

El Taller 

# OBJECTS & MACHINES

UNIT 6



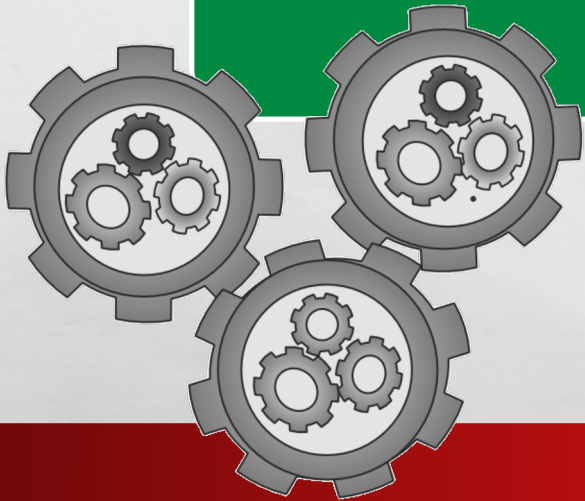
Year 4



# UNIT 6: OBJECTS & MACHINES

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# 1. MACHINES

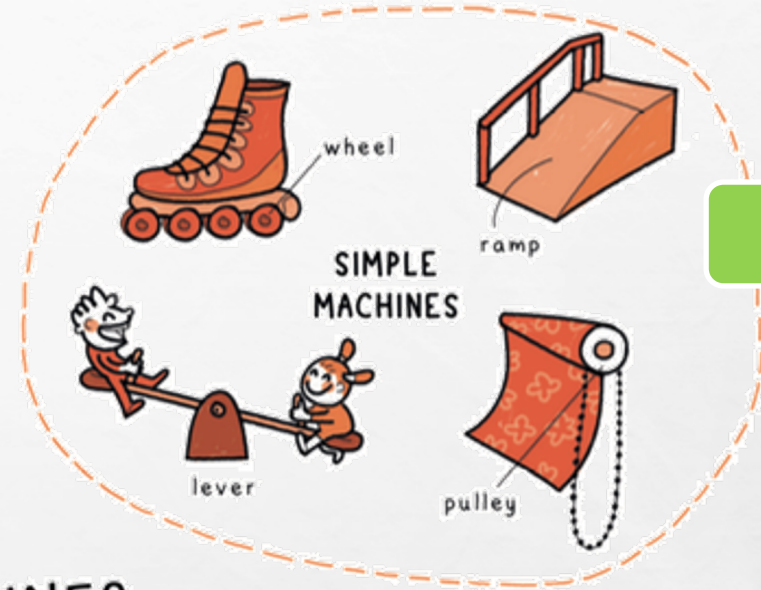
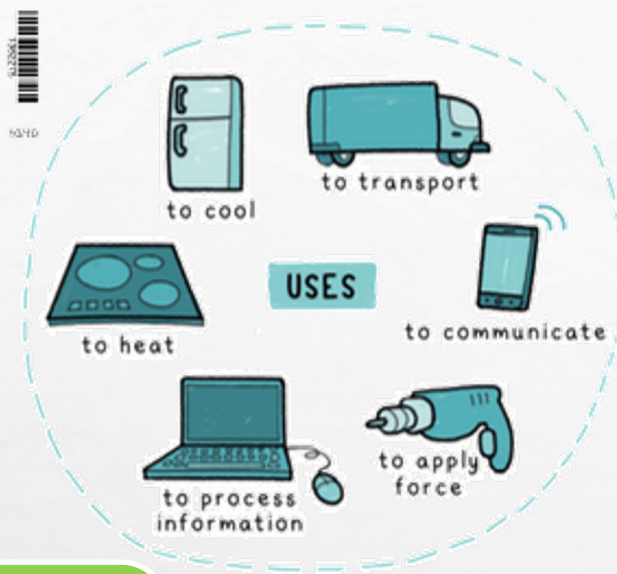
## Uses of machines

- We use machines in our everyday life.
- Machines are used for different things: to apply force, to transport things, to heat or cool things, to communicate and to process information.





