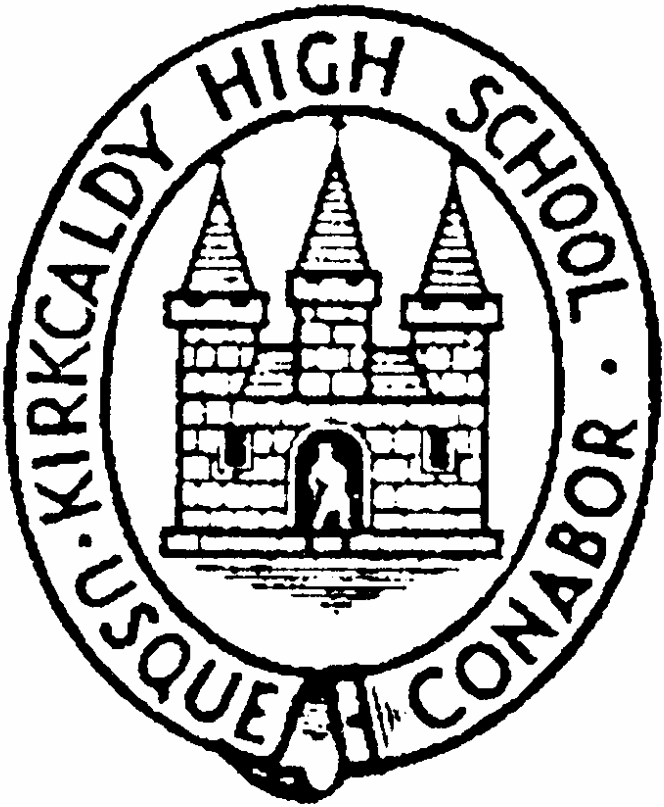
1st Year Science

Homework Booklet



Kirkcaldy High School

Contents

Introduction to Science

Date Due _____

Famous Scientist

1. Create a poster on a famous Scottish scientist

- **Who is your scientist?**
- **What is their date of birth?**
- **Where were/are they from?**
- **What are they famous for?**
- **Why is their discovery important?**

Make it bright, bold and colourful with some pictures!

NB. You are not allowed to make a poster about Alexander Graham Bell or John Logie Baird!

Matter

Date Due _____

Solids, Liquids and Gases in the world

1. **Create a poster about solids liquids and gases**
   - **What are the differences between them?**
   - **Name one substance that is solid, one that is liquid and one that is a gas**
   - **Chose one of the following items or activities and write a paragraph about how solids, liquids and gases are important to it**
     - **A car**
     - **A fridge freezer**
     - **Cooking**
     - **Ice hockey**
     - **Hot air ballooning**
     - **A mobile phone**

Make it bright, bold and colourful with some pictures!

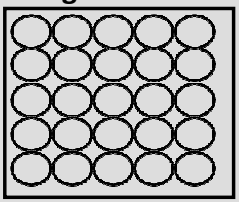
Date Due _____

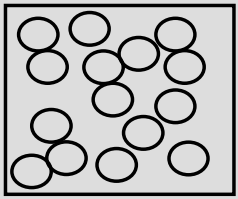
Solids, Liquids and Gases - 1

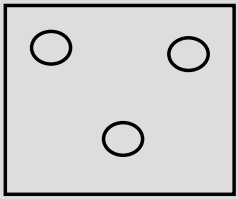
1. On the table tick the boxes that best describe the properties of solids, liquids and gases.

	Solids	Liquids	Gases
changes shape			
Doesn't change shape			
changes volume			
Doesn't change volume			

2. The diagrams below show different arrangements of particles.
Write below each diagram if it represents a solid, a liquid or a gas.







3. Coal is carried in lorries. Oil and gas are often transported by pipeline. Why is coal not transported in a pipe and oil not transported in a lorry?

Coal is a _____ sunstance and oil is a _____ substance.

5. In a solid, the particles are closely packed and stuck together.
Write a similar sentence to describe the particles in:
a. a liquid

In a liquid, the _____ are loosely packed and free to _____ around.

b. a gas.

In a gas, the _____ are completely free to _____ around. They are not _____ together.

6. Solids can be heavy or light, weak or strong, hard or soft. For each of the following sentences, choose one of these words to complete the sentence
a. Diamond is used to make rock-cutting drills because diamond is h_____

b. Aluminium is used to make the body of an aeroplane because aluminium is l_____

c. Steel is used to make the bars of a prison window because steel is s_____

Date Due _____

Solids, Liquids and Gases - 2

1. Use the idea of particles to explain why:

a. you can squash a gas, but not a liquid or a solid

In a gas, the _____ are far apart so these is a lot of space _____ them. For this reason, it is easy to _____ a gas. The particles in a _____ or solid are _____ packed together.

b. you can pour a liquid, but not a solid.

The _____ in a liquid are free to _____ but the particles in a _____ are fixed in position.

2. Underline the correct words to complete the sentences.

a. Ice is rock/solid water. The gas that water forms when it evaporates is called water vapour/air.

b. A solid changes into a liquid at its melting point/boiling point.

c. A liquid changes into a gas at its melting point/boiling point.

3. Underline the correct word to show whether the following statements are true or false.

a. Pure water freezes at 0 °C.

true/false

b. All substances boil at 100 °C.

true/false

c. Mixtures melt and boil at one temperature.

true/false

d. Evaporation and melting are reversible.

true/false

e. When salt is added to water, it makes the freezing point lower.

true/false

Date Due _____

Solids, Liquids and Gases - 3

1. Complete the following sentence.

When a stink bomb is let off, the smell gradually fills the room. This process is called d_____ .

