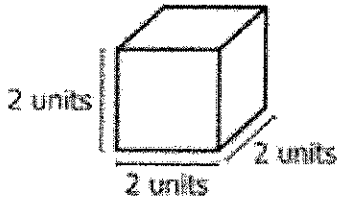
8. Calculator

Which figure has a volume of 1 cubic unit?

A. 

B. 

C. 

D. 

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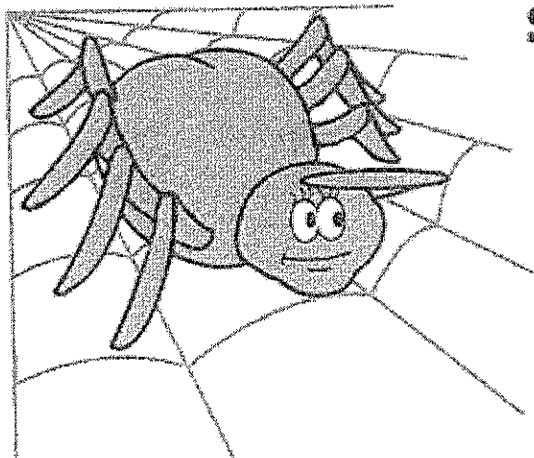
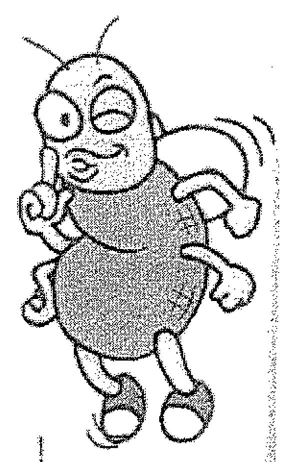


Spider Search

Help Spencer find some flies. Multiply.

A. 508 x 14	Y. 712 x 25	N. 184 x 68	I. 361 x 53
E. 443 x 37	T. 296 x 42	R. 675 x 81	B. 833 x 92
O. 990 x 73	W. 516 x 57	C. 749 x 67	D. 627 x 36



Where can a spider always find a fly?

To solve the riddle, match the letters to the numbered lines below.

___ ___ " ___ ___ ___ -S ___ ___ ___ 'S"

19,133 12,512 29,412 16,391 76,636 12,432 16,391 54,675

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ !

22,572 19,133 50,183 12,432 19,133 72,270 12,512 7,112 54,675 17,800