

Reference Book: EDITORIAL Technology OXFORD (Motor)

This activity notebook serves to prepare the first release exam, and from it the questions for the exam are taken.

PLASTICS AND OTHER MATERIALS

Exercise 1

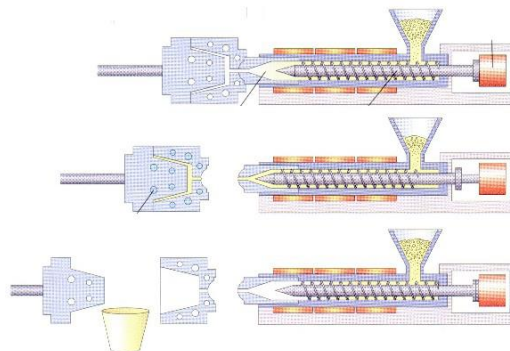
Answer the following questions.

- Lists 3 characteristics of plastics in general.
- What types of plastics can't we recycle? Why?
- Why is it so important to separate plastics from daily trash and recycle them? In which container are they recycled?
- How are plastics classified? Write down the characteristics of each type of plastic.

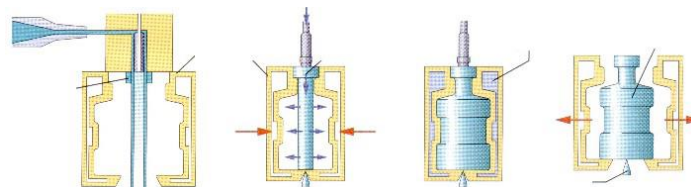
Exercise 2

Look at the following drawings. Indicates and explains the plastic processing techniques to which it corresponds.

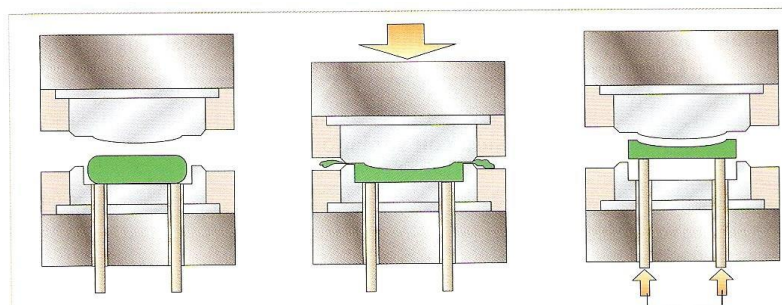
a)



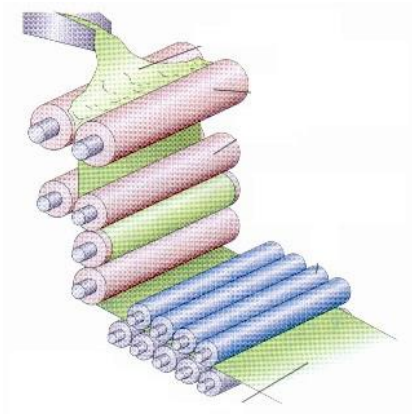
b)



c)



d)



Exercise 3

Name a textile material of vegetable origin, another of animal origin and another of mineral origin.

Exercise 4

What are binder materials?

Exercise 5

What is the mortar used for?

Exercise 6

What is concrete formed of?

Exercise 7

How is glass manufactured?