2. Complete the following sentences. Use the words below to fill the gaps.
closely packed widely spaced stuck together move freely

a. The particles in a solid are c_____ p_____ and s_____ t_____ .

b. The particles in a liquid are c_____ p_____ and can m_____ f_____ .

c. The particles in a gas are w_____ s_____ and can m_____ f_____ .

d. Draw a diagram to show the particles in a solid.

4. Complete the following sentences. Use the words below to fill the gaps.

faster state gain melts forces expands liquid larger

When a solid substance is heated, the particles g_____ energy and they move f_____. The spaces between the particles get l_____ and the substance e_____. If the solid is heated to a high enough temperature, the movement of the particles overcomes the f_____ of attraction between them and the solid m_____ to form a l_____. This change is called a change of s_____.

5. Some thermometers contain liquid mercury. Mercury freezes at –39 ˚C. Some thermometers conatain ethanol, which freezes at –80 ˚C. At the South Pole, the temperature is often below –50 ˚C.
Which type of thermometer, mercury or ethanol, could be used at the South Pole? Explain your answer

A _____ thermometer would be used at the South _____ as the temperature there would _____ ethanol

Date Due _____

Diffusion and The Water Cycle

1. Sort these things into solid, liquid or gas: carbon dioxide, brick, water, oil, oxygen, methane, table, plasticine, hair gel, toast, butter.

Solid	Liquid	Gas

2. Why is the total volume of 100 cm^3 of sand and 100 cm^3 of peas usually less that 200 cm^3?

The _____ fills the gaps between the _____ so the total volume is _____ than we would expect.

3. Why can we smell perfume from the other side of the room? Be sure to use the word "diffuse in your answer!

The particles of the perfume _____ through the room to your nose

4. What is the story of a drop of water? Be sure to use the words "condensation", "evaporation" and "precipitation" in your answer!

Water evaporates from seas, rivers, _____ and oceans to from clouds. _____ water then condenses and falls _____ to the earth as rain, a _____ of precipitation. It then runs back ___ the seas, rivers, lakes and _____ so the process can start _____.

Test Date _____

Summary

Differences Between Solids Liquids and Gases

	Change Volume?	**Change shape?**	**Flow?**
Solid	No	No	No
Liquid	No	Yes	Yes
Gas	Yes	Yes	Yes

Small Particles and Big Particles

When **small particles** and **big particles** are **mixed** together, the **small particles fill in the gaps between the big particles** to give a smaller volume. *e.g.* Peas and sand or sugar and water.

Diffusion

Particles can **move** through a **liquid or a gas** (and sometimes even a solid!) by themselves. This is called **diffusion** and is the reason you can smell perfume from the other side of the room!

Brownian Motion

Particles such as smoke will move around by themselves due to the movement of air particles around them.

Changes of State

You can make a solid into a liquid by **melting** it.
You can make a liquid into a solid by **freezing** it.
You can make a liquid into a gas by **evaporating** it
If you want a liquid to become a gas quickly, you can **boil** it.
You can make a gas into a liquid by **condensing** it.

The Water Cycle

Liquid water **evaporates** from lakes, rivers, seas and oceans to become **water vapour**. The water vapour then **condenses** back to **liquid water** and falls as rain and the whole process starts again!

Separating Two Solids Mixed Together

If you have a **mixture of two solids** and one is magnetic, you can **separate them** with a magnet.

Separating a Solid from a Liquid

You can separate a **solid** from a **liquid** by **filtration**.

Separating a Dissolved Solid from a Liquid

You can separate a **solid** which has been **dissolved in a liquid** by **evaporation**. The **solid/gas** dissolved is called the **solute**. The **liquid** is called the **solution**.

Traffic Lights

Can solids, liquids and gases change their shapes?	
Can solids, liquids and gases change their volumes?	
Can solids, liquids and gases flow?	
What happens when small particles and big particles mix together?	
What is the name given to the tiny particles that make everything?	
What is the name given to the process when particles move through a liquid or a gas?	
What is the name given to the process where a solid becomes a liquid?	
What is the name given to the process where a liquid becomes a gas?	
What is the name given to the process where a gas becomes a liquid?	
What is the name given to the process where a liquid becomes a solid?	
How can you separate a mixture of iron and sulphur?	
What is the story of a droplet of water?	
Why do smoke particles in a sealed box move around?	
How could you separate sand from seawater?	
How could you separate salt from water?	

Living Things

Date Due _____

Frog Habitats

1. Mummy and daddy frog have got some spare space. All their tadpoles have grown up and hopped off to find homes of their own. They want to rent out their space to frogs that are looking for a new home. Make an advert for them.

- **What is the location?**
- **How will they get their food?**
- **How will they be protected?**
- **Where will the tadpoles grow up?**
- **What does it cost?**

Make it bright, bold and colourful with some pictures!

Date Due _____

Classification

Classify the following into "plants" and "animals"
If they're "animals" classify them as "vertebrates" (have a spine) or "invertebrates" (don't have a spine).
Lion, Cabbage, Ant, Bee, Sunflower, Eagle, Cow, Sheep, Oak tree, Lobster, Rose, Goldfish, Cat, Apple, Sea cucumber, Dog, Mouse, Tiger, Beetroot, Monkey, Mushroom, Woodlouse, Sea anemone, Spider, Jellyfish, Shark, Human, Chicken, Koala

Animals		**Plants**
Vertebrates	**Invertebrates**	

Date Due _____

Habitats, Food Chains and Keys

1. Write down the kind of habitat where you would find…

A fox _____

A polar bear _____

A sheep _____

A camel _____

A lion _____

2. Use these living things to make a food chain: frog, pondweed, snake, eagle

_____
↓
_____
↓
_____
↓
_____

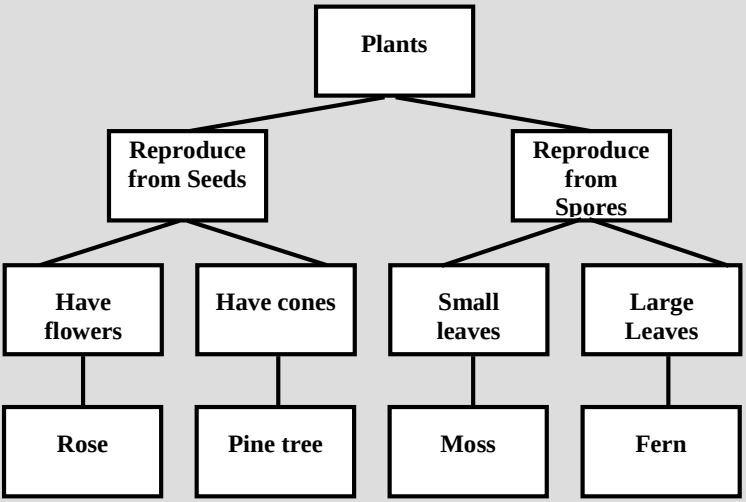
3. Use the key below to identify these living things from their descriptions.

A small spongy plant with small leaves and spores?

A plant with seeds but no flowers?

A plant with a yellow flower?

A plant with spores and large tough leaves?

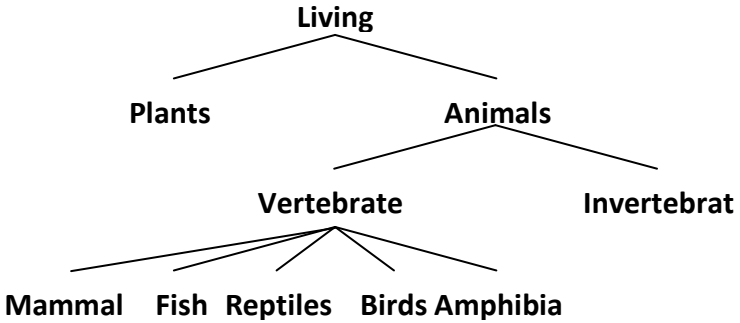


Test Date _____

Summary

Classification

Biologists have **classified** living things into **groups**. Living organisms which share similarities are put into the same group.



Plants make their own food using the sun's energy. **Vertebrates** all have a **backbone** (spine). The **5 vertebrate groups** can be split up according to their body coverings:

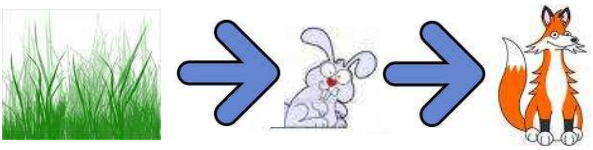
- **Mammals** have hair
- **Reptiles** have dry skins
- **Amphibians** have soft moist skin
- **Birds** have feathers
- **Fish** have wet scales

Habitats

The **places that animals and plants live** in are called their **habitats**. For example the habitat of lions, giraffes and zebra would be the African grassland.

Food Chains

We can link the organisms in a habitat using a **food chain**.



The **arrows** between the organisms in the food chain shows the **direction of the energy flow**. The energy comes from the sun and is converted into chemical energy by green plants by photosynthesis. Lots of food chains can be **joined together** to make a **food web**.

Measuring Abundance

We can investigate the kinds of living things in habitats around the school grounds. **Quadrats** can be used to **sample the plant life** in a habitat. A quadrat is a square put on the ground. The **number of squares** with a particular plant in are counted. The result is the **abundance** of that plant

Variation

Although humans are members of the same species they are all different – they show **variation**. Some ways in which humans differ from one another are height, weight, eye colour and hair colour.
Variation can be caused by two factors:

- **Environmental variation**– differences caused by our **environment** *e.g.* scars, hair dye, diet etc.
- **Inherited variation**– differences **passed on** from our parents in our DNA *e.g.* eye colour, skin colour etc.

There are two different types of variation:

- Continuous variation – measured on a scale e.g. height, weight
- Discontinuous variation – separated into groups e.g. eye colour, tongue rolling.

DNA

DNA is the molecule that makes us unique. It determines our eye colour, hair colour etc.

Adaptions

All living things are **adapted** to live in their habitats. Polar bears live on the polar ice. They have thick, white fur to keep them warm and to camouflage them. They have sharp teeth for tearing the meat of their prey. Flowering plants are scented and brightly coloured to attract insects to help their reproduction.

Evolution

The **adaptions** living things make help them survive. If a living thing has an adaption which helps it survive better than others, then the adaption is **more likely to be passed** on to the next generation. This is called "natural selection" or "survival of the fittest".

Traffic Lights

What groups do we put living things into?	
What groups do we put animals into?	
What groups do we put vertebrates into?	
How would you describe the place a living thing lives?	
How do we measure the abundance of a plant?	
How can we identify a living thing?	
What is a food chain?	
What is DNA?	
What adaptions have animals made to survive in their habitats?	
What is “variation”?	
What types of “variations” are there?	
Why do adaptions help living things survive?	
Why do some adaptions get passed on to the next generation and some don’t?	

