

# **SOUND, LIGHT & HEAT ENERGY**

## **Sound & light properties**

### **ELIGE LA OPCIÓN CORRECTA:**

- 1) When an object vibrates, it produces \_\_\_\_\_
- 2) A lamp transforms \_\_\_\_\_ energy into light energy
- 3) Light travels \_\_\_\_\_ than sound.
- 4) Light travels in \_\_\_\_\_, which are straight lines.

### **TRUE OR FALSE:**

- Sound waves can only travel through air.
- Sound waves cannot travel through a vacuum.
- Sound travels slower through water than through air.
- Artificial light sources are found in nature.
- The sun is our main source of natural light.
- Light can travel through a vacuum.

### **COMPLETA:**

We perceive large vibrations as L \_\_\_\_ sounds.

We perceive small vibrations as Q \_\_\_\_\_ sounds.

Sound travels through a M \_\_\_\_\_, such as air and water.

Light can be absorbed, R \_\_\_\_\_ or refracted.

Artificial light sources

Natural light sources

  
  

lamps

torches

Northern lights

sun

## Reflection and refraction

Reflection	Refraction
 	 

### ELIGE LA OPCIÓN CORRECTA:

- Reflection occurs when rays \_\_\_\_\_.
- Light reflects in \_\_\_\_\_ on smooth surfaces.
- Heat is transferred from molecules with \_\_\_\_\_ thermal energy to molecules with \_\_\_\_\_ thermal energy.
- We can transfer electrical and chemical energy into heat energy using \_\_\_\_\_ heat sources.
- \_\_\_\_\_ is when a solid is heated and becomes a liquid.
- Which types of energy is chemical energy transformed into when a fire burns?  
\_\_\_\_\_ CHOOSE 3
- In a thunderstorm, we see the lightning \_\_\_\_\_ we hear the thunder.
- When you use a hairdryer, electrical energy is transformed into \_\_\_\_\_

### COMPLETA:

L \_\_\_\_\_ use refraction to make objects appear larger or smaller.

When liquid water is heated, it turns into a gas. This is called

E \_\_\_\_\_

The sun gives us H \_\_\_\_\_ and light energy.

### TRUE OR FALSE:

Mirrors reflect light very well.

Light refracts when it enters a medium with the same density.

Heat can travel in any direction.

Heat can flow from hot to cold and from cold to hot.

Heat and temperature are the same thing.

The sun is our only light source.

You can only see the Northern Lights easily in the northern hemisphere.

Energy transformations only happen in nature.

### COMPLETA:

<b>quiet sounds</b>	<b>four times</b>	<b>sound waves</b>
<b>vacuum</b>	<b>loud sounds</b>	<b>vibrates</b>

When an object \_\_\_\_\_, it produces \_\_\_\_\_. These waves travel through a medium (solid, liquid or gas) to our ears so that we can hear them.

We perceive large vibrations as \_\_\_\_\_ and small vibrations as \_\_\_\_\_.

Sound waves can only travel through a medium, such as air. They cannot travel through a \_\_\_\_\_.

Sound moves \_\_\_\_\_ faster through water than through air.

### COMPLETA:

<b>Artificial sources</b>	<b>nature</b>	<b>Light sources</b>	<b>light energy</b>
<b>The sun</b>	<b>Natural sources</b>	<b>transformed</b>	<b>man-made</b>

\_\_\_\_\_ produce light energy. Without \_\_\_\_\_, we wouldn't be able to see anything!

- \_\_\_\_\_: are \_\_\_\_\_. The light energy is \_\_\_\_\_ from another energy source, such as chemical energy or electrical energy.
- \_\_\_\_\_: are found in \_\_\_\_\_. \_\_\_\_\_ is the main source, but the Northern Lights are also natural.

**COMPLETA:**

<b>straight lines</b>	<b>300,000 kilometres per second</b>	<b>cannot pass</b>
<b>quickly</b>	<b>rays</b>	<b>speed of light</b>

Light travels \_\_\_\_\_.

Light travels at about \_\_\_\_\_. This is called the \_\_\_\_\_.

Light energy travels in waves, in \_\_\_\_\_, called \_\_\_\_\_.

Light energy does not need to travel through a medium and it \_\_\_\_\_ through all materials.

**COMPLETA:**

<b>Reflection</b>	<b>Mirrors</b>	<b>smooth</b>
<b>rough</b>	<b>absorbed</b>	<b>periscope</b>

When light comes into contact with an object, the light can be \_\_\_\_\_, reflected or refracted.

\_\_\_\_\_ occurs when rays of light are not absorbed by an object and bounce off, instead.

Light reflects in the same direction on \_\_\_\_\_ surfaces. On

\_\_\_\_\_ surfaces, it reflects in all directions.

\_\_\_\_\_ reflect light very well. They reflect the object in front of them.

Submarines use mirrors in a \_\_\_\_\_ to see what is happening above the water.

**COMPLETA:**

<b>lenses</b>	<b>refraction</b>	<b>curved</b>
<b>density</b>	<b>bigger or smaller</b>	<b>rainbow</b>

Light travels in a straight line, but when it passes through a medium with a different \_\_\_\_\_, it changes direction. This is called \_\_\_\_\_.

A \_\_\_\_\_ is caused by refraction.

We use refraction to help us see. Lots of everyday objects use \_\_\_\_\_, which are pieces of \_\_\_\_\_ plastic or glass. These refract the light and can make objects look \_\_\_\_\_.

**COMPLETA:**

<b>Temperature</b>	<b>low</b>	<b>artificial</b>
<b>Heat</b>	<b>particles</b>	<b>high</b>

\_\_\_\_\_ is thermal energy, which can be transferred from particles with \_\_\_\_\_ thermal energy to particles with \_\_\_\_\_ thermal energy.

Heat can travel in any direction, but it always flows from hot to cold.

Heat and temperature are related, but not the same. \_\_\_\_\_ measures how hot or cold something is. The higher the temperature, the faster the \_\_\_\_\_ move.

Electrical energy and chemical energy can be transformed into heat energy. These are \_\_\_\_\_ heat sources.

**COMPLETA:**

<b>melting</b>	<b>expansion</b>	<b>evaporation</b>
<b>solids</b>	<b>expand</b>	<b>liquid</b>

When \_\_\_\_\_ like butter and ice are heated, they become liquids. This is called \_\_\_\_\_.

When \_\_\_\_\_ water is heated, it turns into a gas. This is called \_\_\_\_\_.

As matter is heated, it will \_\_\_\_\_ or get bigger. The particles move around more and at a faster rate. This is called \_\_\_\_\_.

**CHOOSE THE CORRECT WORD FOR EACH SPACE**

- a. .... travels in a straight line.
- b. Sound waves must travel through a .....
- c. When light hits a ..... surface, it reflects in all directions.
- d. Light cannot pass through objects that are .....
- e. .... changes the state of matter.
- f. .... is when a liquid changes to a gas.