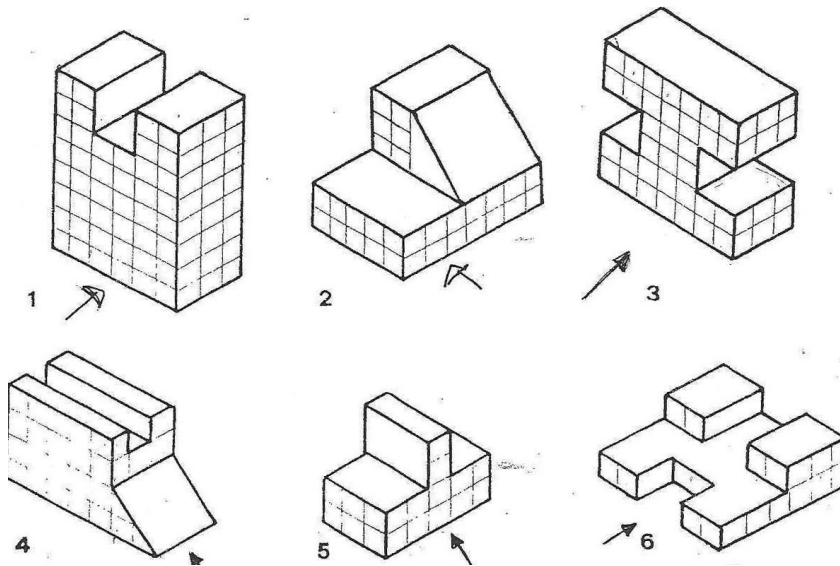
Exercise 8

What are ceramic materials? Give 3 examples of everyday life

REPRESENTATION TECHNIQUES

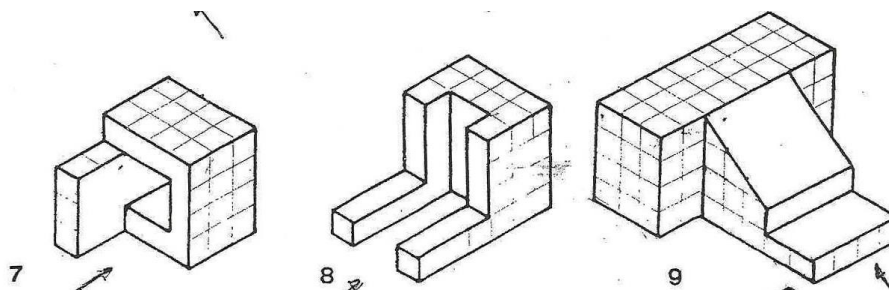
Exercise 1

For the pieces shown below, draw the front view, overhead and right side view according to the point of view indicated by the arrow



Exercise 2

The pieces shown below are drawn in an isometric perspective. Draw them in a gentleman's perspective with the following data: 1 square equals 5 mm. Reduction coefficient on the 1/2 axis.



ELECTRICITY AND ELECTRONICS

Exercise 1

What is the function of the battery in an electrical circuit?

Exercise 2

Classify the elements according to whether they are generators, receivers, conductors or control elements.

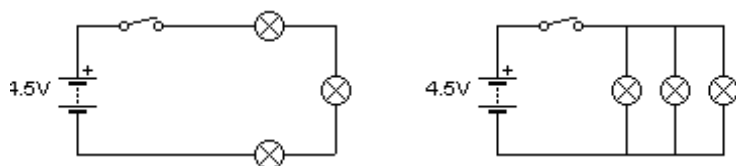
Light bulb
Doorbell
switch
Engine
Switch
Cable
Button
Battery

Exercise 3

How many 1.5V series connected batteries do you need to have 9 volts?

Exercise 4

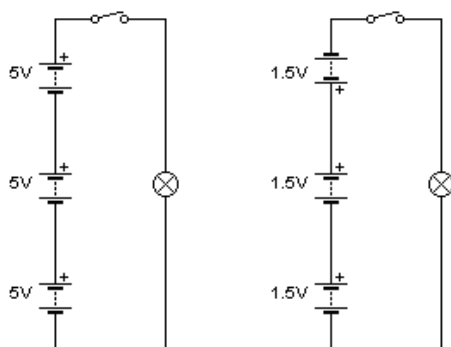
Look at the following circuits and answer the questions:



- What does happen when we close the switch?
- In which circuit do the bulbs shine the most?
- With the switch closed, what does happen in each circuit if a light bulb burns out?
- How are the bulbs connected in circuit 1? And in the 2?