Heat and Energy

Date Due _____

Energy and Cooking

1. Create a poster about how heat energy is important in cooking

- **Why do we need heat energy to cook?**
- **Include three sources of heat energy.**
- **Why do we need to cook certain foods?**
- **What would your life be different if there was no heat energy?**

Make it bright, bold and colourful with some pictures!

Date Due _____

Heat and Energy 1

1. Give an example of each type of energy.

Electrical Energy: _____

Potential Energy: _____

Kinetic Energy: _____

Sound Energy: _____

Light Energy: _____

Heat Energy: _____

2. What is happening to the heat energy in a cup of tea when it gets cold?

How could this be avoided?.

3. Write down the energy changes happening in each device.

A battery powered torch

A hand bell

An iPod

A computer

A wind-up torch

4. During a power cut, Dr. Murray's parents once put a rug over the fridge. Why did they do this?

Date Due _____

Heat and Energy 2

1. Complete the table using the types of energy: "heat", "light", "sound", "potential", "kinetic" and "chemical".

Device	Energy change
Torch	Electrical to Light
iPod	E_____ to S_____
Bell	E_____ to S_____
Human	C_____ to K_____
Mountain climber	K_____ to P_____
Violin	K_____ to S_____
Car	C_____ to K_____

2. Why does it take a long time to heat Kirkcaldy High School Hall but quite a short time to heat Dr. Murray's classroom?

The school hall has a _____ ceiling so it takes a long _____ for the convection currents to _____ the heat energy around the _____. Dr. Murray's classroom has a _____ lower ceiling.

3. Write down three household objects where heat has to travel through a solid substance.

_____

_____

_____

4. What happens to the particles as heat travels through a solid substance?

As heat _____ through a solid substance the _____ vibrate. The heat moves through ____ solid substance as the atoms _____ into each other.

Chemicals

Date Due _____

The Alchemists

1. **Create a poster about the Alchemists**
   - **Who were the alchemists?**
   - **What were they trying to do?**
   - **What were the "four elements"?**
   - **Who are today's alchemists?**

Make it bright, bold and colourful with some pictures!

Test Date _____

Summary

Types of Energy and energy changes

- Heat energy (*e.g.* from a radiator)
- Potential energy (*e.g.* an elastic band or someone on a mountain)
- Kinetic energy (*e.g.* a moving car)
- Sound energy (*e.g.* the school bell)
- Light energy (*e.g.* a torch)
- Chemical energy (*e.g.* petrol or diesel fuel)

The objects we use every convert between the different types of energy
e.g. a car changes chemical energy into kinetic energy
*e.g.*a torch changes electrical energy into light energy

Conduction and Convection

When atoms and molecules get hotter, they vibrate
Heat energy **travels through a solid** when vibrating atoms and molecules **bump into each other**. This is called "**conduction**".
Heat energy **travels through a liquid or gas** when hot particles **move towards** cold particles. This is called "**convection**".

Heat loss

We try to **stop heat energy moving** around by using **insulation** such as gloves, hats and coats. Houses tend to **lose** most energy from **doors and windows** as it is **difficult to insulate** these.

Colour and heat

White and silver objects tend to **reflect** (bounce off) heat energy. **Black or dark** object tend to **absorb** ("soak up") heat energy.

Saving Energy

We can **save energy** by doing things like turning electrical items off when we're not using them, walking instead of taking the car and not boiling a full kettle for a cup of tea. There are lots of other examples!

Renewable and non-renewable energy generation

If an energy generation method is **renewable**, that means it will **not run out**.
If an energy generation method is non-**renewable**, that means it will **run out**.

Renewable energy generation Methods

- Wind power (Using a wind turbine to change kinetic energy into electrical energy)
- Solar power (using a solar panel to change light energy into electrical energy)
- Biomass (using fuel made from plants to change chemical energy into electrical energy)
- Wave power (using a wave power generators to change kinetic energy into electrical energy)
- Hydro-electric power (using a dam to change potential energy into electrical energy)

Non-Renewable energy generation Methods

- Burning coal, oil and gas (using fossil fuels to change chemical energy into electrical energy)
- Nuclear power (using uranium mined from the ground to change nuclear energy into electrical energy)

Disadvantages of renewable and non-renewable energies

- Wind and solar power are dependant on the weather
- Coal oil and gas will eventually run out
- People worry about the safety of nuclear power
- Wind and solar power can be expensive

Traffic Lights

What are the different types of energy?	
What are the energy changes happening in the objects we use?	
How does heat travel through a solid?	
How does heat travel through a liquid or gas?	
How do we try to stop heat moving around?	
Where does a house lose the most heat?	
What difference does colour make to the way that heat travels around?	
How can we save energy?	
What are the disadvantages of wind a solar energy?	
What is the difference between renewable and non-renewable energy?	
What are the types of renewable energies?	
What are the types of non-renewable energies?	
What are the advantages and disadvantages of renewable and non-renewable energies?	

Date Due _____

The Periodic Table

Atomic no. Symbol Name Electron Arr.

1 H Hydrogen																	2 He Helium
3 Li Lithium	4 Be Beryllium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium											13 Al Aluminium	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium											31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium											49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Caesium	56 Ba Barium											81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium											113 Uut Ununtrium	114 Fl Flerovium	115 Uup Ununpentium	116 Lv Livermorium	117 Uus Ununseptium	118 Uuo Ununoctium

1. Complete the Periodic Table above with the group (column) numbers (1-8/0) and group (column) names ("alkali metals", "halogens" and "noble gases".