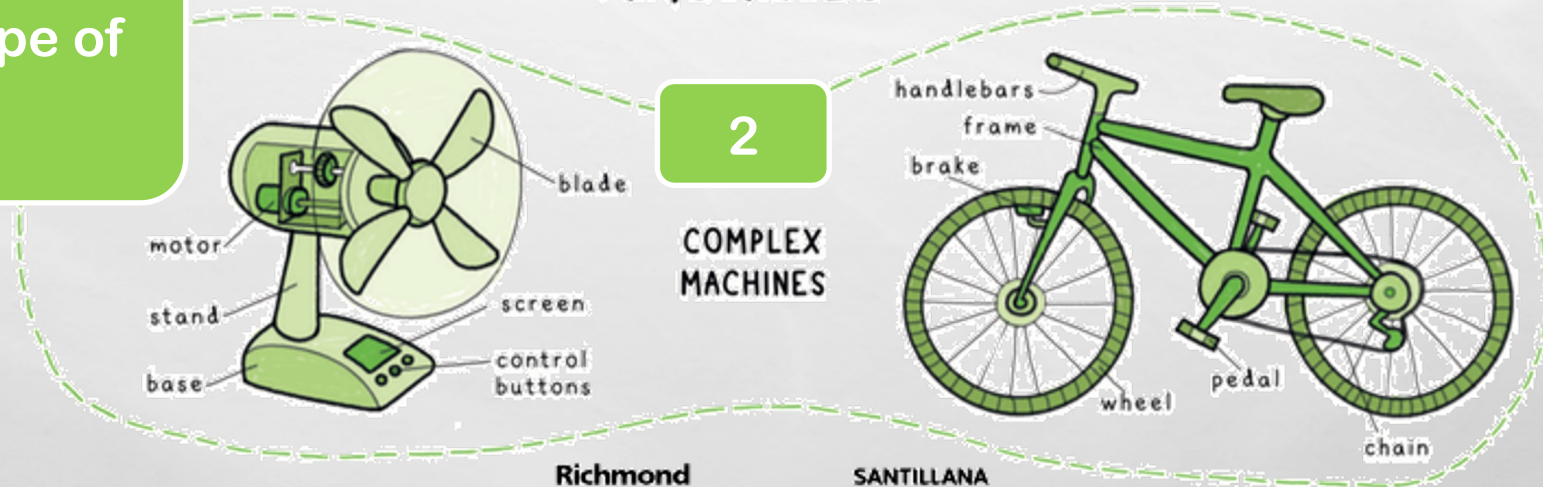
# 1. MACHINES



1

There are two type of machines

## MACHINES



2

# 1. MACHINES

They make work easier.

They are very simple tools.

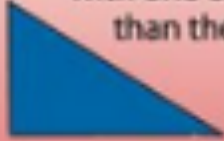
1

# Simple Machines

a basic tool that is used to do work

## ***inclined plane***


a flat surface with one end higher than the other



*ramp dump truck slide*

## ***wedge***


an object that is thick at one edge, tapered to a thin edge at the other



*axe knife nail fork*

## ***screw***

an inclined plane that is wrapped around a cylinder



*drill jar lid spiral staircase*

## ***lever***

a straight bar that pivots on or around a fulcrum

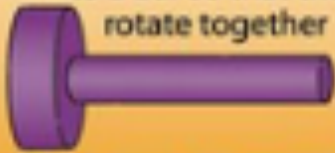
F=fulcrum    E=effort    L=load



*first class second class third class*  
*seesaw crowbar bat*

## ***wheel & axle***

a wheel attached to a bar so that they rotate together



*doorknob roller skates toy car*

## ***pulley***

a chain, belt, or rope wrapped around a wheel

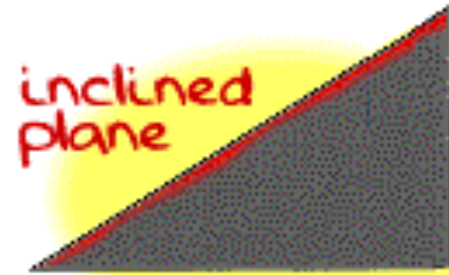


*mini blinds flagpole drapes*



## 1. MACHINES

# Simple Machines



inclined  
plane



lever



wedge



screw



pulley



wheel  
and  
axle

## 1. MACHINES

2

They consist of two or more simple machines operating together.

