



Divina Infantita  
(Almería)

Profe Juan Carlos 2017-2018

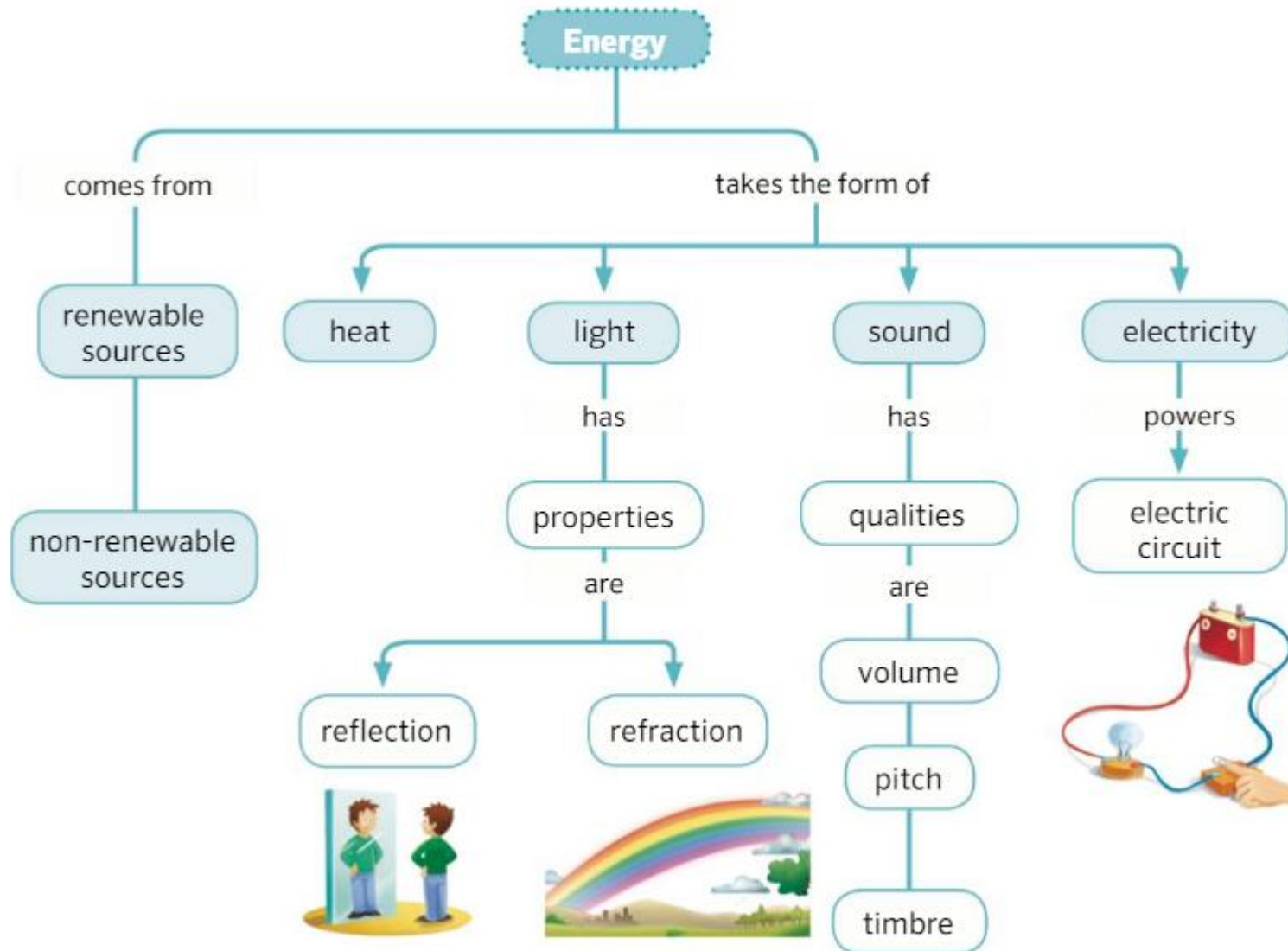
4<sup>o</sup>

## NATURAL SCIENCE

UDI 2 “Conozco mi mundo

UNIT 6. Energy

# Mind maps



# 1. Forms and sources of energy

## a) Forms

There are many **forms** of energy:

- **Light energy:** energy of bodies that emit light
- **Kinetic energy:** energy in moving bodies
- **Sound energy:** is produced by the vibration of bodies
- **Electrical energy:** energy that devices use
- **Heat energy:** energy transferred by hot bodies to cold bodies
- **Chemical energy:** energy stored in some materials: batteries, fuel, living things and food



## b) Sources of energy

### Sources of energy

#### Renewable energy sources

They are not exhausted by use because they are constantly being renewed.

##### The Sun's rays

Solar panels transform solar energy into heat or electricity.



##### Wind

Wind turbines transform wind energy into electricity.



##### Moving water

Hydroelectric power stations transform falling water into electricity.



#### Non-renewable energy sources

They can run out because it takes a long time to produce them.

##### Coal

It is mined from the ground. We burn it to produce heat and electrical energy.



##### Gas

It is extracted by drilling into the ground. We use it primarily for heating.



##### Oil

It is extracted by digging wells in the ground. We use it to produce fuel and plastics.



