

Topic 3 Forms of Energy Study Guide

Word bank

Faster volume work heat effects light change sound
greater energy forms move

1. _____ is the ability to do work, to make matter move, or to cause matter to _____. Energy is present in all matter and it is what makes the particles in matter _____, although you can't see it.
2. Unlike matter that has both mass and _____, energy has no mass and no volume. We can see the _____ of energy, but not energy itself.
3. If Ziggy hit harder, the ball of wool would move _____. The more energy we use, the _____ the force. With greater force, more _____ can be done.
4. Energy can exist in different _____ such as heat energy, light energy, and sound energy.
5. _____ energy is what makes water boil and _____ energy helps us to see. We can hear all the sounds around us because of _____ energy.

Word Bank

opaque bends heat melt larger blocked heat curved
Light photosynthesis microscopes transparent solar solid
Straight

1. Energy from the Sun is called _____ energy. The Sun provides our Earth with both light and _____ energy. Plants use solar energy to make their own food in a process called _____.
2. _____ is a form of energy that helps us to see.
3. Light rays travel in _____ lines.
4. Light rays pass through matter that is _____, or that we can see through, such as a fish tank.
5. Light rays are _____ by matter that is not transparent, such as a wooden cabinet. This kind of matter is called _____ matter.
6. Light _____ as it passes through certain types of transparent matter.
7. Light passing through curved glass makes objects look _____ than their actual size.
8. _____, magnifying glasses, and spectacles all use _____ glass so that small objects and organisms look much larger than they are!
9. Ziggy is still fast asleep in the warm afternoon Sun. The energy that's keeping her warm is called _____ energy or heat.
10. An ice cube is cold and _____. Soon, heat energy from the hand will cause the solid to _____ into a liquid.

Word Bank

Motion position energy mechanical

1. The moving ball had the ability, or the _____, to knock down the vase and move the lamp. This form of energy that moving objects have is called _____ energy.
2. This means wherever there is _____, mechanical energy is present.
3. The ball has finally come to a stop. Although the ball isn't moving now, it has stored mechanical energy because of its _____.

Word Bank

sound sound waves solids gases vibrates closer
eardrum energy matter vibrations skin

1. Sound is a form of _____.
2. When the string of a guitar is plucked, it moves back and forth rapidly, or _____. When something vibrates, it produces _____.
3. Sound travels through air particles in the form of _____ to reach our ears. A thin piece of _____ inside our ear acts as a drum.
4. This is called the _____. When the sound waves strike your eardrum, these _____ are recognized by your brain as sound.
5. We know that sound can travel through _____, liquids, and gases.
6. Since sound is passed from one particle to another in waves, the _____ together the particles, the faster the sound

travels. So, sound travels fastest in solids and slowest in _____.

7. Since there is no _____ in space, sound does not travel in space.

Word Bank

electric charges electricity flow light energy
current electricity
sound energy transformed electric circuit energy
heat energy path wires energy

1. Every time we watch television, use the computer, or listen to music, we are using _____.
2. Electricity is a form of _____.
3. The electricity that makes all these devices work is called _____ or electric current.
4. An electric current is a flow of tiny particles called _____ in a closed path.
5. We need to use _____ to connect the light bulb, the battery, the battery holder, and the switch.
6. When we turn on the switch, the battery, the wires, the switch, and the light bulb form a closed continuous _____. This is called an _____.
7. The electric circuit allows the electric charges to _____ from one end of the battery to the other.
8. For the current to flow, there must be a closed continuous path and a source of _____, such as a battery.
9. The electrical energy that we use in our homes is _____ into other useful forms of energy.

10. For example, it is changed to _____
by our lamps, _____ by our ovens, and
_____ by our music players.

Word Bank

translucent energy day surface straight opaque

luminous

transparent Frosted glass eyes Sun wood

Clear glass passes through

1. All objects that emit light are called _____ objects.
2. Our main source of light is the _____ of course! Sunlight helps us see during the _____.
3. Light is a form of _____. When it bounces off objects and travels to our _____, we are able to see the object.
4. Light always travels in _____ lines.
5. Depending on what kind of matter the object is made of, light _____, gets absorbed, or bounces off the _____.
6. Objects that allow light rays to pass through them or transmit light are called _____ objects.
7. _____ is an example of a transparent material.
8. Some objects that transmit only part of the light rays through them are called _____ objects.
9. _____ and sheer curtains are examples of translucent objects.

10. Objects that do not transmit any light are called

_____.

11. Books, _____, bricks, and metal are examples of opaque objects.

Word Bank

diverge convex optic nerves lenses pupil objective

converge

retina refracts curved middle eyes telescope

eye glasses

magnifying concave bends transparent greater larger
ends

closer thicker eyepiece

1. The magnifying ability of a good _____ can make the Moon look like it's just an arm's length away!

2. Telescopes magnify distant objects by using a combination of _____.

3. Lenses are objects with _____ surfaces. They are made of glass or other _____ materials.

4. A lens that curves outward is called a _____ lens, and a lens that curves inward is called a _____ lens.

5. Light bends, or _____, when it travels through a lens.

6. The more curved the surface of the lens, the _____ its ability to bend light.

7. Convex lenses are _____ in the middle than at the ends.

8. Parallel rays of light refract and come together, or _____, at one point. Looking through this lens makes an object look _____ than it really is.
9. A convex lens is therefore used as a _____ glass.
10. Concave lenses are thicker at the _____ than in the _____.
11. Light rays refract and move apart, or _____, through this lens.
12. Objects that are far away appear _____ when seen through a concave lens.
13. Concave lenses are used commonly in _____ for people who are nearsighted and can't see distant objects clearly.
14. The simplest telescope has at least two lenses—the _____ lens and the eyepiece.
15. The objective lens _____ the light from distant objects, like the Moon, and brings them together into a bright point.
16. The _____ then magnifies the bright point and brings the image to your eye, making the Moon appear closer and larger.
17. Lenses are also an important part of our _____ and help us see.
18. When light from an object enters our eyes it's refracted by the cornea. The refracted light enters the convex lens inside the eye through the _____.
19. The lens further bends the light and forms a sharp image on the _____.

20. _____ take the upside down image received by the retina to the brain, which inverts the image to create our view of the world.