ELECTRICITY

ELECTRICITY

TEACHER'S MATERIAL

INDEX

ELECTRICITY

Teaching objectives Studying where electricity comes from, how it operates, conductor and insulator materials, how to make changes in circuits. and to carry out an investigation.		Time of the unit : 15 hours	
Content	**Communication**	**Cognition**	**Culture**
1.- Where electricity comes from 1.1 from the power station to our homes 1.2 ways of producing electricity 1.2.1 renewable energy: wind and solar power 1.2.2 nuclear power 1.2.3 limited resources: coal, oil and natural gas 1.2.3 greenhouse effect 1.2.4 be ecologically aware 2.- How electricity works 2.1 different components of an electrical circuit 2.2 make a simple circuit 2.3 use electricity safely 2..3.1safety rules 2.4 materials 2.4.1 conductors 2.4.2 insulators 2.5 switches 2.5.1how switches work 2.5.2design some switches 2.6 using conventional symbols 2.6.1recognise them 2.6.2interpret circuit diagrams 2.6.3draw simple circuit diagrams 2.7 changes in circuits 2.7.1changes in batteries 2.7.2carry out an investigation 2.8 assessment 2.8.1design a circuit applying the knowledge about electricity	➢ Giving reasons ➢ Naming ➢ Illustrating ➢ Defining ➢ Generalising ➢ Classifying ➢ Contrasting ➢ Summarising ➢ Predicting ➢ Comparing	➢ Compare ➢ Memorise ➢ Predict ➢ Describe ➢ Identify patterns ➢ Apply ➢ Label ➢ Design ➢ Draw diagrams using conventional symbols ➢ Generalising ➢ Experimenting	➢ Importance of electricity for modern life. ➢ Contribute with our personal effort to save energy. ➢ Be aware of the dangers of mains electricity ➢ Accuracy when carrying out an investigation

WHERE ELECTRICITY COMES FROM

Lesson 1

Introduction

Teaching objectives	Time of the lesson: 1 hour
- What they know about electricity - Encourage children to question their ideas	

Activities development	Organization	Communication	Material	Teacher's resources
1) Introduce the topic **Electricity** presenting children two different devices one using mains power and the other battery-powered., then ask them some questions e.g. : **- What do these devices need to work ?** **- How does this one work ?** (refering to the battery-powered) You can take advantage of introducing the idea of battery like another form of getting electricity. - **What do these devices have in common ?** **- Now, tell me different items you have at home ,e.g ., a sofa, a radio, etc.** Now you show the children your two first slides of your presentation and link the images with what you have talked to them before. -ppointintroduction **- Can you name some household items that use electricity ?** You write down the different names they say paraphrasing them in English 2) Later you show them your last slide emphasizing : **mains** and **battery**. 3) Give a worksheet to them to reinforce what thet have learned. **.. worksheet1**	Whole group Individually	**Language of learning** mains, battery, plug, wall socket, switch on/off, device, household items, electrical appliances, power, etc. **Language for learning** Giving reasons **-** They need electricity - It works because of the battery - They use electricity to work Illustrating - For instance, ... - For example, ... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	-ppointintroduction electricity **. worksheet1** **-ppointhelpsheets**	*Teacher's notes* The **-ppointhelpsheets** is a tool to help children with key vocabulary and phrases they should use in the different lessons of this unit. It has two different parts : the vocabulary with the images and the phrases with two options in order they choose the right one. *To know more about the topic* **Books** 1.- 100 Science lessons Kendra McMahon Scholastic Scottish Primary 5 ISBN 0-439-01805-6 Comment Useful book for teachers to plan their science lessons.

Lesson 2

From the power station to our homes

Teaching objectives	Time of the lesson: 1 hour
- To know how power gets to our towns and cities	

Activities development	Organization	Communication	Material	Teacher's resources
1) You say to children ; **- Can you think of things that we would not be able to do without electricity ?** Help them by writing some of the things they have said, then they copy and draw some. **worksheet1** 2) Next question : - Where does the electricity come from ? The children express their own ideas and you interact with them asking more questions. After this, you explain to them that you want to show them how electricity (power) reaches our homes, school, etc. You comment with them the presentation. **- pointhow** 3) The children fill out a worksheet related to the presentation they have watched. **worksheet2** 4) You correct the previous worksheet with the whole group asking some meaningful questions,following the order shown on the sheet : - **Give me a definition for power station** **- What happen s in the power station ?** **- Why do they do ?** **- What happens then ?**	Whole group Individually Whole group	**Language of learning** power station, transformer, pylon, power lines, cables, substations, wooden poles,... **Language for learning** Defining - A power station is a place for making electricity - A transformer is a machine that changes voltage Time sequence -First, they burn..... - Second,..... - Next,..... - After that, - Finally,..... Giving reasons - They do it because..... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	**- pointhow** **- worksheet1** **-ppointhelpsheets** **-worksheet2**	*Teacher's notes* **Power: a long way** In this website you will find a detailed explanation about how power gets to our homes. **www.science.smith.edu/.../ElecPwr_HSW.html** *To know more about the topic* **Books** 2.- Horrible science Shocking electricity Nick Arnold Scholastic ISBN 0 -439-01272-4 *Comment* The popular series of books explaining some scientific facts in a funny way with some simple experiments. 3.- The science of electricity and magnetism Projects and experiments with electrons and magnets Steve Parker Heinemann *Comment* Some experiments about electricity.

Lesson 3
Ways of producing electricity

Teaching objectives	Time of the lesson: 2 hours
- To know different ways of making electricity - To be aware of the problems related to energy	

Activities development	Organization	Communication	Material	Teacher's resources
1)You ask children **- Which was the way to make electricity ?** Try to elicit from students what they have learned about it. Then, carry on asking another question: **- Is there only this way to make electricity ?** After listening to them you show a presentation about the ways of producing energy and the different problems related to it. **ppointways** 2)You comment with them the two first slides, telling them that they will have to fill in some gaps in the same mindmap they have watched. worksheet1 3) Now, you keep watching the presentation saying to them they have to pay attention to it, because later, they will watch the presentation again in order to do some tasks. If they need to watch the presentation more than once, you can repeat it. **-worksheet2** **-worksheet3** For the last task in worksheet 3 they have to watch this presentation.-**ppointgreenhouse**	Whole group Groups of 3 or 4 Groups of 3 or 4	**Language of learning** nuclear power, wind power, blades, windmills, solar power, sun's heat, greenhouse effect, global warming, save energy **Language for learning** Giving reasons - They burn ..... to work ..... - They use wind..... - Nuclear power is dangerous because..... - The greenhouse effect causes ..... - Coal, gas and oil are running out... - We need to save energy Classifying - There are .... forms of making electricity Contrasting - ..... is different from ..... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	**-ppointways** -worksheet1 **-ppointhelpsheets** **-worksheet2** **-worksheet3** -ppointgreenhouse	*Teacher's notes* **Wind power, solar power and nuclear power** If you want to know more about these three types of energy, you can use these three websites. http://www.alliantenergykids.com/stellent2/groups/public/documents/pub/phk_ee_re_001502.hcsp http://home.clara.net/darvill/altenerg/solar.htm http://science.howstuffworks.com/nuclear-power *To know more about the topic* **Books** 4.- Eyewitness science Electricity In association with the Science Museum London Dorling Kindersley ISBN 0 -86318-904-0 *Comment* A book exploring the story of electricity from the earliest discoveries to the latest technology.