# 2. Heat

## a) Temperature and heat

All bodies have a **temperature** and its measured with a thermometer. Can be **high/hot** or **cold/low**

• **Thermal equilibrium** is when a hot body transfer **energy** to a cold body



## b) How heat affects bodies

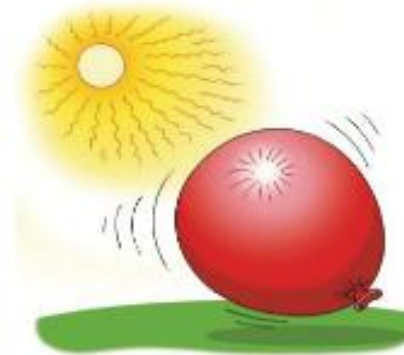
When a body receives **heat energy** three phenomena can occur:

### ● Change of temperature



### ● Change of volume

- When a body gets colder, (**contraction**).
- When a body gets hotter, (**expansion**).



### ● Change of state

change from gas to liquid (**condensation**) or from liquid to solid (**solidification**)

change from liquid to gas (**evaporation**) or from solid to liquid (**fusion**).



# 3. Light

## a) Sources of light

Our main source of light is the Sun. There are others that can be classified into:

- **Natural light sources:** are found in natura.
- **Artificial lighth sources:** are man-made



## b) Propagation of light

The light moves from one place to another:

- At **high speed**
- In a **straight line**
- In **all directions**

## c) Bodies and light

We can classify bodies into:

- **Transparent:** allow light to pass
- **Opaque:** prevent light from passing
- **Translucent:** allow only a little amount of light to pass





# 4. Sound

## a) Propagation of sound

Sound propagates in a **straight line** and in **all directions**, but travels much **more slowly than light**.

• **Noise pollution** is the excessive noise that can harm our health

## b) Qualities of sound

### Volume

loud sounds, like an engine, and quiet sounds, like the tweeting of a bird.



### Pitch

This can be high, like the sound of a violin, or it can be low, like the sound of a double bass.



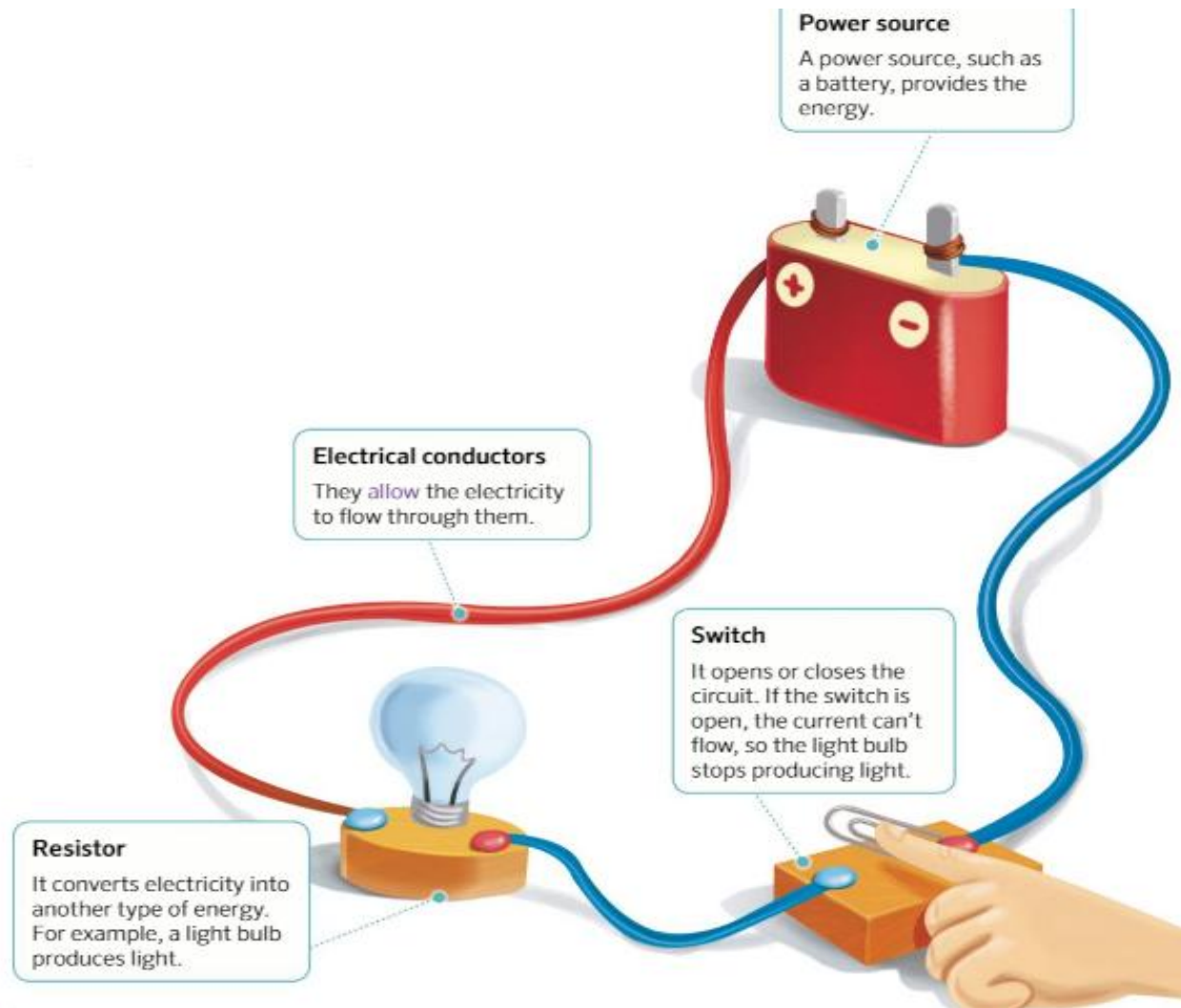
### Timbre

This makes it possible to differentiate between sounds with the same pitch and volume,



# 5. Electricity

## a) Electric current and electric circuits



## b) The effects of electricity

Electricity can be transformed into different forms of energy:

