Electricity: Teacher's topic guide

God is Truth Year 7

Spiritual Awareness:
God has placed in the creation scientific laws that are consistent; they always act in the same way. This shows us the faithful nature of God. Just as His scientific laws can be trusted, so can His own words and principles.

Values; Our response to 'God is Truth'
Because God is Truth I will…

- Trust God's laws
- Speak the truth
- Never cheat, steal, lie or exaggerate
- Be trustworthy
- Be true to my word and keep promises. (Integrity)
- Be myself and not try to be someone I am not.
- Search for the truth (life-long learning)
- Ask God to show me the truth.
- Ask the Holy Spirit to lead and guide me into all truth.
- Believe that God's word is the truth. (Trust and faith)

Biblical references:
Psalm 19:7-11 The law of the Lord is perfect and trustworthy
Isaiah 54:10 Though the earth shake the hills be removed, my unfailing love will not be shaken.
Hebrews 13:8 Jesus Christ is the same yesterday, today and forever.
Malachi 3:6 I am the Lord, I change not.
Isaiah 40:8 The grass withers and the flowers fall, but the word of our God endures forever.
Psalm 33:4 For the word of the LORD is right and true; he is faithful in all he does.
Psalm 18:30 This God—how perfect are his deeds! How dependable his words! He is like a shield for all who seek his protection.
Exodus 3:14 God said to Moses, "I AM WHO I AM. This is what you are to say to the Israelites: 'I AM has sent me to you.'

Outcomes

- demonstrate some understanding of the nature of a circuit, conductors and insulators, batteries, switches, bulbs, fuses and electromagnetism
- explain how the flow of energy is dependent on the conductivity of the materials in the circuit
- understand the difference between non-renewable and renewable energy
- demonstrate an awareness of energy conservation
- demonstrate ability in manipulating equipment
- connect currents, use equipment safely, plan experiments
- identify parts of a circuit and use symbols

Key Questions
About electricity
How does electricity make life easier?
Where does electricity come from?
How long has electricity existed?
Who discovered electricity?

When did electricity first become a power source in the home?
How is electricity produced?
Why should we try to use less electricity?
How can we conserve the use of energy in the home?

About God
How did the laws of electricity come about?
What are some of the things that you know about electricity that are always the same?
When we wire up an electrical plug the right way, can we trust it?
In what way is God always the same? Can we trust Him?
What are some other scientific laws that God has placed within the universe?
How do we know that God is faithful and true?

Activities

a) Bulbs, batteries and circuits

- Collect batteries, pieces of wire and torch globes for informal manipulation.
- Take torches apart and describe how they work.
- Rub materials which will gain an electric charge, e.g. rub a plastic ruler and pick up pieces of hair or tissue.
- Use a lemon to create a battery.
- Make circuits that incorporate more than one globe and dry cell.
- Use a toy electric motor to spin a cardboard disc.
- Make models, such as cardboard-box robots or animals, which can be illuminated in some way.
- Investigate switches, such as the switch in a torch.
- Correctly connect a single bulb to a battery.
- Connect a series of bulbs to a battery.
- Test materials to see whether they conduct electricity. Place a range of objects in a circuit to discover which ones conduct electricity, e.g. glass, paper, plastic, tin, aluminium foil, thumb tack, pin, water.
- Generate electricity using a coil and a magnet.
- Dismantle electrical devices.
- Make a small generator/engine.
- Discuss conservation of energy.
- Discuss the nervous system in the human body, (an electrical system).

b) Safety and conservation

- Discuss safety factors and make a poster.
- Make a chart showing how electricity is used in every-day life.
- List sources of non-renewable energy: coal, oil, gas.
- Discuss problems caused by the burning of these fuels: release of carbon dioxide, air pollution, greenhouse effect.
- List renewable energy sources: wind, solar energy, water, geothermal.
- List ways of conserving energy in the home.

Assessment

1. Make an electrical circuit, draw and label it.
2. Make a chart to record materials that will/will not conduct electricity.
3. Make a model that uses an electrical circuit and explain how it works in a class presentation.
4. What have I learned from the study of electricity about God and His creation?