HOW ELECTRICITY WORKS

Lesson 1

Make a simple working circuit

Teaching objectives	Time of the lesson: 2 hours
- Name the different components of a circuit -To know how to make a working circuit - To make predicitions and check them	

Activities development	Organization	Communication	Material	Teacher's resources
1) Present children with a collection of batteries, insulated wires and matched bulbs or buzzers. First , you say the names of the different components. They make a worksheet in order to reinforce these words. workheet1 2) Ask children to make the bulb light and then they draw the working circuit. 3) The same thing but now make the buzzer sound and the drawing. **worksheet2** 4) Now you ask them to explain why their circuits work and what a circuit needs to work. (a battery, wires, bulb or buzzer) 5) Now you show some circuits and they have to predict which will not work and why, then they check it by making them. **worksheet3** Finally, you comment with them their results emphasizing why it happens.	Whole group Individually Groups of 3 or 4 Whole group Whole group Groups of 3 or 4	**Language of learning** batteries, wires, bulb, buzzer, circuit, propeller, bulb holder, motor **Language for learning** Defining - The name for this is ..... Giving reasons - We need a battery,..... and.. - My circuit works because ..... - There is a break in the circuit and electricity can't flow through -Both wires are attached to the same side of the bulb - Both wires are attached to the same end of the battery **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	- batteries - wires - bulbs - buzzers - propeller - bulb holder - motor - workheet1 **-ppointhelpsheets** **- worksheet2** **-worksheet3**	*Teacher's notes* The **ppointhelpsheets** is a tool to help children with key vocabulary and phrases they should use in the different lessons of this unit. It has two different parts: the vocabulary with the images and the phrases with two options so that they have to choose the right one. *To know more about the topic* **Books** 5.- Science Workshop Electricity Pam Robson Franklin Watts ISBN 0-7496-0933-8 *Comment* Some experiments

Lesson 2
Use electricity safely

Teaching objectives - To know some safety rules	Time of the lesson: 2 hours

Activities development	Organization	Communication	Material	Teacher's resources
1) You show the children a presentation about dangers of mains electricity and comment with them asking some questions, like these ones : **- What do we call this ?** (referring to some devices, in order to revise the names) **- Who can tell me why.....?** **- What are the main points we have made about electricity** **ppointhowto** 2) They have to do a display with the dangers of mains electricity. By groups they copy one or two rules and make an appropriate drawing or take an appropriate photo. Then, they can show the display to the rest of the school. You can organise different teams (2 or 3 children) that will be in charge of explaining the display to each class.	Whole group Groups of 3 or 4	**Language of learning** danger, electrical lead, wet hands, overloaded plugs, electric switch, trip over, frayed wires, light bulb **Language for learning** Defining - We call this ..... Giving reasons - Mains electricity is dangerous because..... - It is dangerous to ..... because ..... - Because electricity can damage you Summarising - The main points we have made are..... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	**-ppointhowto** **-ppointhelpsheets**	*Teacher's notes* **Using electricity safely** An interesting website with lots of things, among them some games about using electricity safely. http://www.edfenergy.com/powerup/keystage2/house/page4.html *To know more about the topic* **Books** 6.- Find out about BBC Electricity Terry Jennings BBC ISBN 0-563-37334-2 *Comment* Explain to kids how different things, such as a torch or a battery works. 7.- Electricity Straightforward Science Peter Riley Franklin Watts New York-London-Sydney ISBN 0-7496-2959-2 *Comment* Explain the main scientific principles involved in electricity.

Lesson 3
Materials; conductors and insulators

Teaching objectives	Time of the lesson: 2 hours
- To know that electricity flows through some materials, conductors and not others, insulators - To make predicitions about which materials conduct electricity, and which do not.	

Activities development	Organization	Communication	Material	Teacher's resources
1) We review the idea of circuit: Show them some circuits and ask them some questions about them, such as: **circuits** **- Will the bulb light up ? Why ? / Why not ?** **- What does a circuit need to work ?** **- What is the electricity travelling through ?** **- Do you think electricity can travel through anything ?** **- Can electricity travel through the air ? Why do you think this ?** Pay attention to what they say and write down their explanations. 2) Give each group of children a collection of different materials with the necessary equipment and say to them that now they have to explore and predict which materials let the electricity through or not. You can suggest that it would be useful to write two different labels with these phrases: **let electricity through** and **do not let electricity through** They have to record their predicitions in their own way: lists, tables, etc.	Whole group Groups of 3 or 4	**Language of learning** conductor, insulator, paper clip, card, silver foil, plastic, scissors with plastic handles, a coin, crocodile clips **Language for learning** Giving reasons - Yes, because there is a complete circuit - There is no break in the circuit - It needs a battery, a bulb and wires - The electricity is travelling through the battery, the bulb and the wires. - ..... let electricity through because it is a metal Illustrating - For instance/For example ..... let electricity through **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	**-circuits** **-ppointhelpsheets** - batteries - wires - bulbs - paper clip - card -silver foil - plastic - scissors with plastic handles - a coin - a pencil **- helpcircuit** **- worksheet1** **-worksheet2**	*To know more about the topic* **Books** 8.- 100 Science lessons Y6 Clifford Hibbard, Karen Mallinson-Yates Scholastic Scottish Primary 7 ISBN 0 – 439-01807-2 *Comment* Useful book used for some teachers to plan their lessons with more detail. 9.- Cool circuits and wicked wires Susan Martineau and Nick Bushell b small publishing ISBN 1-902915-33-X *Comment* Simple experiments using all kinds of household equipment.

Activities development	Organization	Communication	Material	Teacher's resources
worksheet1 They also have to find out their own way of checking if their predicitions are right. If some group needs help in order to do the task , show them how to put different materials into a gap in a circuit. **- helpcircuit** 3) When they finish you can ask some questions **- Can you tell me names of some materials that let electricity through them ?** **- Which materials don't let electricity through** them ? You write two columns on the board one named conductors and the other insulators explaining to children that these are the scientific words for these two groups. Then you ask them : **- What do conductors have in common ?** Probably they answer metals. **- Is there anything the insulators have in common ?** Here, they can say non-metals. 4) In this activity, they copy what you have writtten on the board and also the conclusions. **worksheet2**	Whole group Individually			*To know more about the topic* **Books** 10.- Science Fun Electricity Neil Ardley Dorling Kindersley ISBN 0-7513-5820-7 *Comment* Some simple and curious experiments.