2. Write down the names of three metal elements (from the left hand side of the "staircase" line).

3. Write down the symbols of three non-metal elements (from the right hand side of the "staircase" line).

4. Write down the numbers of a halogen, alkali metal and a noble gas.
Halogen –

Alkali metal –

Noble gas -

5. Write down the names of the alkali metals in order from most to least reactive.

6. Write down the name of a metal used in electrical wires.

Test Date _____

Summary

Signs of a Chemical Reaction

The three **main signs** that a chemical reaction has happened are a **colour change**, **solid produced** (goes cloudy) or a **gas is given off** (fizzing/bubbles).

Chemical Reactions and Energy

A chemical reaction often turns **chemical energy** into **light**, **sound** and **heat** energy.

Elements

The **elements** are the **simplest "building blocks"** that make up us, the earth and the universe. They are listed in the **Periodic Table**.

Metals and Non-Metals

You can mark the **metals** and the **non metals** by drawing a **staircase** down the periodic table (see over). **Metals conduct** electricity. Most **non-metals do not conduct** electricity **apart from carbon** which does.

Groups (columns) of elements

The elements are arranged in "**families**" or "**groups**" which are the **columns** in the Periodic Table. The have numbers from 1-8/0. Some of the families also have names.

Alkali Metals

The **alkali metals** are **group 1** in the Periodic Table. The **react violently with water** producing **hydrogen gas** and the **hydroxide** of the alkali metal.
e.g. lithium + water → lithium hydroxide

Noble Gases

The **noble gases** are group **8/0** of the Periodic Table. Most of the time, they **do not react with anything** which is why they are called "noble". They are often used in lights

Halogens

The **halogens** are **group 7** of the Periodic Table. They are quite reactive.

Compounds and Mixtures

A **compound** is **more than one element joined together**. In a **mixture**, the **elements are not joined together**. Compounds with **only two elements** in them get their names from the **name of the two elements with "ide" at the end**. If there is a **metal**, it is **written first**. If a compound name ends in "**ate**", then it contains **oxygen**.
e.g. iron + oxygen → iron oxide
e.g. sulphur + chlorine → sulphur chloride
e.g. iron + carbon + oxygen → iron carbonate

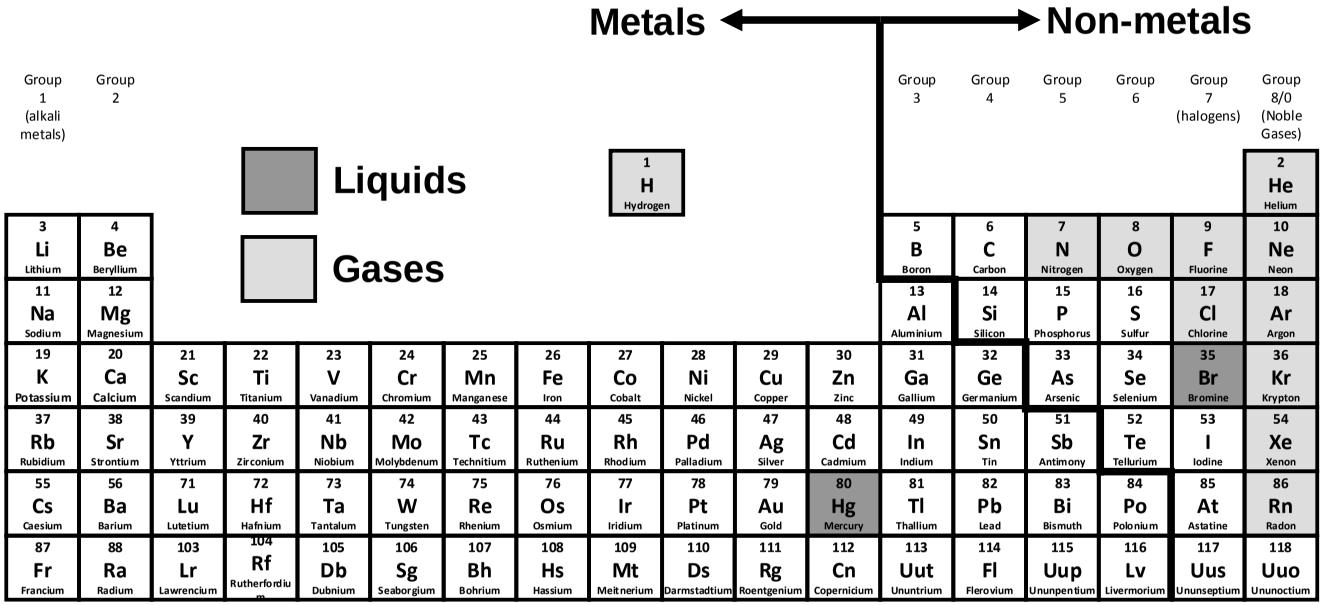
Writing down Chemical Reactions

A chemical reaction can be **written** with the **reactants** (things you start with) on the **left** and the **products** (things you end up with) on the **right** with an **arrow** pointing between them.
e.g. hydrogen + oxygen → hydrogen oxide

Traffic Lights

What are the three signs that a chemical reaction has happened?	
What types of energy can chemical energy be converted into?	
What is an element?	
How do elements get their names?	
Which elements are liquids and gases at room temperature?	
Which elements are metals and which are non-metals?	
How can we tell the difference between metals and non-metals?	
What is the number of each group (column) of elements?	
Which groups are the alkali metals, halogens and noble gases?	
What happens when alkali metals are added to water?	
What is the order of reactivity of the alkali metals (most to least reactive)?	
Why are the noble gases called “noble”?	
What is the difference between a compound and a mixture?	
How can we write down what has happened during a chemical reaction?	