Learning connections:
English: discussions on energy conservation issues; science reports; word banks;
Mathematics: Describe how mathematical laws are constant and true.
Health: safety with electricity; safety during electrical storms
Social Studies: energy conservation
History: the history of lighting; early discoveries, e.g. Michael Faraday, Thomas Edison
Music: Compare electronic and acoustic musical instruments; list how electricity is used in the production and enjoyment of music.
Art: Construct a model that incorporates and electrical circuit.
Thinking skills: Energy Sources
Research cards: Electricity
Biography: Thomas Edison

Art Year 7

God is Truth

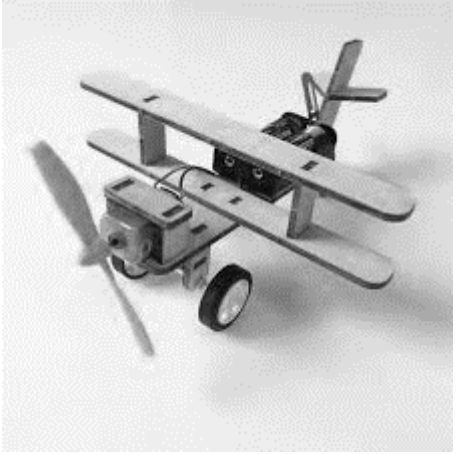
Electricity

Biblical wall art and text: For since the creation of the world God's invisible qualities – his eternal power and divine nature – have been clearly seen, being understood from His creation, so that people are without excuse. Romans 1:20

God has created the invisible laws of nature. They never change.

Construction

Models that can be battery powered



Values education Year 7
God is Truth
Discernment

Discernment is…

- knowing what is true and what is false
- listening carefully and thinking carefully when we hear new ideas
- being alert, and watching out for things that are not right

Activities

1. The “Truth Game” - Select a variety of objects or substances that have imitations, e.g. 2 look-alike drinking glasses, one made from glass, the other from clear plastic; a real plant and an imitation one; real pearls and imitation ones. See if your friends can pick the *real* item. Make sure they look at the items from a fair distance.
2. What is the meaning of the word 'deceive'.
3. Make a list of advertisements that are trying to deceive you. Explain how they try to trick you into buying things. Explain where they are not really telling the truth.
4. Someone tells you about a new club. It sounds to be great fun, but you are not sure about some of the rules. Which of these rules might make you think this club is not for you?

a) No shoes allowed
b) No pets allowed
c) No adults allowed
d) Bring a plate of food
e) Bring your most violent video game
f) Starting time: 10 p.m.

What does the Bible say about discernment?

Matthew 7:13-14 The broad and narrow way.
John 14:6-7 I am the way, the truth, the life.
Acts 4:12 There is no other name by which we are saved.
John 10:1-18 The Good Shepherd.
Matthew 7:15-21 Wolves in sheep's clothing.
John 18:37 Everyone that is of the truth hears my voice.

Practical Science Year 7
God is Truth
Topic: Electricity

Static electricity with balloons 1

http://www.madaboutscience.com.au/store/index.php?main_page=page&id=10

What you will need:

- Balloon
- Piece of fabric (wool works best)

What to do:

1. Blow-up and tie the balloon.
2. Rub it about 20 times with the piece of fabric.
3. Hold the balloon near the wall and watch it stick. You may need to rub the balloon again with the fabric if it doesn't work the first time.
4. Rub the balloon about 20 times again with a piece of fabric.
5. Hold the balloon near your hair and watch it stand on end.

How does it work?

Just like in the plastic straw experiment, rubbing the balloon with the piece of fabric gives it an electrical charge. The electrical charge has the power to attract things. The wall is too heavy to move towards the balloon so the balloon moves towards it. Hair is much lighter and moves towards the balloon.

Practical Science Yr 7
Electricity
Static Electricity with balloons 2

http://www.sciencekids.co.nz/experiments/staticelectricity.html

Show that opposites attract with this static electricity experiment. Find out about positively and negatively charged particles using a few basic items, can you control if they will be attracted or unattracted to each other?

What you'll need:

- 2 inflated balloons with string attached
- Your hair
- Aluminium can
- Woolen fabric

Instructions:

1. Rub the 2 balloons one by one against the woolen fabric, then try moving the balloons together, do they want to or are they unattracted to each other?
2. Rub 1 of the balloons back and forth on your hair then slowly it pull it away, ask someone nearby what they can see or if there's nobody else around try looking in a mirror.
3. Put the aluminium can on its side on a table, after rubbing the balloon on your hair again hold the balloon close to the can and watch as it rolls towards it, slowly move the balloon away from the can and it will follow.

What's happening?