Lesson 4
Switches

Teaching objectives	Time of the lesson: 1 hour
- To understand that switches work by breaking a circuit - To recognise air as an insulator - To make some switches following a model	

Activities development	Organization	Communication	Material	Teacher's resources
1) You make a complete circuit so that the bulb is on and you ask children : - **What can I do to switch the bulb off ?** Different children show you their suggestions and then explain what they have done and why. After this, you ask them : **- Could you point to some switches in this classroom ?** **- Why do you use it for ?** You emphasize the idea of breaking the circuit and that the air is an insulator. 2) You give them some real switches and they observe how they have been made and they explain how they work. 3) This activity enhances children to make one or more switches following one model. You give each group a worksheet and different material and they choose the switch or switches they want to make and try them out in simple circuits. -worksheet They can also take some photographs and make a poster showing their switches. 4) Now you ask children some questions related to their circuits and switches. **-Which part of your switch is an insulator/conductor ?** When there is a gap, you ask **- What's in that gap ?** Air	Whole group Groups of 3 or 4 Groups of 3 or 4 Whole group	**Language of learning** switch, break the circuit, paper fasteners, drawing pins, clothes peg **Language for learning** Giving reasons I break the circuit because electricity can't pass through air I make a break in the circuit because electricity can't pass through air. We use it to make and break the circuit. Switches are used to switch lights on and off. Switches are used to switch different devices on and off. Air is an insulator . **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	- different switches -bulbs - batteries - wires -paper fasteners - paper clips - drawing pins - aluminium foil - clothes peg - card - digital camera -worksheet **-ppointhelpsheets**	*Teacher's notes* **Optional activity** You give them some extra time so that they design their own switch and try it out in a simple circuit. **Ppointhelpsheets** You can see in the helpsheets of this lesson that there is a table with two options separated by a black line, that means children can use one of the options or the other. *To know more about the topic* **Websites** **1.- www.bbc.co.uk/schools/scienceclips/index~flash.shtml** *Comment* Very interesting science clips related to the topics of the English curriculum. You can use it to reinforce this topic.

Lesson 5
Using conventional symbols

Teaching objectives	Time of the lesson: 1 hour
- To recognise conventional symbols of a circuit - To draw, to intepret and to construct simple circuit diagrams using conventional symbols	

Activities development	Organization	Communication	Material	Teachers's resources
1) You explain to children that circuit diagrams use specific symbols that can be understood by anyone who knows these symbols, and can be used for constructing and interpreting circuits. You show children the different symbols of a circuit. Later, they copy the different symbols from the slide and they draw next to the symbol the drawing of the electric component and write the names. **-ppointconventionalsymbols** -worksheet1 2) The children watch the second slide where there are two models of circuit diagrams you comment with them and then, you give a worksheet with two circuit diagrams and they make them. worksheet2 3) They make two simple working circuits , (the ones they want) , and they draw them using conventional symbols. worksheet3 4)The different groups exchange their diagrams and they check if the diagrams of a different group are correct , and if the circuits work. They can ask questions if there is something they think is not clear.	Whole group Individually Whole group Groups of 3 or 4 Individually Groups of 3 or 4 Individually Groups of 3 or 4	**Language of learning** circuit diagram, conventional symbols for the electric components **Language for learning** Defining - The name for this is ..... Illustrating - For instance/ for example Giving reasons - This is because..... - The reason for this is that..... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	**-ppointconventionalsymbols** -worksheet1 - crocodile clips - bulbs - material to make switches - batteries -worksheet2 -worksheet3 **-ppointhelpsheets**	*Teacher's notes* **Ppointhelpsheets** You can see in the helpsheets of this lesson that some of the tables have two options separated by a black line, that means children can use one of the options or the other. *To know more about the topic* **Websites** 2.- www.woodlands-junior.kent.sch.uk/teacher/science.html *Comment* The most visited school website in the United Kingdom and very useful. 3.- www.primaryresources.co.uk *Comment* Lots of resources.

Lesson 6
Changes in circuits

Teaching objectives	Time of the lesson: 2 hours
- To know that more batteries in a circuit makes a bulb brighter or a motor faster - To know that more bulbs in a circuit makes the bulb dimmer - To carry out an investigation	

Activities development	Organization	Communication	Material	Teacher's resources
1) You present a collection of batteries of different sizes and voltages to children and you ask them : **- Why do you think we have different types of batteries ?** Possible answers : It depends on the sizes of the appliances or how much power they need to work, etc. 2) You tell the children to make a simple working circuit and then you say to them : **- How could we find out what difference it makes having more than one battery in the speed of a motor ?** You listen to their suggestions and you can help them by saying to them: **- Another way of connecting the batteries ?** 3) Each group makes their predictions, explores these ideas an adds its own, and decides whether the predictions were right. worksheet1 4) You draw children's attention to the different results by asking them : **- What happened when you added another battery ? Why ?** **- Why do you think your result is different from the other groups ?** Maybe they have connected the batteries in a different way.	Whole group Groups of 3 or 4 Groups of 3 or 4 Whole group	**Language of learning** brightness of the bulb, motor, bright/er, fast/faster, burn out, dim/dimmer, propeller, **Language for learning** Giving reasons - This is because ..... - The reason for this is that ..... Illustrating - For instance..... - For example ..... Predicting - I think /predict that ..... will be faster/brighter.. - I think/predict that ..... will be as ..... as..... Comparing - The..... is brighter/faster ..... than ..... Contrasting - The ..... is/are different because..... Time sequence/process - First,.... - Second, ... - After that, ...	- bulbs -wires -a collection of different batteries -motors - propeller -worksheet1 -modelinvestigationplan -answersmodel -investigation plan **-ppointhelpsheets**	*Teacher's notes* **Ppointhelpsheets** You can see in the helpsheets of this lesson that some of the tables have two options separated by a black line, that means children can use one of the options or the other. *To know more about the topic* **Websites** 4.- www.teachingideas.co.uk/science/contents.htm *Comment* You can find some ideas and useful worksheets. 5.- www.sciencemuseum.org.uk/on-line/launchpad/index.asp *Comment* Some interesting experiments you can try in your science lessons