The Periodic Table



Electricity

Date Due _____

Discovery of Electricity

1. **Create a poster about the Discovery of Electricity**
   - **How did the ancient peoples know about electricity?**
   - **Which scientists discovered electricity?**
   - **How did they discover it?**
   - **What were the first uses of electricity?**
   - **What do we use electricity for now?**

Make it bright, bold and colourful with some pictures!

Date Due _____

Electrical Components

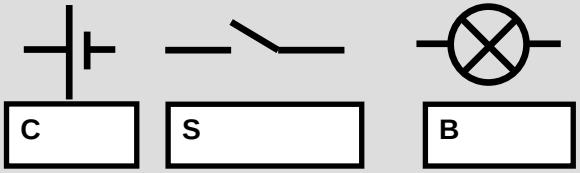
1. Write down the name of an electrical device you could not live without. Why could you not live without this device?
I could not live without my
_____

because _____
_____
_____
_____

2. Electricity likes to flow to the ground. What is static electricity?

Static _____ is electricity that _____ flow to the _____.

3. What are these the electrical symbols for?



C S B

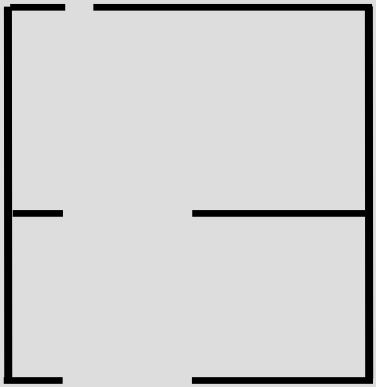
R B V

4. Complete the circuit diagram with a cell, bulb and switch in series.

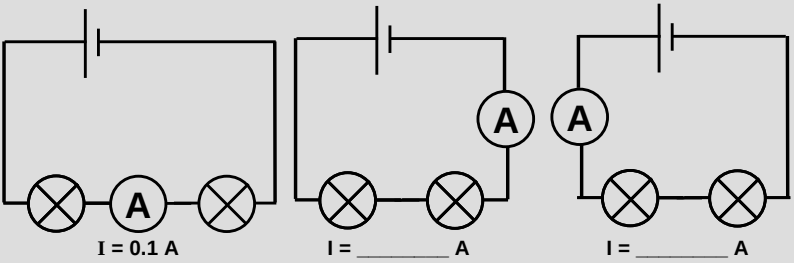
Date Due _____

Homework – Series and Parallel

1. Complete the circuit diagram with a cell, bulb and switch in parallel.

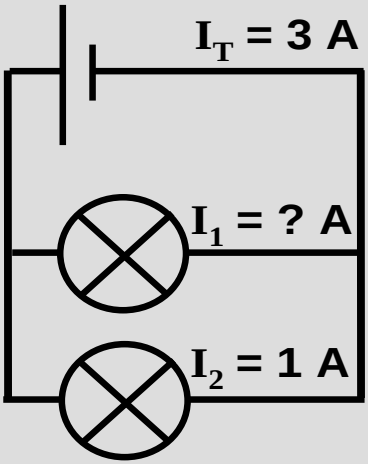


3. Complete these circuits showing the currents. Remember that the current is always the same no matter where you put the meter!

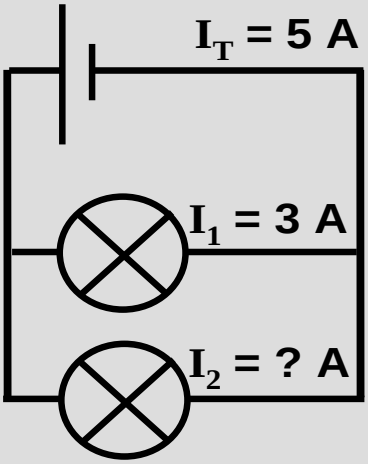


I = 0.1 A I = _____ A I = _____ A

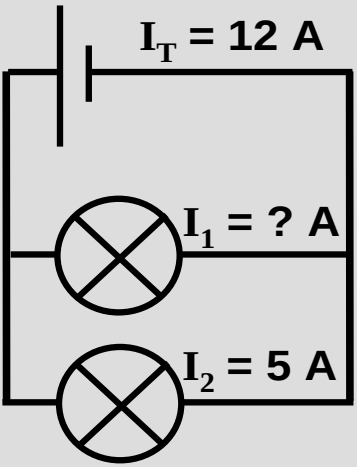
3. Complete these circuits showing the currents. Remember that the currents in the bulbs should add up to the current in the cell.