Rubbing the balloons against the woolen fabric or your hair creates static electricity. This involves negatively charged particles (electrons) jumping to positively charged objects. When you rub the balloons against your hair or the fabric they become negatively charged, they have taken some of the electrons from the hair/fabric and left them positively charged.

They say opposites attract and that is certainly the case in these experiments, your positively charged hair is attracted to the negatively charged balloon and starts to rise up to meet it. This is similar to the aluminium can which is drawn to the negatively charged balloon as the area near it becomes positively charged, once again opposites attract.

In the first experiment both the balloons were negatively charged after rubbing them against the woolen fabric, because of this they were unattracted to each other.

Practical Science Yr 7
Electricity
Make your own lightning (static electricity)

In a storm cloud, the moving air makes tiny water droplets and ice rub together so they become charged with static electricity. The positive electrical charges float up near the top of the cloud and the larger ones, with negative charges, stay near the bottom. This separation of electrical charges is very unstable and lightning is the way the charges are equalized or become balanced.

You will need:

- A large iron or steel pot (not aluminum) with a plastic handle.
- Rubber gloves.
- An iron or steel fork.
- A plastic sheet (a dry-cleaner garment bag is good source).

Instructions:
Tape the plastic sheet to a table top.

Put on the rubber gloves.

Darken the room as much as possible.

Hold the large iron pot or pan by its insulating handle and rub the pan vigorously to and fro on the plastic sheet.

Holding the fork firmly in the other hand, bring its prongs slowly near the rim. When the gap between pot and fork is small, a tiny spark should jump across (A darker room will help you see the spark more clearly).

It is as though the pan is the thundercloud, the fork is the lighting rod and you are the Earth's surface.

Please note: The humidity in the air can affect static electricity. If the air is damp, such as during the winter, then this experiment may not work.

Practical Science Yr 7
Electricity
Roll a can with static electricity

http://www.sciencebob.com/experiments/staticroll.php

What you will need

- An empty soft drink can
- blown-up balloon
- A head of hair

What to do

1. Place the can on its side on a flat smooth surface like a table or a smooth floor.

2. Rub the blown up balloon back and forth through your hair really fast.

3. Now the fun part - Hold the balloon close to the can without actually touching the can. The can will start to roll towards the balloon without you even touching it!

Try This Too: While you've got the balloon out, tear up part of a tissue into tiny pieces about 1/4 inch (.5 cm) big. Rub the balloon in your hair again and bring it close to the tissue pieces. They will be attracted to the balloon and then jump away.

How does it work?
When you rub the balloon through your hair, invisible electrons (with a negative charge) build up on the surface of the balloon. This is called static electricity, which means "non-moving electricity" The electrons have the power to pull very light objects (with a positive charge) toward them - like the soft drink can.

Make it an experiment
The project above is a DEMONSTRATION. To make it a true experiment, you can try to answer these questions:

1. Does the size of the balloon change the power of the pull?

2. Does the length of the person's hair effect the power of the static electricity?

3. How much water can you put in the can until the balloon can't pull it anymore?

Practical Science Yr 7
Electricity
Bending Water with Static electricity

http://www.sciencekids.co.nz/experiments/bendingwater.html

Try bending water with static electricity produced by combing your hair or rubbing it with an inflated balloon.

What you'll need:

- A plastic comb (or an inflated balloon)
- A narrow stream of water from a tap
- Dry hair

Instructions:

1. Turn on the water so it is falling from the tap in a narrow stream (just a few millimeters across but not droplets).
2. Run the comb through your hair just as you normally would when brushing it (do this around 10 times). If you are using a balloon then rub it back and forth against your hair for a few seconds.
3. Slowly move the comb or balloon towards the stream of water (without touching it) while watching closely to see what happens.

What's happening?

The static electricity you built up by combing your hair or rubbing it against the balloon attracts the stream of water, bending it towards the comb or balloon like magic!

Negatively charged particles called electrons jump from your hair to the comb as they rub together, the comb now has extra electrons and is negatively charged. The water features both positive and negatively charged particles and is neutral. Positive and negative charges are attracted to each other so when you move the negatively charged comb (or balloon) towards the stream, it attracts the water's positively charged particles and the stream bends!