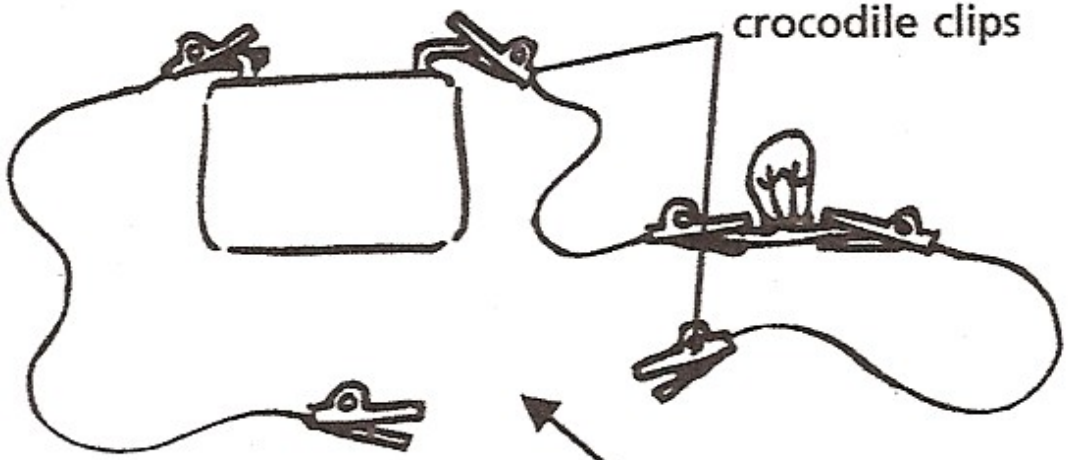
Activities development	Organization	Communication	Material	Teacher's resources
The same thing with the rest of the experiments. 5)Now, you say to children that they will carry out an investigation like scientists about this matter: **- What happens to the brightness of the bulb when we change the number of bulbs ?** You try to elicit from them how to plan to do it. In order to help them you can present a model and they can choose the order and take out the parts they don't need . **modelinvestigationplan** -answersmodel 6) This is the investigation plan they can use to carry out the investigation. -investigation plan They start the investigation and you help them by suggesting different things like : **- You can only change one factor at a time.** 6) At the end of the activity the different groups report back to the class one interesting thing they have found out. You take advantage of it to draw children's attention to the most important facts they have found out.	Groups of 3 or 4 Whole group Groups of 3 or 4 Groups of 3 or 4 Whole group	- Finally, ... **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.		*To know more about the topic* **Websites** **6.- www.thinktank. ac** *Comment* Website of the Science Museum in Birmingham. There are some interesting experiments you can do in your science le

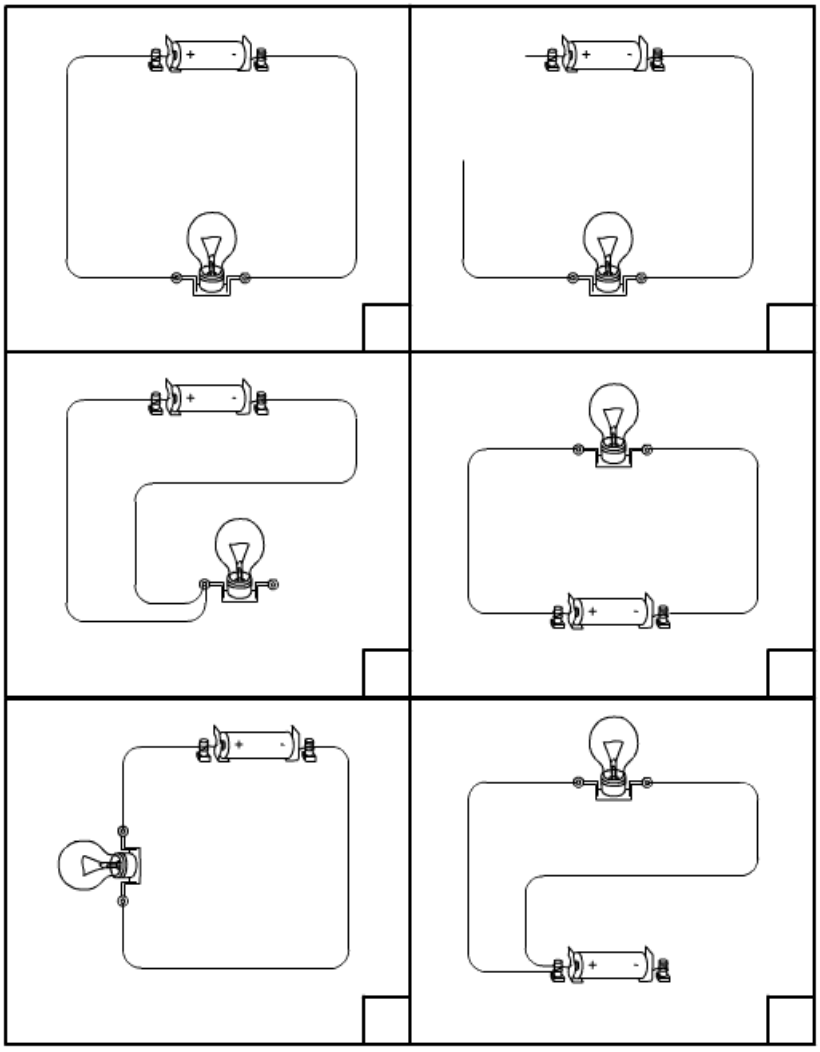
Lesson 7
Assessment

Teaching objectives	Time of the lesson: 2 hours
- To assess children's understanding of circuits, conductors, insulators. - To assess children's understanding of how switches work - To assess children's recognition of conventional symbols	

Activities development	Organization	Communication	Material	Teacher's resources
1) You explain to children that they are going to model a circuit with their bodies. To represent the electricity flowing along the wires they can move their arms. You give children cards with the different electric components, materials, switches, ... cards You can change the cards so all the children play the different roles. You can vary the game. By groups they choose the different cards and they build a circuit. Each group has to act out in front of the rest of the class, explaining why they have chosen the different cards. 2) You give children a picture of a clown and you say to them that they have to build a circuit to make the clown's eyes light up using only the material you give to each group. clownmask 3)You tell the children that they are going to do a written activity about what hey have learned. electricityassessment Help children to read the different questions by suggesting that it would be a useful thing to underline the key words to understand it better	Whole group Groups of 6 Groups of 3 or 4 Individually	**Language of learning** This is a revision of the different vocabulary they have learned in the different lessons. **Language for learning** Some of the different structures thay have learned in the different lessons. **Language through learning** All the ones they need to do the different activities. Different vocabulary or phrases that they come across throughout the lesson.	- cards with the different names you need to play - clownmask - boxes with a 4.5 V battery, 2 bulbs,in bulb holders, 2 short connecting wires with clips on the ends, a variety of conducting materials (paper clips, coins, foil, metal strips) a variety of insulator materials (plastic, string, rubber), sticky tape - electricityassessment	*Teacher's notes* frontpagestudentsbook This is the front page of the book the students will have with all the worksheets.