# Compound Machines

*two or more simple machines working together*

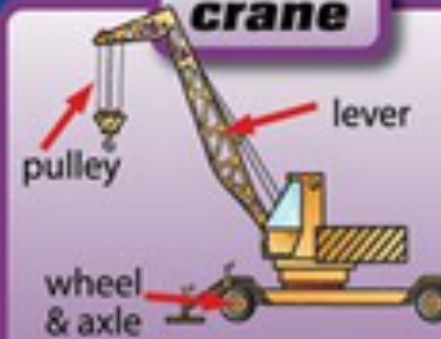
**wheelbarrow**



**pencil sharpener**



**crane**



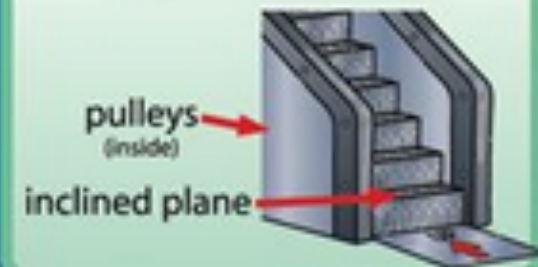
**bulldozer**



**clippers**



**escalator**

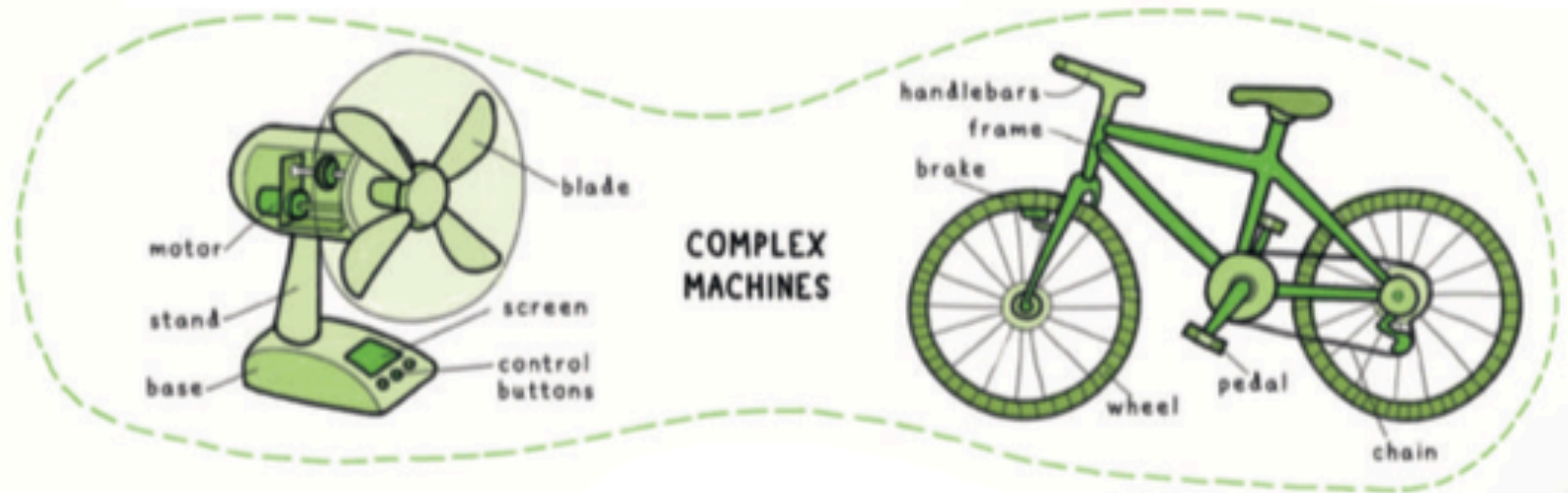




# 1. MACHINES

## Complex machines

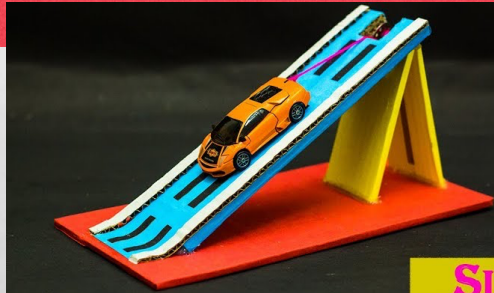
- Complex machines are made up of many operating parts.