Exercise 5

Look at the following circuits (look at the poles, positive and negative of the batteries), and answer the questions:

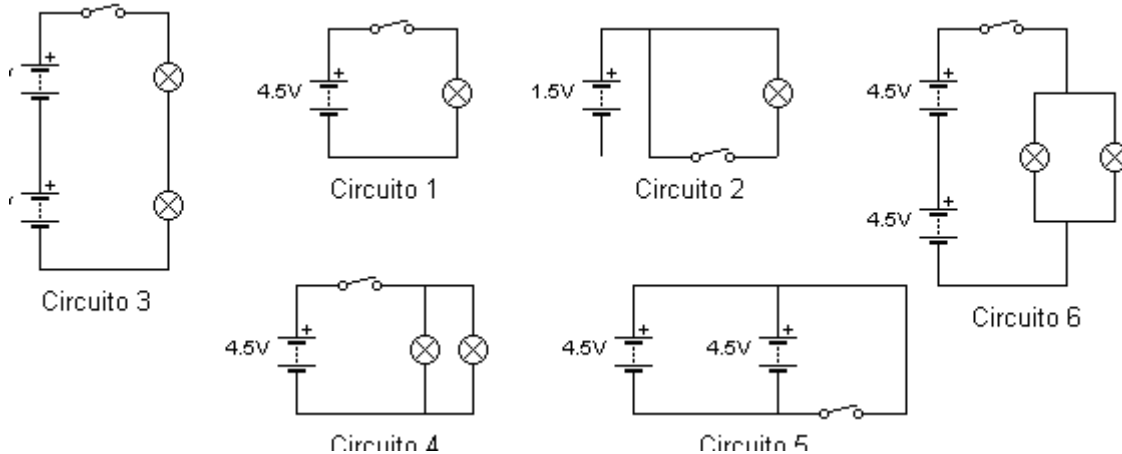


- How are the batteries connected in the two circuits?
- What total voltage does each of the circuits have?
- What does happen when we close the switch in the two circuits?

d. In which of the two circuits does shine the light bulb more? Why?

Exercise 6

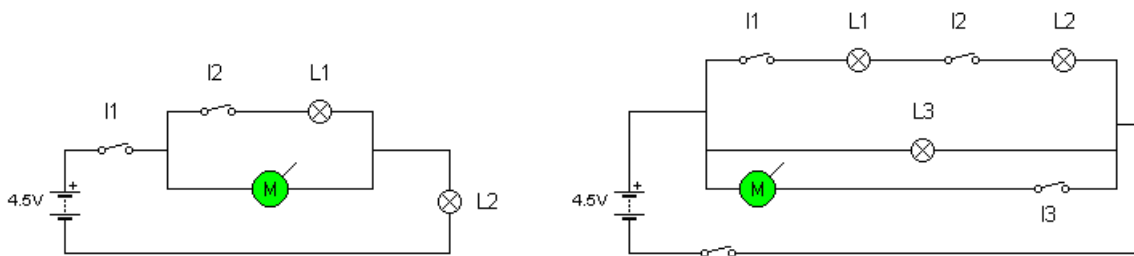
Look at the following circuits, and answer the following questions for each of them:



- For circuits with a single battery, what voltage does the circuit have?
- For circuits with two batteries, how are they connected to each other? What voltage does the circuit have?
- For circuits with more than one receiver, how are they connected to each other?
- For all circuits--do the receivers work when we press the switch?

Exercise 7

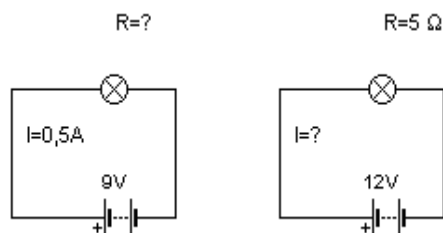
Look at the following circuits and answer for each of them the following questions



- What switch/s must we press to run the motor?
- If all switches are closed, which one should we press to turn off all receivers?
- If all switches are opened, which receivers will work by closing a single switch? What switch should we close?
- What switches must we close for the L2 lamp of circuit 2 to work?

Exercise 8

In each of the following circuits calculate the missing magnitude (do not forget to write the formulas and units)



Exercise 9

The headlight bulb of a car has a resistance of 6Ω . Calculate the battery voltage if 2 A circulate through the bulb.