Electrical circuit with gap for testing conductivity





ELECTRICITY

STUDENT'S MATERIAL

INDEX

Where electricity comes from

How electricity works

Other material

ELECTRICITY

Name..... Date.....

1.- Draw and write the names of the different electrical appliances in the right place

ELECTRICAL APPLIANCES	
MAINS 	 **BATTERY**

LESSON 1

They need	electricity water	to work

They don't use They use	electricity to work

It works because	of the battery of the bulb

For instance = For example

ELECTRICITY

Name..... Date.....

1.- Write and draw in the table below three things we would not be able to do **without** electricity.

1.-	2.-	3.- ....

ELECTRICITY

Name..... Date.....

HOW POWER GETS TO OUR HOMES

Electricity travels a long way before it reaches our homes: you can follow the route it takes below. As you follow the route carefully, draw in the missing power lines (cables) and find the missing labels – the answers are all in the text.

1. Power Stations
Power stations make electricity. They usually burn coal or oil to work the **generating** machinery

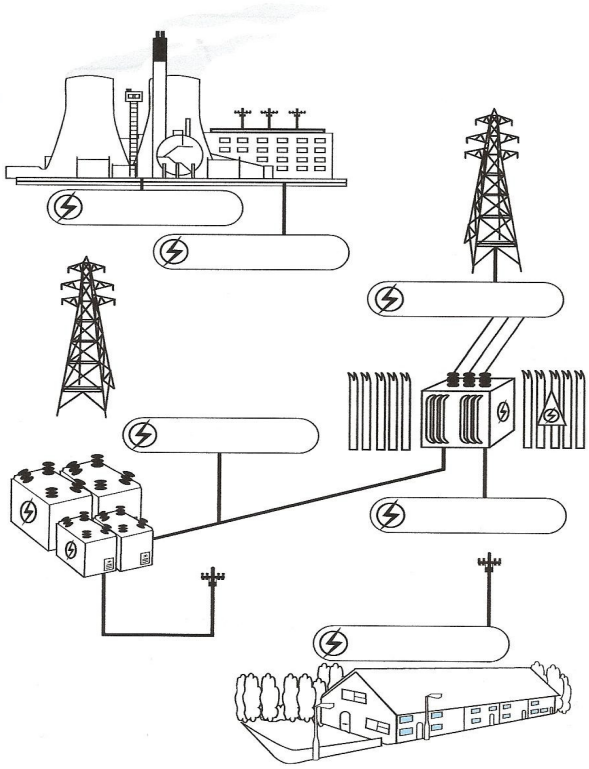
2. Transformers
Machines called **transformers** change the **voltage** (force) of the electricity up to 400,000 Volts so it can travel long distances.

3. Power lines
The electricity is carried along thick metal **cables** called **power lines**. Some of them are carried overhead on **pylons**.

4. Substations
In towns and cities there are more transformers in **substations**. These change the electricity down to 11,000 Volts.

5. Mains Power
Small local substations reduce the voltage to **230 Volts** for houses, schools and businesses.In towns, most **cables are underground.**

6. Cables
In some areas, cables are carried to buildings on **wooden poles.**



LESSON 2

A pylon A power station	is a place where electricity is made

A transformer A substation	is a machine that changes voltage

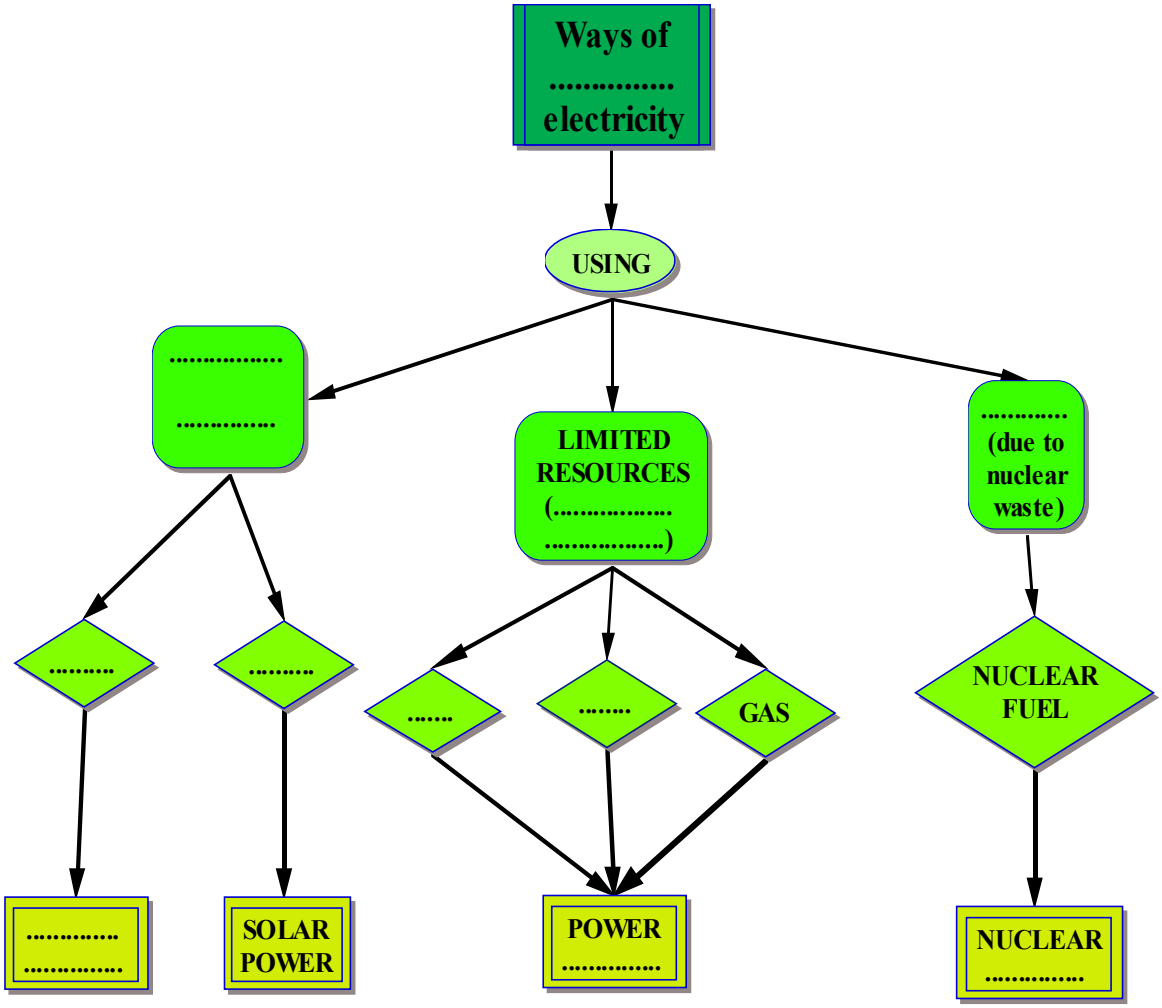
Time sequence (order)
First, Second, Next, After that, Finally,

ELECTRICITY

Name..... Date.....