- They are used to do more complex work than simple machines.
- Some complex machines work using energy from people but most of them use electrical energy or thermal energy.



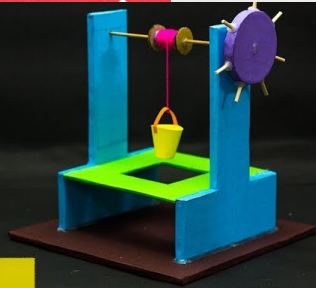


## 1. MACHINES

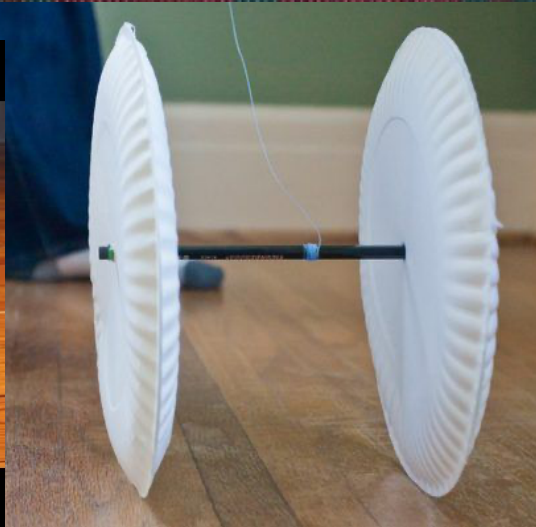
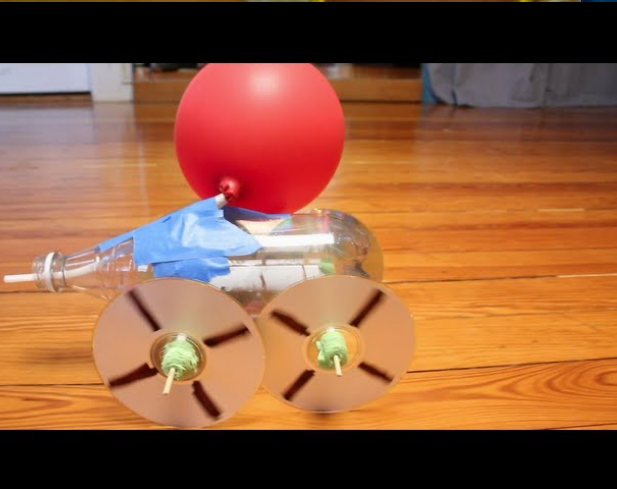
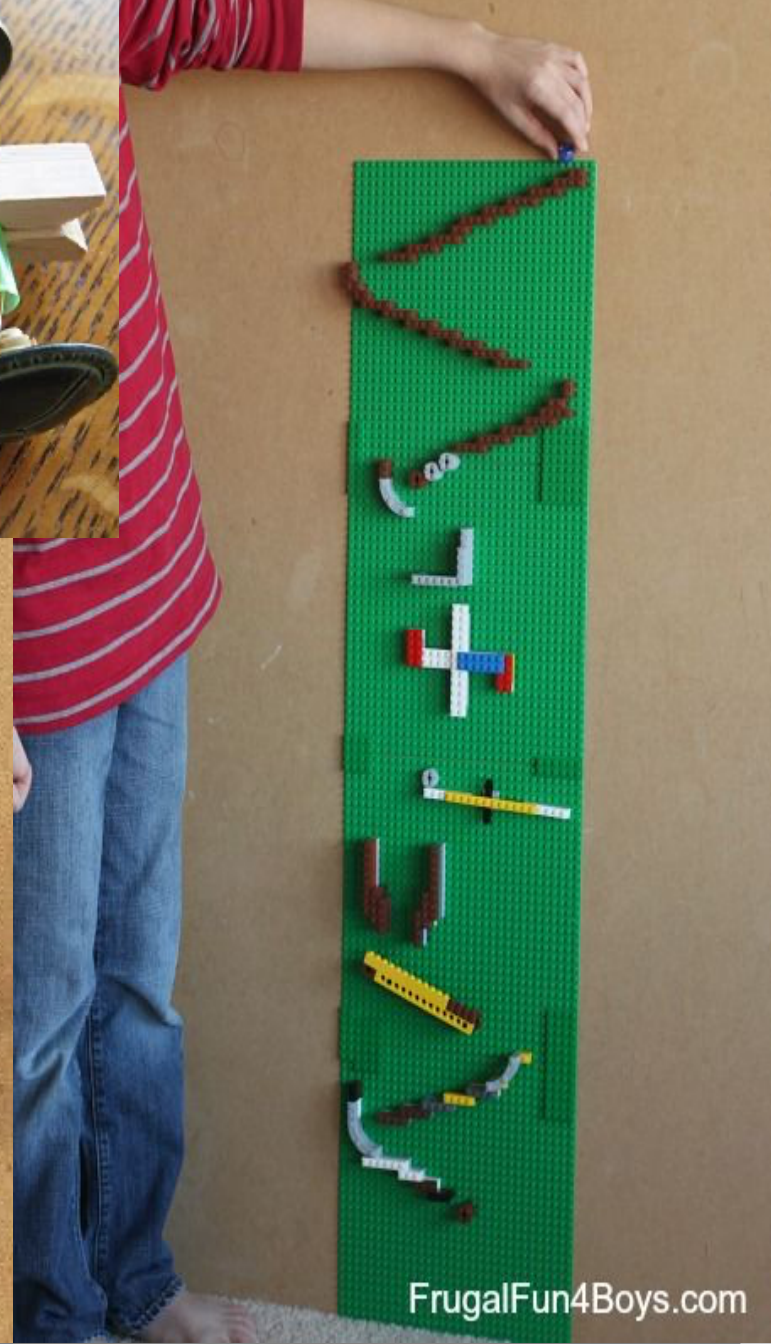
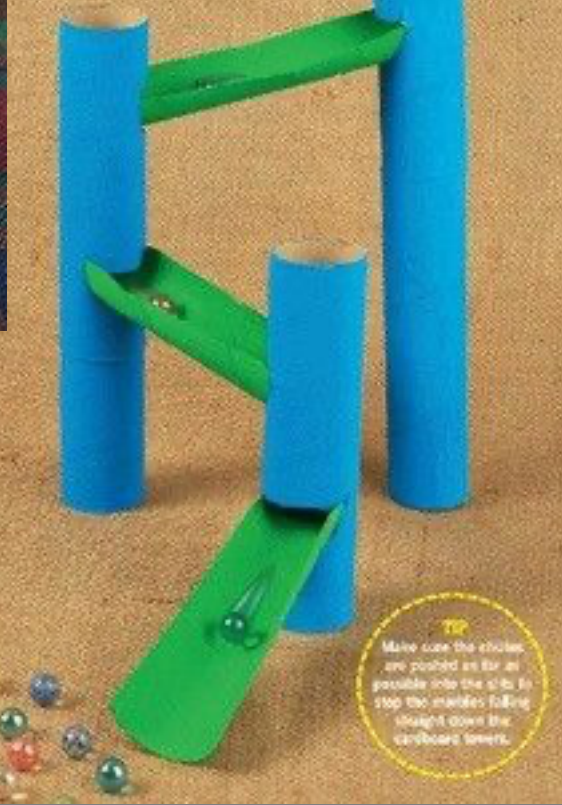
GET  
INSPIRED  
BY THESE  
EXAMPLES