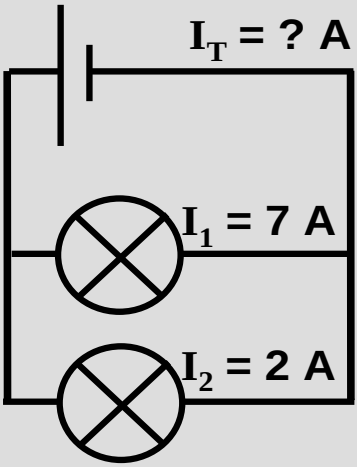
I_1 = _____ A



I_2 = _____ A



I_1 = _____ A

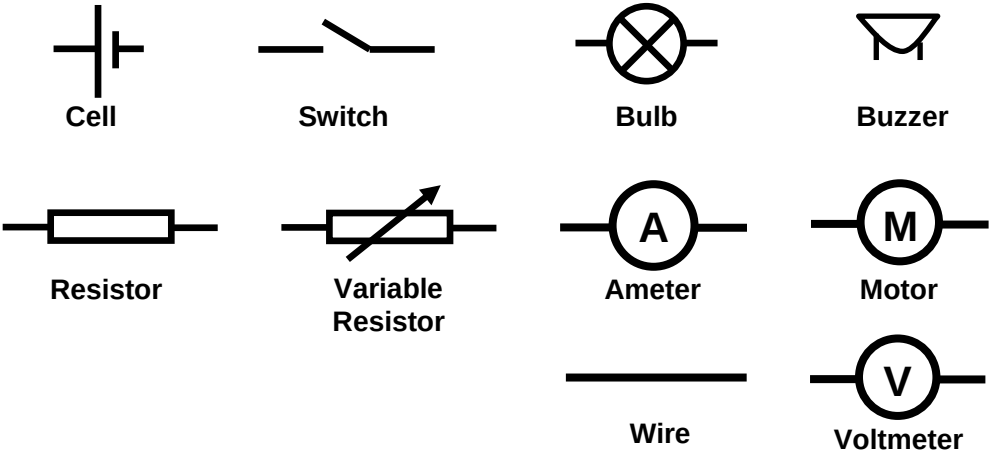


I_T = _____ A

Date _____

Summary

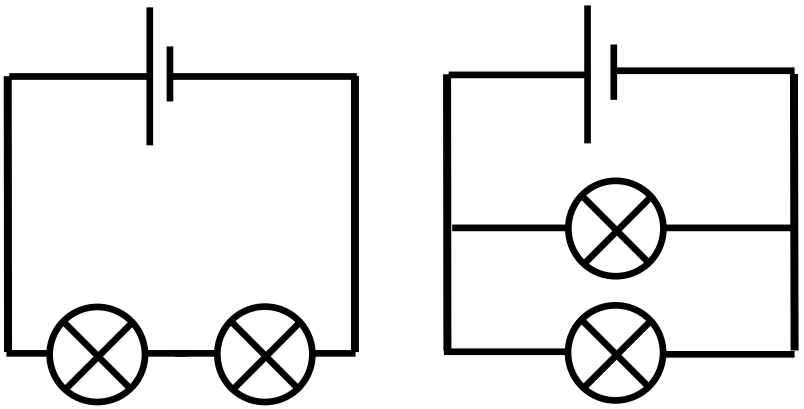
Electrical Component Symbols



A "**battery**" is more than one cell joined together.

Series and Parallel

In **series** circuit, the components are joined in a **circle**. In a **parallel** circuit, the components are joined in a **chain/ladder**.



Bulbs in Series **Bulbs in Parallel**

Switch

A switch is the opposite of a door. When it is **closed**, electricity will **flow through it**. When it is **open**, electricity will **not flow through it**.

Current and voltage

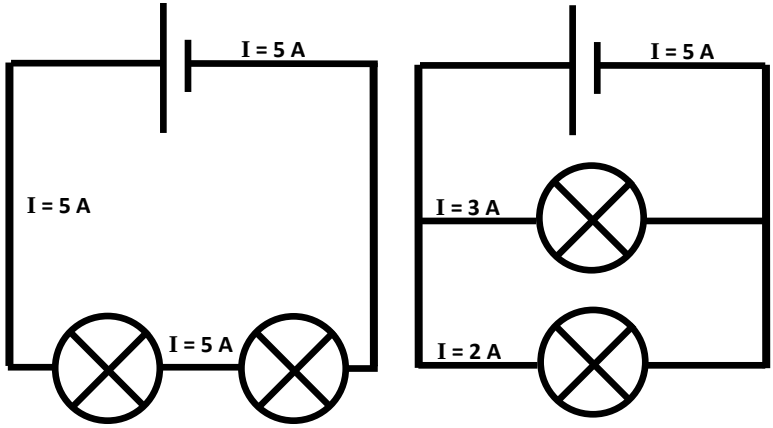
Electricity is carried by **electrons**. Electrons are **in the wire** even if there is no electricity flowing. The **cell is like a "pump"** that make the electrons flow.

Current is a bit like **how fast** the electrons flow. Current has the **symbol "I"** and is measured **in amps** which have the **symbol "A". Current** is measured "**through**" components**.**

Voltage is a bit like **how hard the cell "pumps"** the electrons. Voltage has the **symbol "ς"** and is measured **in volts** which also have the **symbol "V".**

Voltage is measured "**across**" components"

In a **series** circuit, the **current is the same** all round the circuit. In a **parallel** circuit, the current **splits along each branch**. The current at the cell is the total current.



In a **parallel** circuit, the **voltage is the same** across every component. In a **series** circuit, the voltage **splits across each component**. The voltage across the cell is the total voltage.

Resistance

A **resistor slows down the electrons** in the same way that a narrow corridor slows down Kirkcaldy High School students! Resistance has the symbol “R” and is measured in ohms which have the symbol “Ω”.