1.- Fill in all the gaps with the words below.

Greenhouse effect, wind, power, wind power, sun, station, renewable energy, dangerous, coal, making, oil.



ELECTRICITY

Name..... Date.....

1.- Looking at the presentation fill in the table below.

Ways of making electricity	**It uses**	**Advantages**	**Disadvantages**
	uranium	—	
Power station		—	
Wind power			
	sun		

ELECTRICITY

Name..... Date.....

1.- Read these sentences related to saving energy and draw the right picture for each one of them.

Turn off lights when not in use. Turn off the television when not in use.	Take short showers and install “water saver” shower heads.	Replace burned-out incandescent light bulbs with compact fluorescent bulbs.

2.- Which is the right image for the greenhouse effect ?

Write the number ..... and explain why ?

Because .....

.....

.....

LESSON 3

They use	.....	to produce	electricity coal

Wind energy	is free is very expensive

Solar power needs Nuclear power needs	fuel

Coal, gas and oil Wind and sun	are running out

The greenhouse effect The wind	causes the global warming

ELECTRICITY

Name ..... Date .....

1.- Draw the things you need to make a bulb light or a buzzer sound.

BATTERIES	**WIRES**
BULB	**BUZZER**

ELECTRICITY

Name ..... Date .....

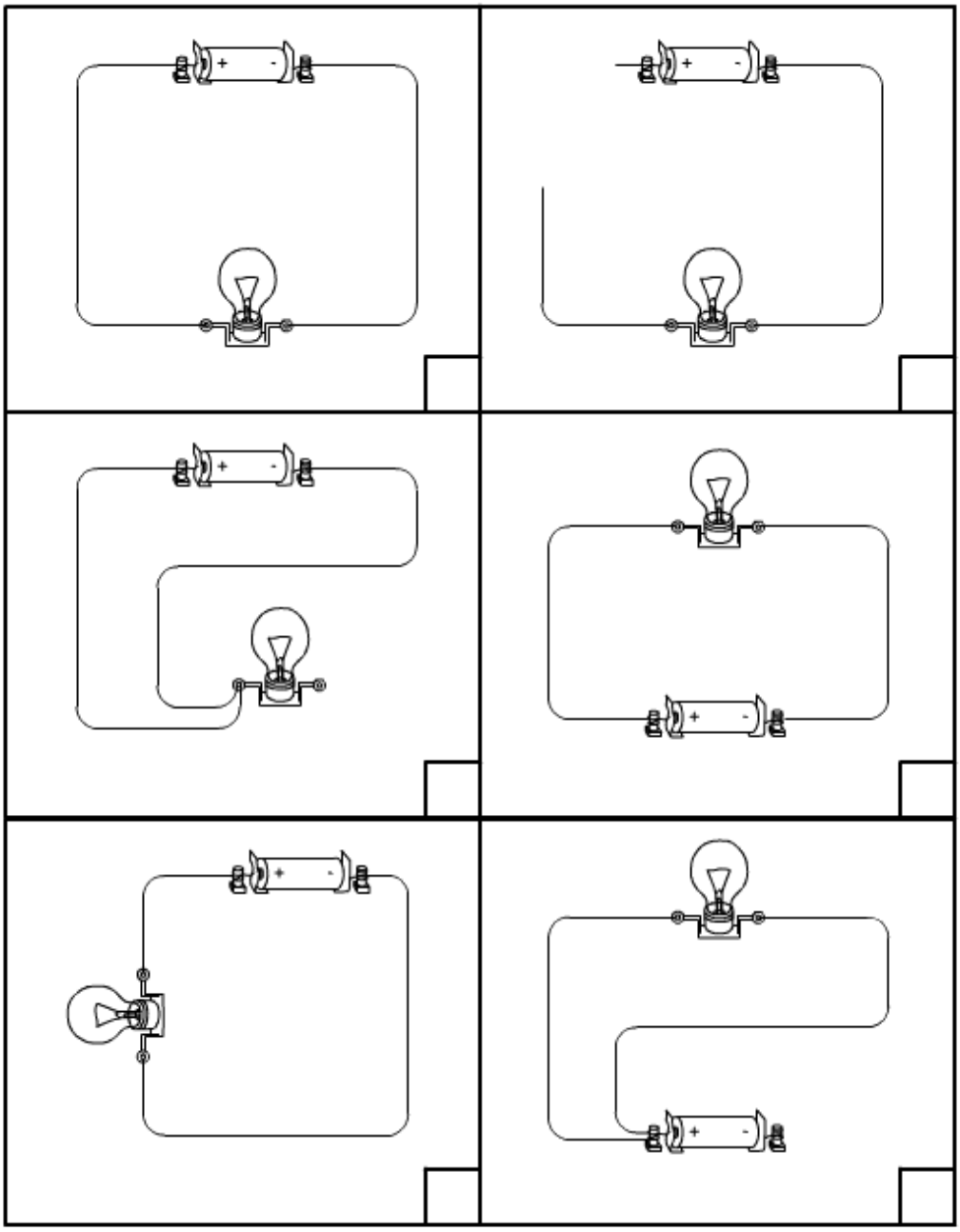
Drawing of my bulb lightning (Write the names of all the components)

Drawing of my buzzer sounding (Write the names of all the components)

ELECTRICITY

Name ..... Date .....

Look at each circuit below. If you think the bulb will light, colour it yellow and put a a tick in the box. If you do not think the bulb will light, put a cross in the box. Then, check your predictions by making the circuits.



LESSON 1

The name for this is .....

We need We don't need	a battery

My circuit works because	there is a break
My circuit doesn't work because	I have a battery

There is a break in the circuit and	electricity can flow through electricity can't flow through

Both wires are attached	to the same side of the bulb to the same end of the battery

LESSON 2

We call this	electric plug electric switch

Battery is dangerous because Mains electricity is dangerous because	it is very powerful and can kill

It is dangerous because	electricity can harm you electricity can pass through water

Because electricity Because frayed wires	can kill you

The main points we have made are.....

ELECTRICITY

Name ..... Date .....

ELECTRICITY

Name ..... Date .....

1.- Fill in the gaps and write each material in the right place.

MATERIALS	
..... (let electricity through)	..... (.....)

2.- Copy the conclusions

.....

.....

.....

.....

.....