SIMPLE  
MACHINE'S







**TIP**  
Make sure the wheels are pointed as far as possible into the slots to stop the marbles falling straight down the cardboard towers.

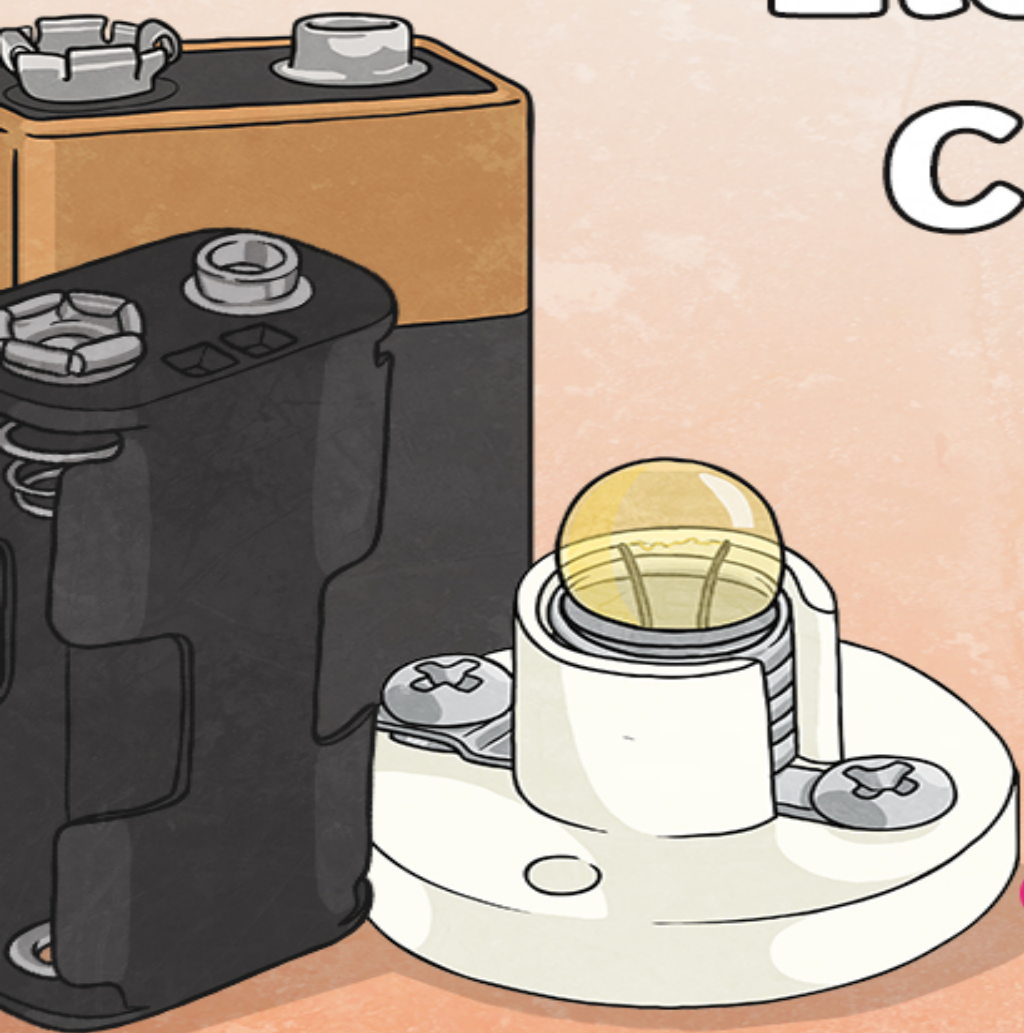


NOW IT'S  
YOUR TURN.