Thinking Skills Truth Yr 7

Energy sources 1 Draw a solar panel. Now redesign it by using the following steps: **B** – igger **I** – instead of **N** – onsense **G** – et rid of **O** – ther uses	**Energy sources 2** Brainstorm 10 innovative ways of encouraging people to use public transport more often.
Energy sources 3 Design a new product by combining a **hovercraft** with a **water pistol.**	**Energy sources 4** **What if the world petrol supplies ran out?** Give 10 different consequences.
Energy sources 5 Electrical energy is an example of God's power in creation. Write an acrostic poem for: **POWERFUL**	**Energy sources 6** Name 10 materials that are **not** used in the construction of a motor vehicle.

Thinking Skills Truth Yr 7

Energy sources 7 Only solar-powered cars should be allowed on the roads. Give 3 good points and 3 bad points for this proposal.	**Energy sources 8** The answer is **"wind".** Give 5 possible questions.
Energy sources 9 Construct a device that can travel at least 10 metres along the ground by using: •A mousetrap •The wheelbase of a toy car •6 rubber bands •One optional piece of equipment	**Energy sources 10** Name 5 things that a **balloon** and a **steering wheel** have in common.
Energy sources 11 What will be the most important form of public transport in 100 years from now? Illustrate your ideas.	**Energy sources 12** Name 4 disadvantages of electric power lines. Now work out an improvement for each of these disadvantages.

Thomas Edison

Biography

Born: 1847 in Ohio, USA
Died: 1931

Best known for: Inventing many useful items including the phonograph and a practical light bulb

Thomas Edison may be the greatest inventor in history. He has over 1000 patents in his name. Many of his inventions still have a major effect on our lives today. Many of his inventions were group efforts in his large invention laboratory where he had many people working for him to help develop, build, and test his inventions.

Childhood
Surprisingly, he did not do well in school and ended up being home schooled by his mother. Thomas was an enterprising young man, selling vegetables, sweets and newspapers on trains. One day he saved a child from a runaway train. The child's father repaid Edison by training him as a telegraph operator. As a telegraph operator, Thomas became interested in communications, which would be the focus of many of his inventions. He set up his first lab in his parent's basement at the age of 10.

Menio Park
This was the place where Thomas set up his inventing business. He and other scientists would do research and then apply the discoveries to useful things that could be manufactured and built on a large scale. There were a lot of employees working for Edison at Menlo Park. These workers were inventors, too, and did a lot of work on Edison's ideas to help turn them into inventions.

Three of his most famous inventions were:

1. The Phonograph - This was the first major invention by Edison and made him famous. It was the first machine that was able to record and playback sound. He said the words to "Mary had a little lamb" as the first recorded voice on the phonograph.

2. Light Bulb - Although he did not invent the first electric light, Edison made the first practical electric light bulb that could be manufactured and used in the home. He also invented other items that were needed make the light bulb practical for use in homes including safety fuses and off/off switches for light sockets.

3. The Motion Picture - Edison did a lot of work in creating the motion picture camera and helping move forward the progress of practical movies.

http://www.ducksters.com/biography/thomas_edison.php

William Tyndale (1494-1596)

Biography

It is hard for us today to imagine not having a Bible in our own language, but it hasn't always been that way. When William Tyndale was a little boy growing up in England in the 1500s, ordinary people did not own Bibles. They had to go to church to hear what the Bible had to say. But there was one problem--the priest read the Bible in Latin, a language only the most educated people could understand.

As William Tyndale grew older and finished college, he felt that God was calling him to translate the Bible into English so that all people could read it for themselves. But--believe it or not--translating the Bible was against the law. Like many others during his time, William Tyndale was called a false teacher and was put to death for his beliefs. Based on historical sources, this is his story as he might have told it.

Growing up in England

“I grew up on a farm in Gloucestershire, England. Life was very difficult for English families. Children worked very hard to help their parents. Disease and famine often killed thousands at a time.

My parents could tell early in my life that I had a gift for learning languages. I was able to go to Oxford University, one of England's finest schools. By the time I graduated, I had mastered SEVEN languages! Of them, Hebrew and Greek were most useful to me, because I could now read the Bible in its original languages.

I learned so much about God as I read the Bible for myself! I knew I had to use the gift God had given me so that others could read the Bible for themselves, too! I was well aware that translating the Scriptures was against the law and could cost me my life, but how could I not do what God was calling me to do?

Church and King Try to Keep Me Quiet

At first I asked the Church authorities for permission to translate the Bible into English. The answer was no. The Church believed that only the Pope and priests were educated enough to truly understand and interpret the Bible.