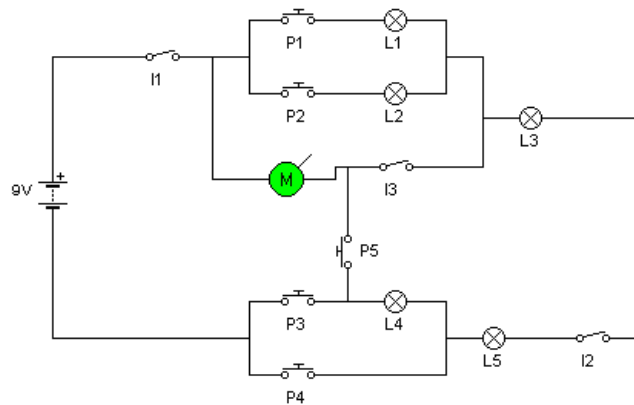
Exercise 10

The stove of an electric cooker has a resistance of 55Ω . Calculate what intensity will circulate inside when we connect it to a voltage of 230 V.

Exercise 11

Look at the circuit in the figure and answer the questions:

What does happen when ...?

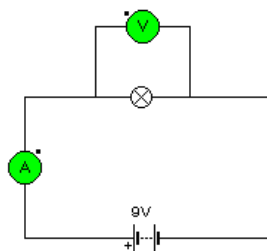


- Close I1 and I2.
- Close I1 and P5
- close I1, P1 and P2.
- Close I1, P1, P2, I3, P3, P4 and I2.
- Close I1, I3, P4 and I2.

Exercise 12

Look at the circuit and answer:

- What are the instruments used to measure the voltage and intensity of an electrical circuit?
- How should these instruments be connected?
- Indicate them in the circuit



Exercise 13

What is the energy? What unit is it measured in the International System?

Exercise 14

Determine the resistance of a 100 W power lamp if we connect it to a voltage of 230 V.

Exercise 15

Draw a circuit in which two 3 W bulbs appear connected in parallel and powered by a battery. If 4 A circulate for each bulb:

- What voltage does the battery have?
- What intensity does the battery supply?

Exercise 16

Calculate how much does it cost to watch a two-hour movie on a 300 W. television (data: € 0.1/kwh)

Exercise 17

If a game console is 50 W and you are playing half an hour, how much does the electricity consumed cost you?

Exercise 18

A lamp is connected to a 230 V network for 30 minutes. If the current intensity flowing through the filament is 2 A, calculate the energy consumed

Exercise 19

A 2000 W washing machine is connected in our house at 230 V. Calculate:

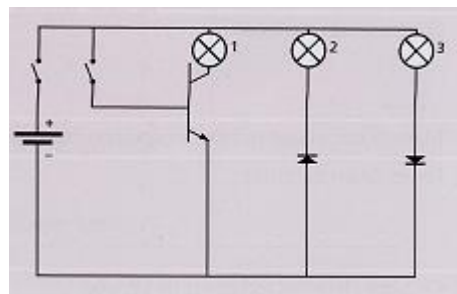
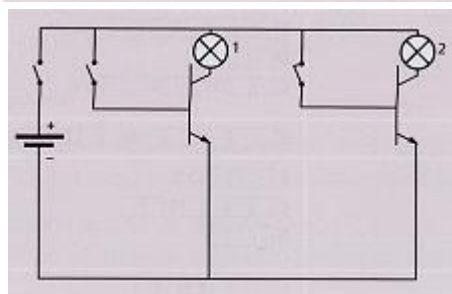
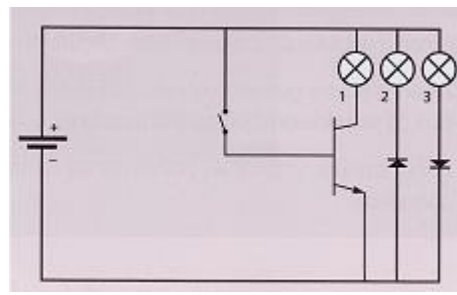
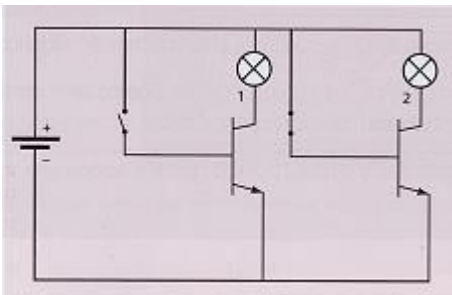
- The intensity of current flowing through it.
- The energy consumed during two hours of operation.
- The cost of the energy consumed if the cost of the kilowatt hour is 10 cents.