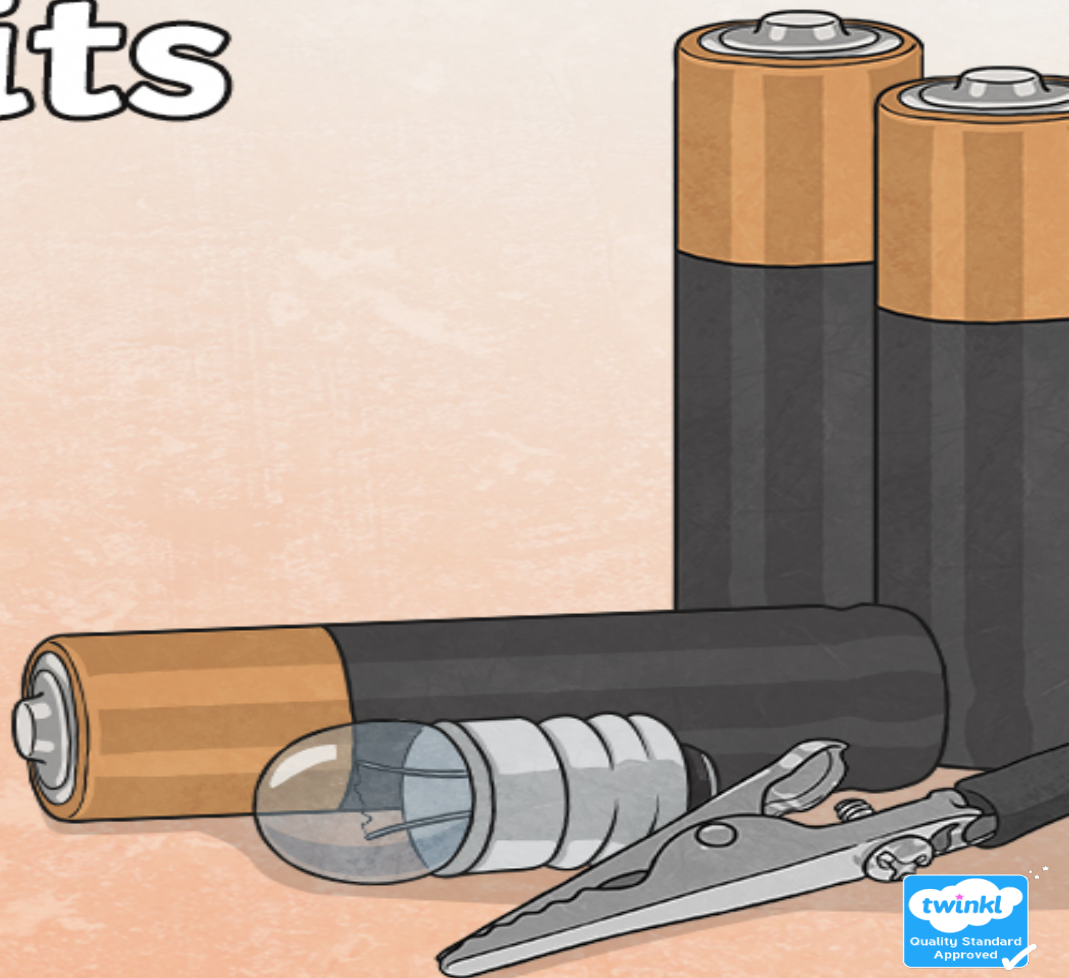
## 2. CIRCUITS

# Electrical Circuits



twinkl

Move  
&  
Learn





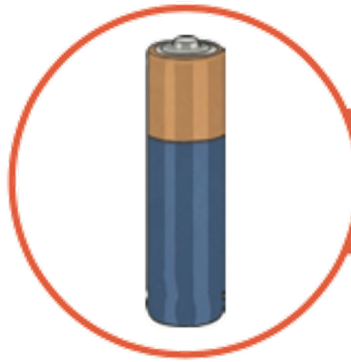
# Component List



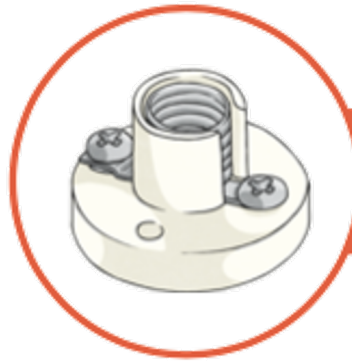
Battery  
holder



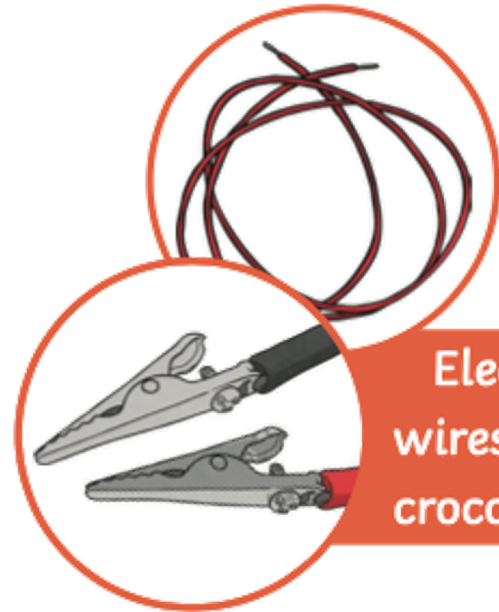
Bulb



Battery



Bulb  
holder



Electrical  
wires with  
crocodile clips

## 2. CIRCUITS

# COMPLETE AND INCOMPLETE CIRCUITS

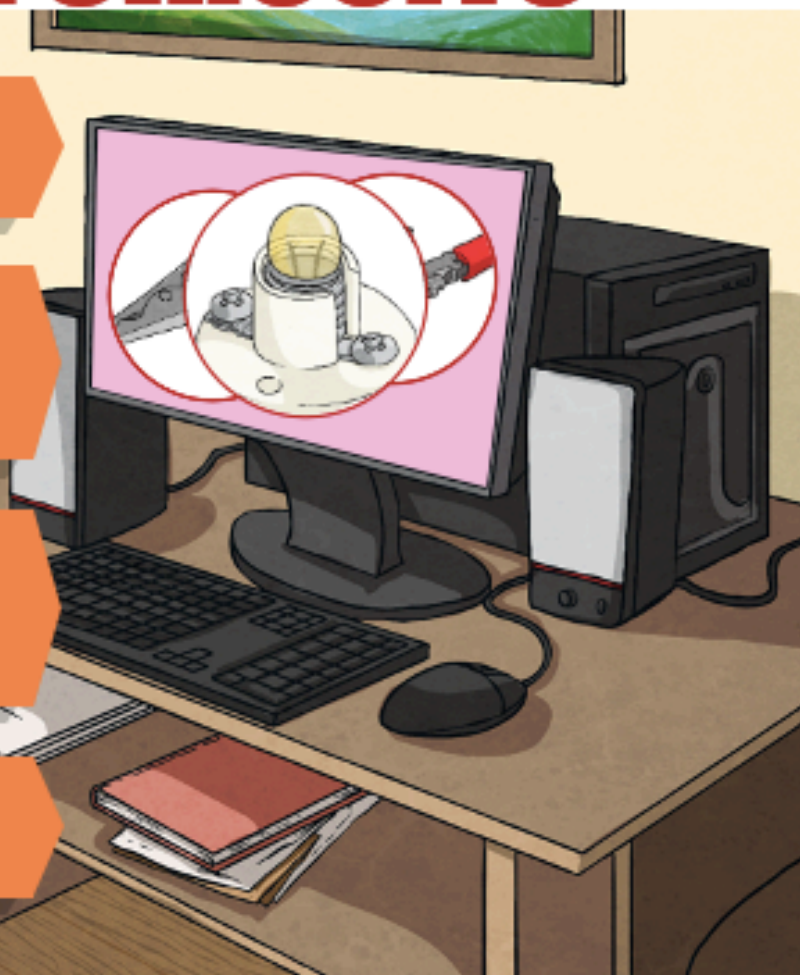


Current electricity is the flow of electrical charge through materials.

Every complete circuit must have a power supply. The power supply could be the mains, or it could be a battery.

For a circuit to be complete, there must be wires connected to both the positive and negative ends of the power supply.

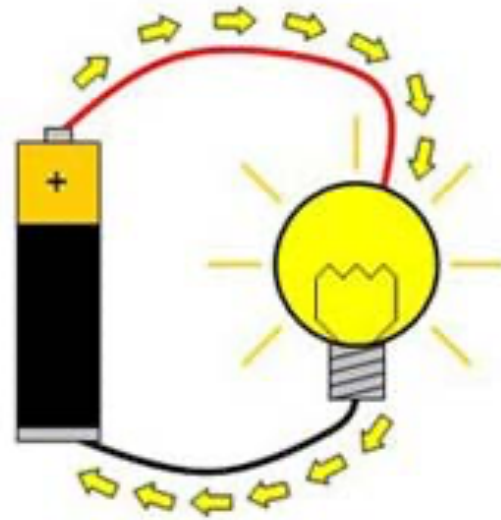
Electricity can only flow around a complete circuit that has no gaps.



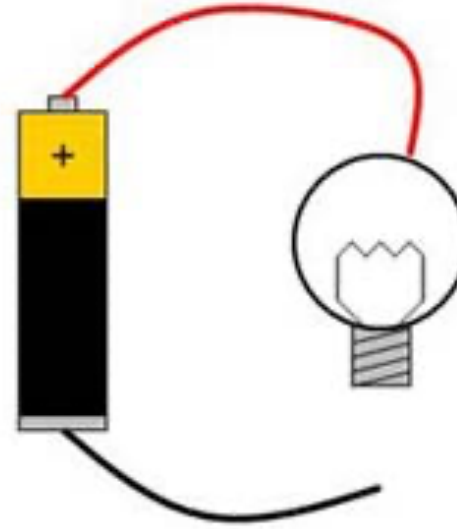


A switch can be used to open and close a circuit.