One day a discussion with a priest became a heated argument when he told me that it was better to be without God's laws than the Pope's. I could not believe what I was hearing! I answered him by saying, "I defy the Pope and all his laws; if God spares my life, I will cause a young farm boy to know more of the Scriptures than you do."

I also did not agree with the Church's teaching that doing good things was the way to get to heaven. The Bible clearly says that salvation is a free gift from God for those who believe. Many in the Catholic Church and also the King of England, Henry VIII, looked for ways to keep me quiet.

Hiding from Spies

I knew I must leave England immediately. I secretly traveled to Germany, where others had also taken a stand against some of the Church's teachings. When I arrived, I quickly changed my name--so no one would be able to find me--and began my work.

Translating the Bible into English was a difficult job. Each word had to be recorded correctly. The language also had to be simple enough for even an uneducated person to understand. It took more than a year for me to complete the New Testament translation.

I had to find a good printer whom I could also trust to keep my whereabouts secret. I could not risk being caught. English spies would be paid well to turn me in. One spy eventually did find out where the first printing was taking place. I narrowly escaped capture, getting away just in time with some of my materials!

The English Bible on English Soil

Once the printing was completed, copies had to get into England without being seized. Smugglers hid the Bibles in shipments where no one expected them: in flour barrels, in trunks with false bottoms, and in airtight boxes inside wine barrels.

The Bibles sold as quickly as they reached England, even though one cost about half a week's earnings (over $100 in today's dollars). Families saved and put their money together, and a farmer would trade an entire load of hay to get just one Bible. Groups would meet together to hear the Word of God for the first time in their own language.

The religious leaders and the King were furious! They tried to destroy as many copies as they could. They also intensified their search to find and arrest me.

A "Friend" Turns Me Over to Killers

I had begun to feel quite safe in Germany. I had also become somewhat of a celebrity. But I let nothing get in the way of completing my task. I worked late every night translating several books of the Old Testament.

One day I met a young Englishman in Germany who seemed to share my ideas about the need to translate the Bible. Over time we became good friends. What I didn't know was that this young man was a spy who would soon betray me. He led me right into the hands of my captors, after inviting me out for a meal. I was jailed, charged with heresy (false teaching), and sentenced to death by burning.

PostScript

The last thing we know about William Tyndale is that he was led through a crowd into the public square. A noose was placed around his neck. His last words were, "God, please open the King of England's eyes." He was then hanged and his body was set on fire.

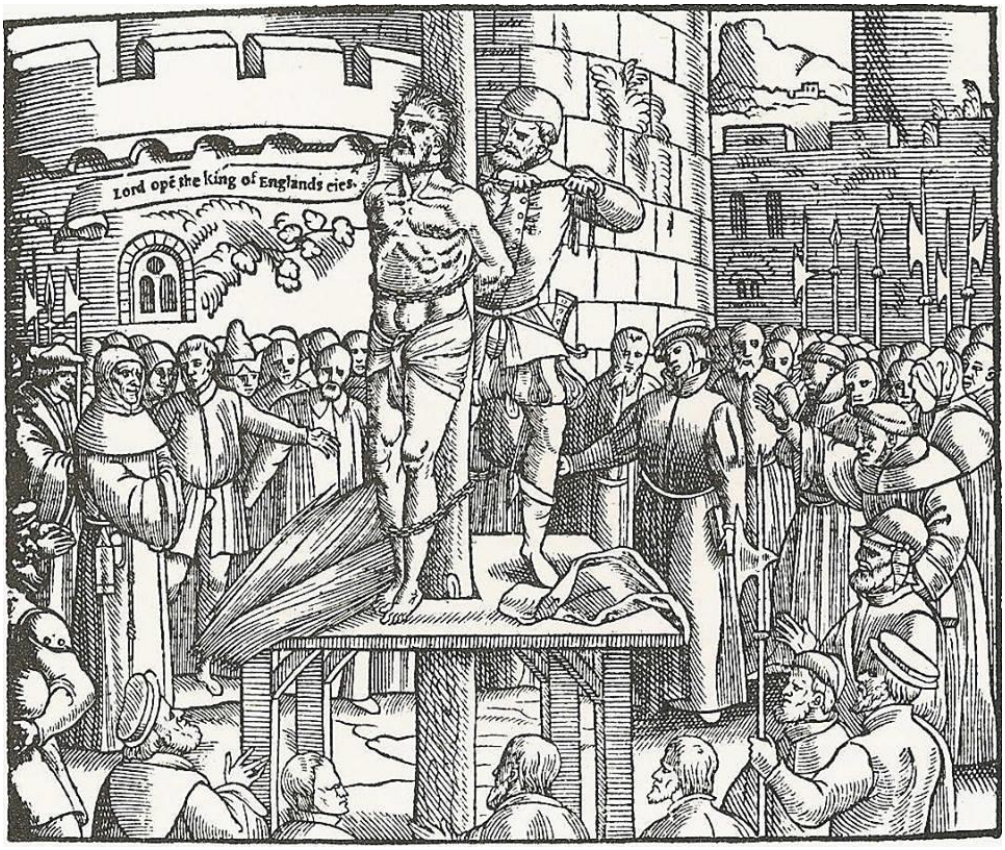
God answered his prayer in a wonderful way. Within one year of William Tyndale's death, the King of England gave approval for an English Bible to be published. Tyndale's Bible was