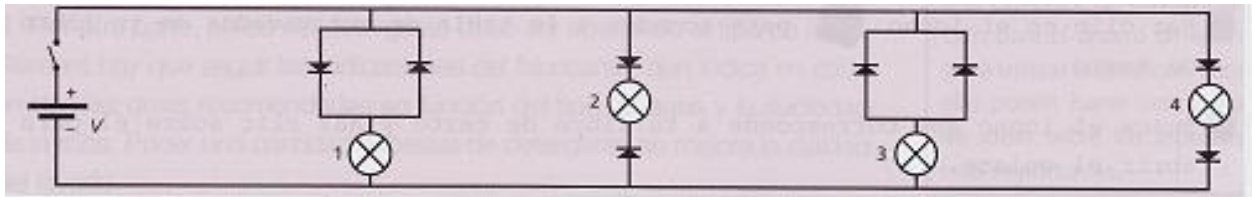
Exercise 20

An electric cooker has a electric power of 60 W, through it circulates an intensity of 1.5 A, for one hour and thirty minutes. Calculate the amount of heat that has given off expressing it in kilocalories. (1 kcal = 0.00116 kw.h)

Exercise 21

What bulbs are on in these circuits, taking into account the position of the switches?

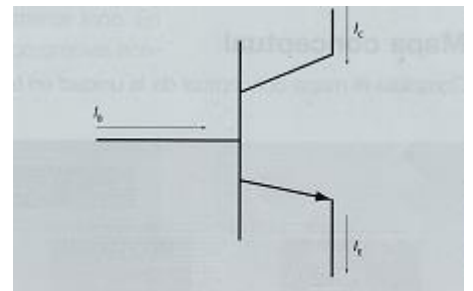




Exercise 22

For a transistor like the one in the figure, calculate:

- I_C , knowing that $I_B = 0.001\text{A}$. $\beta = 100$
- I_C , knowing that $I_B = 2\text{ mA}$. $\beta = 200$
- I_E , knowing that $I_B = 1\text{ mA}$. $\beta = 150$
- I_B , knowing that $I_E = 202\text{ mA}$ and $I_C = 200\text{ mA}$
- The parameter β , knowing that $I_E = 182\text{ mA}$ and $I_C = 180\text{ mA}$
- The parameter β , knowing that $I_E = 251\text{ mA}$ and $I_B = 1\text{ mA}$



ENERGY AND ITS TRANSFORMATION

Exercise 1

From the list of devices listed below, identify the types of energy they use:

Chemical Electrical / Thermal / Luminous / Sound / Mechanical

- Washing machine
- Doorbell
- Light bulb
- Griddle
- Vitroceramic
- Computer
- Battery
- Gas stove

Exercise 2

Classify the following plants according to whether they are renewable or non-renewable:

Hydraulic, tidal, combustion thermal, solar thermal, nuclear and wind.

Exercise 3

What fuels can be used in thermal power plants?

Exercise 4

What is the function of the turbine and generator in a hydroelectric power station?

Exercise 5

Can a tidal power plant be running continuously? Why?

Exercise 6

What device does turn the generator of a thermal power plant?

Exercise 7

Can a tidal power plant be located anywhere? What condition is necessary?

Exercise 8

Where can hydroelectric plants be installed?

Exercise 7

How does function the aerogenerator? Draw your scheme.

Exercise 8

What type of energy plant does not need a generator to produce electricity?