**Closed circuit**



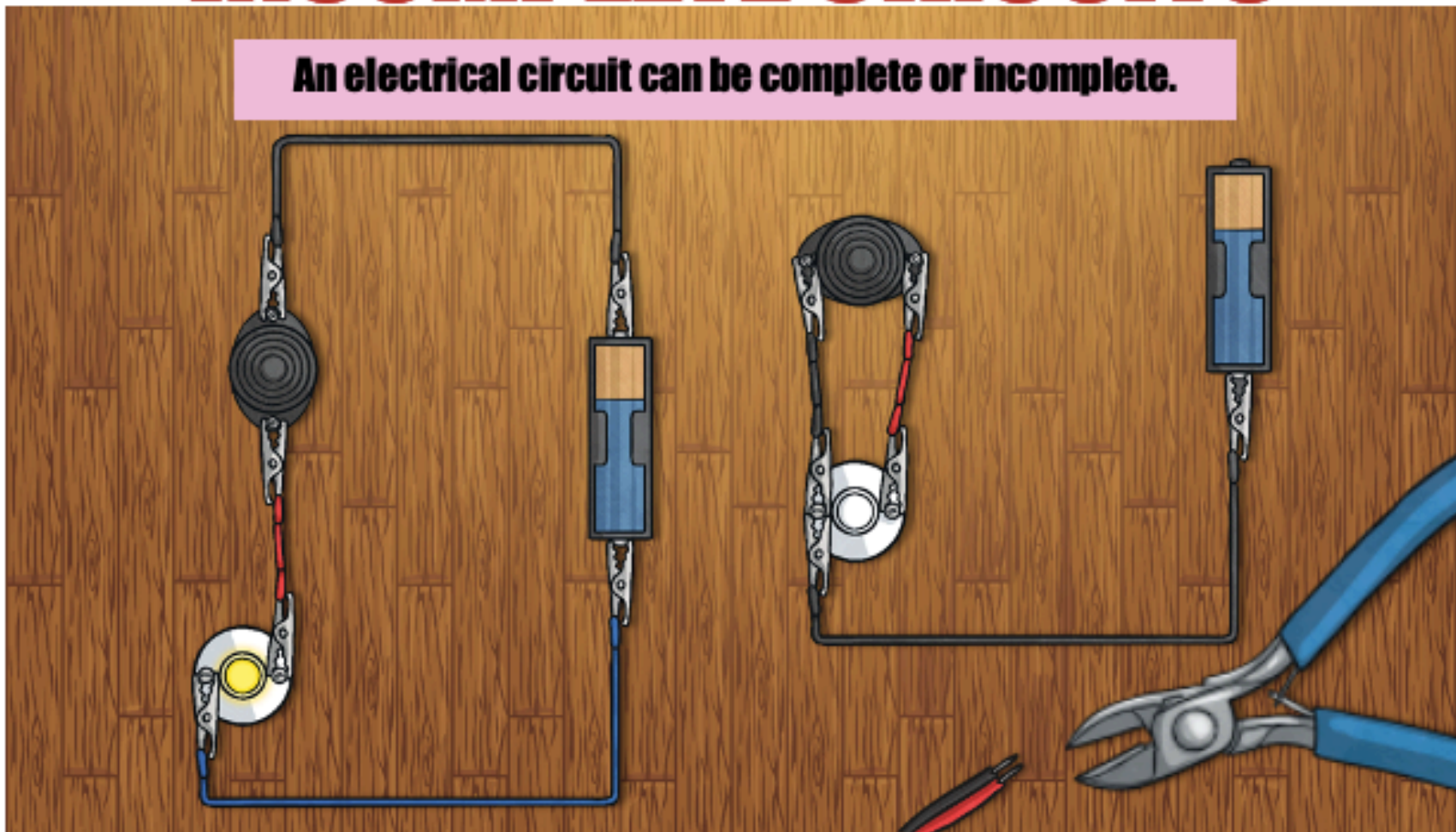
**Open circuit**



# COMPLETE AND INCOMPLETE CIRCUITS



**An electrical circuit can be complete or incomplete.**





# COMPLETE AND INCOMPLETE CIRCUITS

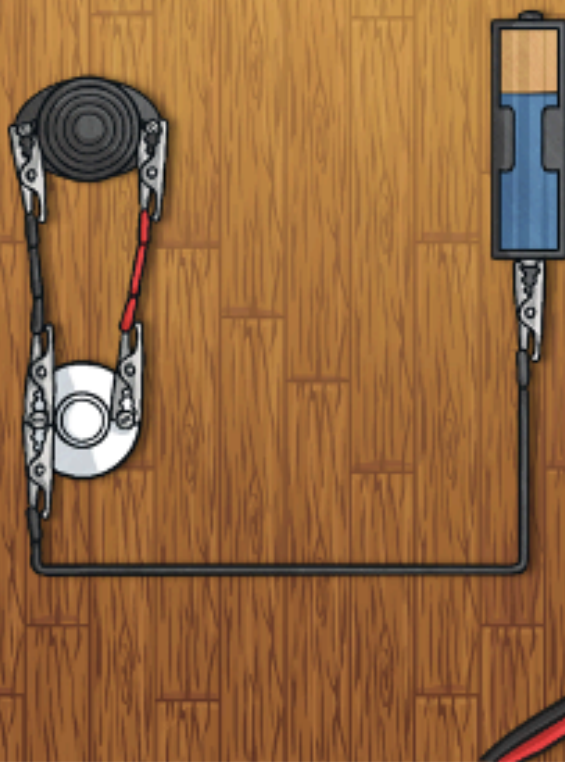


**Look at the circuit you and your group have made.**

**Is it  
incomplete or  
complete?**

**Would your  
bulb light up?**

**Would the  
buzzer make a  
sound?**



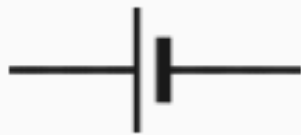
Match the parts of a circuit with their scientific symbols.  
(Sometimes there will be more than one symbol for a circuit part.)