used as a guide for the new translation. This new translation is the father of the King James Bible that is still read today.

Questions

1. William Tyndale had a talent for learning languages. Instead of burying his talent, he worked hard to develop it and use it for God. What talent has God given you? What can you do to develop your talent and use it for God's glory?
2. It seems strange that some people in the 1500s thought the Pope's law could be more important than God's law. Can you think of a time when you have had to choose between following God's laws and following man-made laws? What did you do?

https://www.christianity.com/church/church-history/church-history-for-kids/william-tyndale-gods-outlaw-11634865.html



Electricity 1
Safety with electricity

Student activities

We plug into electricity in our homes, school and other
Buildings. This electricity has a high *voltage.* This means that it is a very high source of power and heat. If the electricity touches us directly we receive an electric shock which can kill people. It can cause serious burns and stop the heart.

It is dangerous to have electrical devices around water. Electricity travels through water and most other liquids. If a liquid is spilled near an electrical outlet or a device that is plugged in, the electricity can flow through the liquid and shock a person.

Old, damaged electrical cords dangerous! The wires inside electrical cords are covered with a plastic material which protects us. If the wire is exposed it can cause a shock or spark. The sparks from the wire may cause a fire.

Why is it dangerous to:

1. Poke a knife into a toaster when it is going?
2. Poke a nail into an electrical wall socket power point)?
3. Fly a kite near power lines?
4. Hit a nail into a wall near a light switch?
5. Use a hair dryer while you are in the bath?
6. Dry a wet piece of clothing on an electric light?
7. Use cords that have exposed wires.
8. Touch the prongs on an electrical plug while you are pulling it out from the wall.
9. What kind of accident could happen with a toddlers and electricity?

Electricity 2
What is electricity?

Electricity is a source of power that humans can use. It is part of God's creation. God provided us with electricity when He made the world for us to live in. Electricity can be seen in nature in the form of lightning. Electricity is energy.

Energy makes something work. It makes things move, heat up, or light up.

Here are some sources of energy:

- Fossil Fuels - Coal, Oil and Natural Gas
- Water (hydro) Power and Ocean Energy
- Nuclear Energy
- Solar Energy from the sun
- Wind Energy

People have learned how to take these natural forms of energy and convert them into electrical energy. Energy is produced by these fuels in power stations. The electricity goes along wires from the power station to our homes.

Everything in the universe is made of atoms. These are too tiny to see. In the atoms are little components called electrons. They can travel along a wire to produce electricity.

1. What do we use electricity for?
2. When can electricity be seen in nature?
3. What fuel sources can be used by power stations to make our electricity?

Electricity 3
Renewable and non- renewable energy

We need energy for heat, light, transport, cooking and electrical appliances.

Electricity has to be produced in power stations and sent along wires to our homes and cities. The electricity can be produced from renewable or non-renewable sources of energy.

Renewable means that if is always available and does not run out.
Non-renewable means that it will run out if we keep using it.

Non-renewable sources: Coal, gas and oil.
Power stations burn these fuels to make electricity. These fuels are called fossil fuels because they are made up of dead and decayed plants that have been buried for thousands of years. Once they are taken from the ground they are used for fuel. It would take thousands more years to replace them. The burning of these fuels also causes pollution.

Renewable sources:
Waterwheels get energy from rivers.
We can get solar energy from the sun.
We can get energy from wind.

These can be quickly replaced.