LESSON 3

Yes, because No, because	there is a complete circuit

There is	no break in the circuit a break in the circuit

It needs It doesn't need	a battery, a bulb and wires

The electricity is travelling	through the battery, the bulb and the wires under the battery, the bulb and the wires

..... (a material name)	let electricity through do not let electricity through	because it is a metal

For instance / For example	..... (a material name)

LESSON 4

I break the circuit because electricity	can pass through air can't pass through air

I make a break in the circuit because I make a break in the battery because	electricity can't pass through air

We use switches We use bulbs	to make and break circuits

Switches are used	to switch lights on and off to switch devices on and off

Air is an	insulator conductor

ELECTRICITY

Name ..... Date .....

1.- Copy the different conventional symbols, draw the picture next to each of them and write the names.

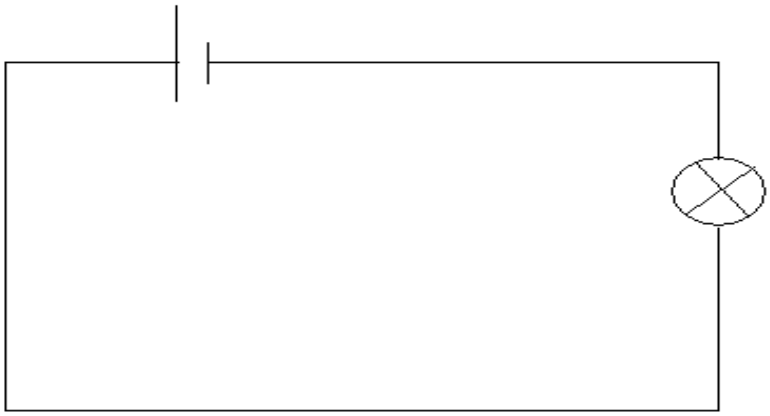
Names	Conventional symbols	Drawings

ELECTRICITY

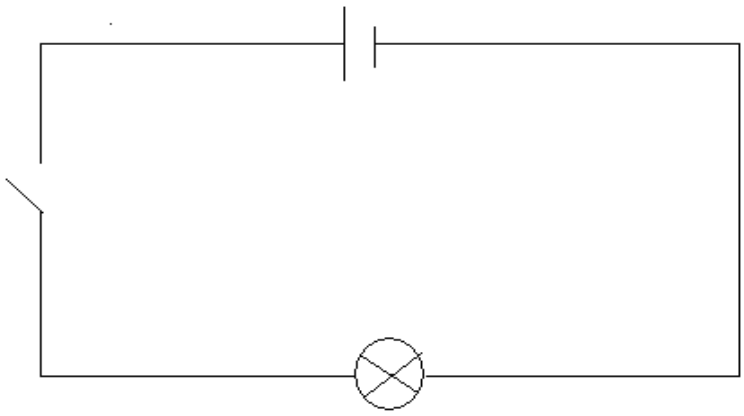
Name ..... Date .....

1.- You have to write the names of the different components of these two circuit diagrams. Finally, complete the two circuits.

CIRCUIT DIAGRAM 1



CIRCUIT DIAGRAM 2



ELECTRICITY

Name ..... Date .....

1.- Draw your two circuits using only symbols, do it with a ruler.
Do not use drawings !!
Do not forget to label your diagram circuits !

My diagram circuit 1	My diagram circuit 2

LESSON 5

The name for this is .....

For example.....

For instance.....

This is because.....

The reason for this is that .....

ELECTRICITY

Name ..... Date .....

What happens to the speed of the motor ?

1.- Make your predictions, experience it, record your results and decide whether you were right by putting a tick or a cross.

1.- Adding another battery	2.- Changing the battery	3.-Another way of connecting the batteries	4.-..... .....
Underline your prediction - the motor will be faster - the motor will be as fast as with one battery - the motor will burn out ☐	Underline your prediction - the motor will be faster - the motor will be as fast as with one battery - the motor will burn out ☐	Underline your prediction - the motor will be faster - the motor will be as fast as with one battery - the motor will burn out ☐	Write your prediction - .... ☐
Write your results	Write your results	Write your results	Write your results
....	....	....	....

HOW ELECTRICITY L – 6 Worksheet 1

ELECTRICITY

Name..... Date.....

INVESTIGATION PLAN

Name..... Date .....

1.- OUR QUESTION

.....

2.- OUR PREDICTION

I think .....

.....

.....

3.- HOW I DO IT

First,.....

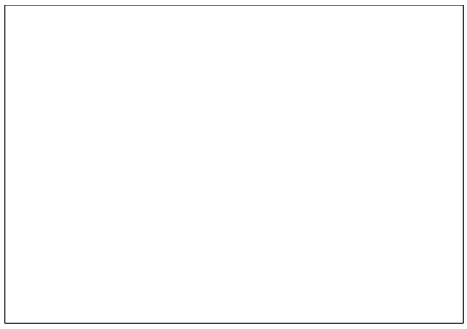
.....

Second,.....

.....

.....

4.- DRAWING OF MY TEST



5.- WHAT I WILL CHANGE

I will change.....

.....

.....

6.- WHAT I WILL NOT CHANGE.....

.....

.....

.....

7.- WHAT I FOUND OUT

I found out that.....

.....

.....

.....

.....

.....

LESSON 6

For example.....
For instance.....

This is because.....
The reason for this is that .....

I think that the	will be faster
I predict that the	will be brighter

The bulb is	faster ..... than .....
The motor is	brighter..... than .....

Time sequence (order)
First, Second, Next, After that, Finally,

ELECTRICITY
Assessment

Name ..... Date.....

1.- Complete these sentences using the words from the box.

bulb	electricity
wires	
switch	battery

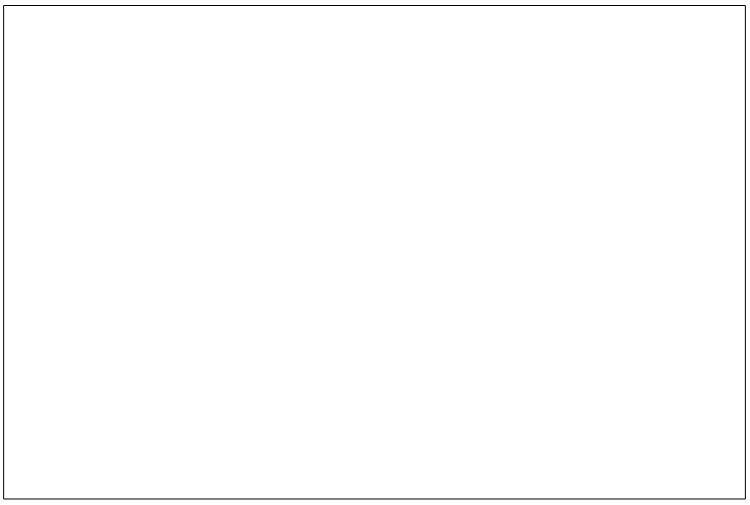
- An electrical circuit needs a ..... battery to provide the power.