**BULB**



**BATTERY**



**WIRE**



**INTERRUPTOR**





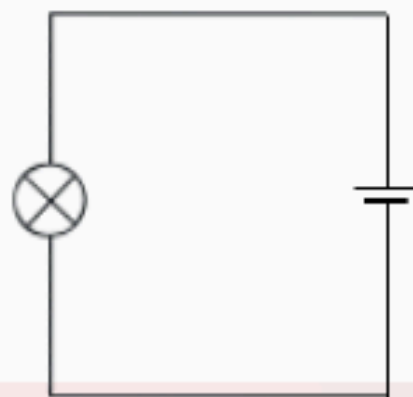
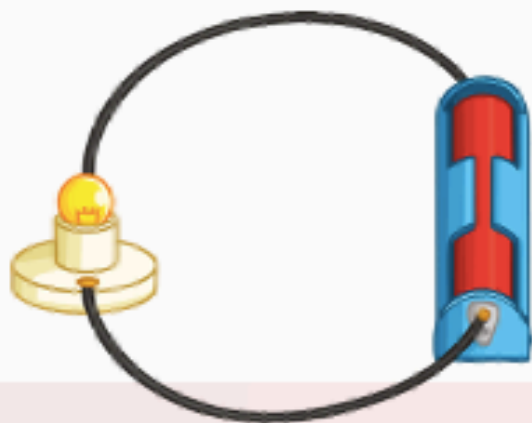
# Circuit Symbol Diagrams



When it comes to drawing circuit diagrams, there are certain rules that we must follow every time.

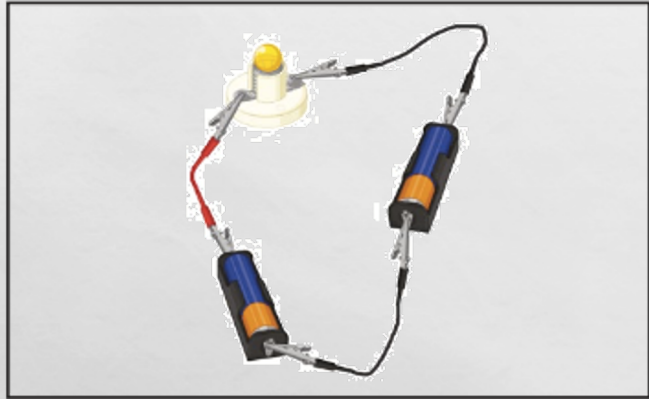
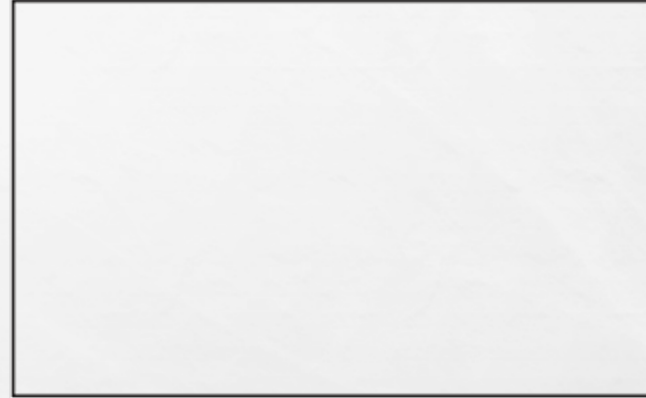
- 1. Always draw circuits using straight lines.**
- 2. Use a pencil and a ruler to draw these lines.**

How would you begin to draw the circuit below?



# Drawing Circuit Diagrams

For each of the five pictures below, draw the corresponding circuit diagram using circuit symbols.  
**Remember to use a pencil and ruler.**





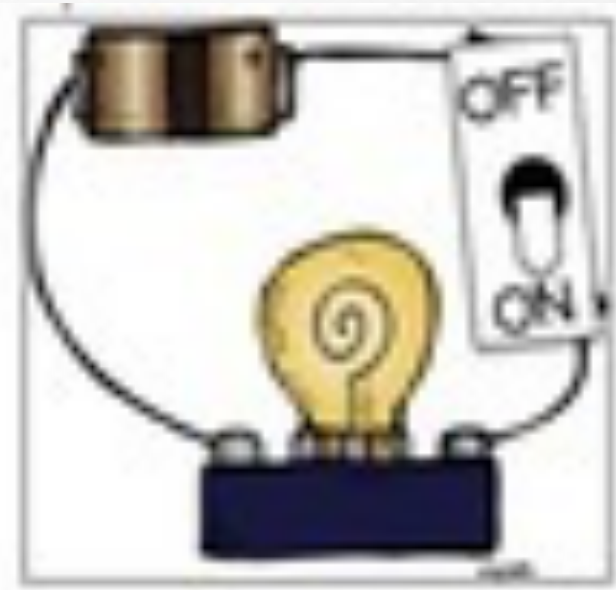
# TYPES OF ELECTRIC CIRCUIT



CLOSED  
CIRCUIT



SERIE  
CIRCUIT



SIMPLE CIRCUIT  
WITH A SWITCH





OPEN  
CIRCUIT



PARALLEL  
CIRCUIT