1. *How does electricity get to our homes and cities?*
2. *What is non-renewable energy? List some sources.*
3. *What is renewable energy. List some sources.*
4. *Why is it better to use renewable sources of energy?*

Electricity 4
Static electricity

Static electricity is stored electricity. It can be stored in objects. People and the clouds.

In a storm, static electricity sometimes builds up in the clouds This can give us thunder and lightning.

Rubbing a piece of plastic, like a plastic ruler or comb, can charge it with a type of electricity.

This is called static electricity, on *non-moving* electricity.

Experiment:
(Experiments with static electricity work best on a dry day.)

Rub a plastic ruler, pen or comb with a piece of fabric. Wool works best. Rub about 20 times.
Bring it close to some small bits of paper.
Now bring it close to someone's hair.

1. *What happened?*
2. *Static electricity is also called _____ electricity.*
3. *When you rub a plastic ruler on fabric you _____ it with electricity.*

Electricity 5
Conductors and insulators

Electricity will travel through some things very well. These are called *conductors*. Other things will not conduct electricity. These are called *insulators*.

With your teacher, join up a battery and bulb with wires. Test some different materials and see which ones the electricity will travel through. These are the conductors. The bulb will light up. The insulators will not allow the electricity to pass through. The bulb will not light up.

Here are some things to try: rubber, plastic, an iron nail, wood, copper, aluminium foil, glass, paper, a cup or pottery. You will think of other things.

Make two lists: conductors and insulators.

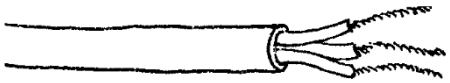
Insulators can stop us getting an electrical shock.
What insulating material is used around wires in an electrical cord?

Your body is a conductor of electricity. This is why it is very dangerous to fool around with electricity.

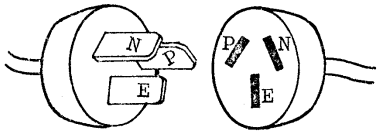
Electricity 6
Three-pin plugs

Every day you plug something into the main electricity supply. You use a 3-pin plug to do this. These plugs are wired up in a special way. You can get a shock if your plug is not correctly wired.

Inside the lead:



Inside the plug:



The wires in the lead must be connected to the three pins in this way:
The brown wire goes to the letter “P” (Phase).
The blue wire goes to the letter “N” (Neutral)
The green/yellow wire goes to the letter “E” (Earth).

1. *If you need to repair an electrical fault, or put in a new power point in your home, who should you employ to do the job?*
2. *What could happen if the wires were not connected correctly to the 3-pin plug?*

Some plugs have only two pins. The “E” pin is missing. These plugs are not as safe as three-pin plugs.

Electricity 7
History of electricity

The electric light bulb was not discovered until 1879.

After many experiments, Thomas Edison (U.S.A.) invented a light bulb that could be used for about 40 hours without burning out. By 1880, his bulbs could be used for 1,200 hours.

In 1882 Thomas Edison opened a power station in New York City. The power station was one of the world's first central electric power plants and could power 5,000 lights.

1. *What did people use for light before the light bulb was invented?*
2. *How did people cook without electricity?*
3. *What do you consider to be the most important uses of electricity today?*
4. *Write a description of how your family would live if there was no electricity.*

Electricity 8
What did we do without electricity?

Make a table to show the appliances used today, who uses it, and how the job used to be done before had electricity in our homes.

Appliance	Who uses	How it used to be done

Electricity 9
Electricity in the home

Make a list of all the things in your home that use electricity.
Think about hearing, cooling, lighting, appliances and entertainment. Make a table and show which things use the mains power and which things use batteries.

Remember that things that operate by battery are still using electricity. Batteries contain stored electricity.

Appliance	Mains or battery	Who uses it

Electricity 10
Let’s not waste electricity

Electricity is an important part of our lives. It costs money to produce. It also uses resources to make. Some people have a habit of using much more electricity than they need to.

Explain why the following things waste electricity:

- Don’t leave lights on when you leave a room.
- Don’t use air conditioning when you could use a fan.
- Don’t leave the fridge door open.
- Don’t put hot things in the fridge.
- Don’t have long hot showers
- Don’t leave the TV on if no one is watching it.
- Don’t iron your clothes unless you really need to.
- Don’t allow hot taps to drip.

Make a poster telling people not to waste electricity. As well as using words, include at least 5 pictures to explain.