- The .... carry the electrical power around the circuit.

- If the circuit is not connected properly, the ..... will not light up.

- A ..... can be used to turn the electricity off in a circuit.

2.- Draw a complete circuit here. Label.



3.- What is an electrical conductor ? List two materials which are conductors.

.....

.....

4.- What is an electrical insulator ? List two materials that are insulators.

.....

.....

5.- Name two electrical devices which use mains power.

.....

.....

6.- Name two electrical devices twhich use battery power.

.....

.....

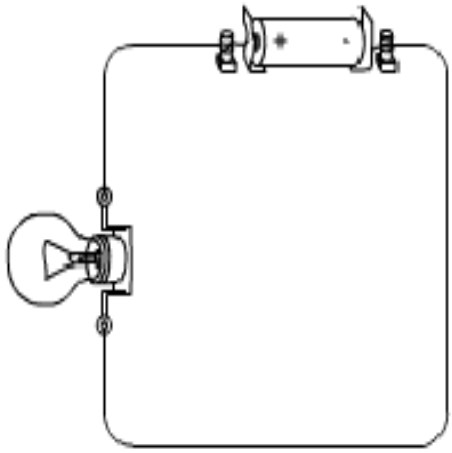
7.- Marta builds a circuit but she wants her bulb to be brighter. What could she do ?

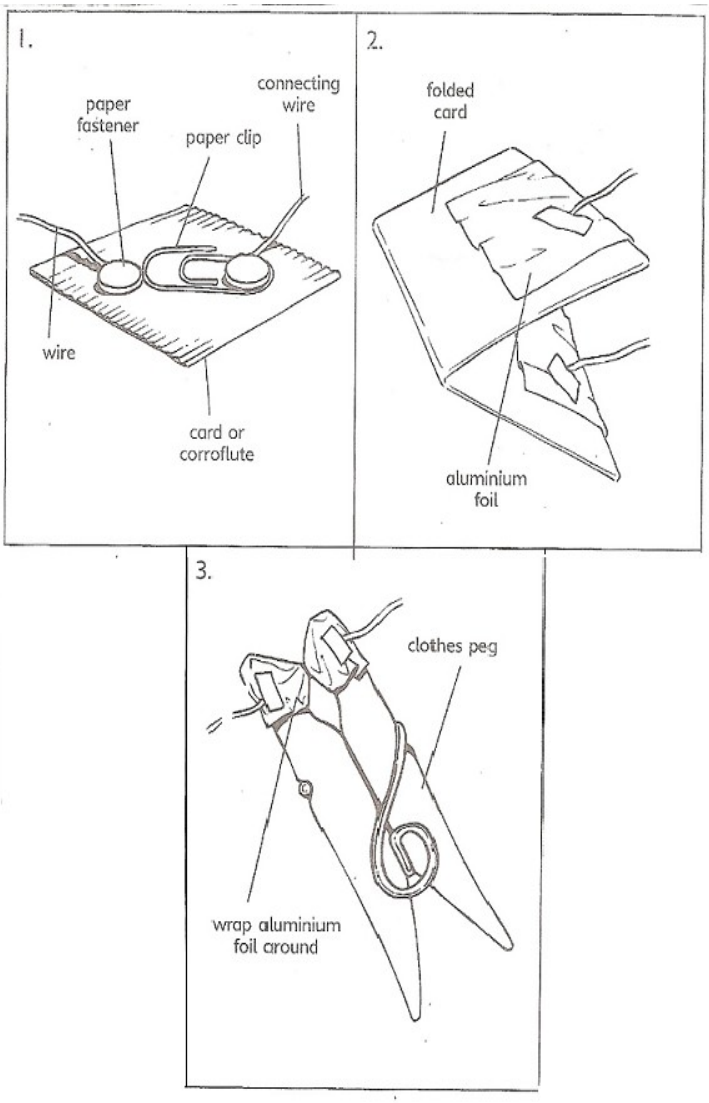
.....

.....

8.- Draw this circuit using conventional symbols. Use the ruler.

Label.




1.
paper fastener
paper clip
connecting wire
wire
card or corroflute
2.
folded card
aluminium foil
3.
clothes peg
wrap aluminium foil around

- THE DATE
- HOW WE DO IT
- WHAT I WILL CHANGE
- OUR QUESTION
- WHAT I WILL NOT CHANGE
- DRAWING OF MY TEST
- WHAT I FOUND OUT
- THE VOLTAGE OF THE BATTERY
- OUR PREDICTION

1.-

2.-

3.-

4.-

5.-

6.-

7.-

- ~~THE DATE~~
- HOW WE DO IT
- WHAT I WILL CHANGE
- OUR QUESTION
- WHAT I WILL NOT CHANGE
- DRAWING OF MY TEST
- WHAT I FOUND OUT
- ~~THE VOLTAGE OF THE BATTERY~~
- OUR PREDICTION

1.- OUR QUESTION

2.- OUR PREDICTION

3.- HOW WE DO IT

4.- DRAWING OF MY TEST

5. WHAT I WILL CHANGE

6.-WHAT I WILL NOT CHANGE

7.- WHAT I FOUND OUT

BATTERY

WIRES

BULB

PAPER CLIP

FOIL

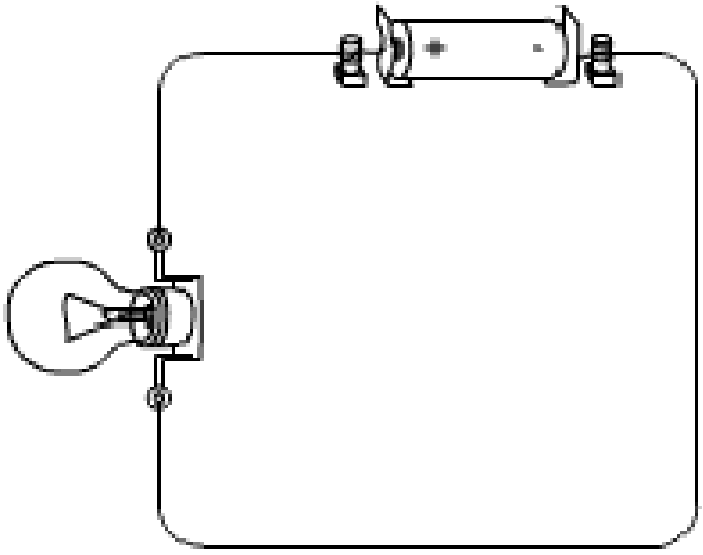
PLASTIC

COIN

PAPER FASTENER

DRAWING PINS

ELECTRICITY



NAME .....

LEVEL .....

SCHOOL YEAR .....