Traffic Lights

What is the difference between a cell and a battery?	
What is the electrical symbol for a cell?	
What is the electrical symbol for a bulb?	
What is the electrical symbol for a buzzer?	
What is the electrical symbol for a switch?	
What is the electrical symbol for an ameter?	
What is the electrical symbol for a voltmeter?	
What is the electrical symbol for a wire?	
What is the electrical symbol for a motor?	
What is the difference between a series and a parallel circuit?	
When does a switch let electricity through?	
How does electricity travel through a wire?	
What is current?	
What is the symbol for current?	
What unit is current measured in?	
What is voltage?	
What is the symbol for voltage?	
What unit is voltage measure in?	
How does current change in different parts of a series circuit?	
How does current change in different parts of a parallel	

circuit?	
How does voltage change in different parts of a series circuit?	
How does voltage change in different parts of a parallel circuit?	
What is resistance?	

Cells and Reproduction

Date Due _____

Unusual Reproduction

1. Create a poster about unusual methods of reproduction

- **Chose three plants or animals (or a mixture!) that reproduce in unusual ways**
- **How does this plant or animal reproduce?**
- **In what way is this unusual?**
- **Why does the plant or animal use this method and not a "normal" method? ☺**

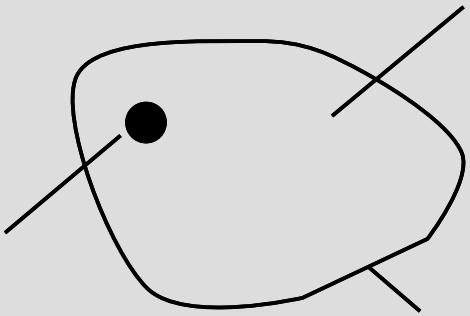
Interesting examples might be: bedbugs, trout, barnacles, duck-billed platypus, venus fly trap.

Make it bright, bold and colourful with some pictures!

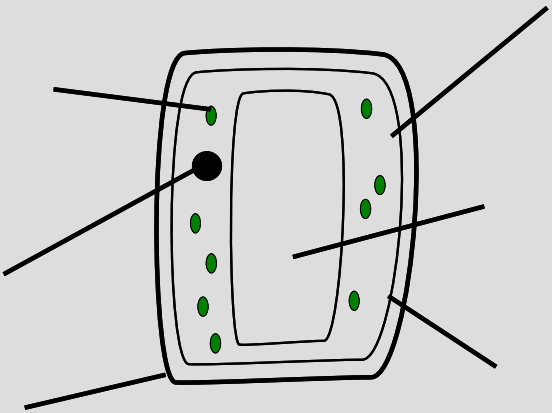
Date Due _____

Cells

1. Label the parts of an animal cell



2. Label the parts of plant cell



3. Complete the table

Name	What is it for
Cell wall	
Cell membrane	
Vacuole	
Cytoplasm	
Chloroplasts	
Nucleus	

Date Due _____

Pregnancy

1. What do we call the baby…
Just after fertilisation?

Z_____

Between 5 days and 8 weeks after fertilisation?

E_____

8-40 weeks after fertilisation?

2. Why are there only three days a month in which a woman can get pregnant?

The woman only _____ an egg once a month. This egg _____ for three days. After that it _____ and comes out _____ the body during menstruation (period).

3. Write down two ways in which humans reduce the chances of pregnancy (contraception). How do they work?

Method 1: _____

works by _____

_____

Method 2: _____

works by _____

4. Match the parts to their functions in the table below.

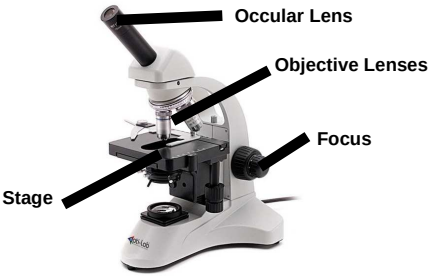
Part	What it is for
Vas deferens	Place where baby develops
Fallopian tube	Produces sperm
Cervix	Opening between vagina and uterus
Vagina	Produces fluid for the sperm to swim.
Testicles	Produces eggs
Ovaries	Produces fluid for the sperm to swim
Penis	Inserts into female
Prostate gland	Transports sperm
Uterus/womb	Receives sperm
Prostate Gland	Transports eggs

Test Date _____

Cells and Reproduction

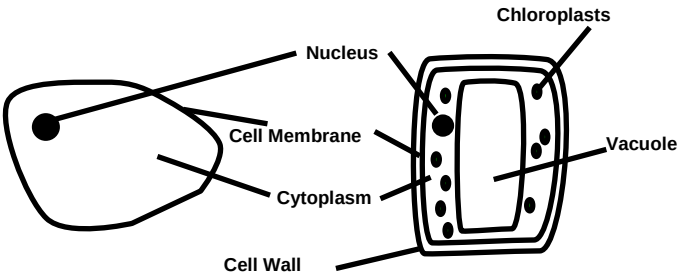
Microscopes

We can view small things using a **microscope**. The microscope has two **lenses** of different **magnifications**. The **overall magnification** is the two magnifications multiplied together. We often use a **dye** to help us see cells better.



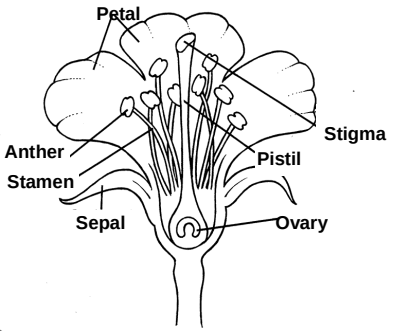
Cells

Cells are the **building blocks** of all life. They can have different jobs such as muscles, neurons (brain cells) or sex cells for reproduction. Plant and animal cells are different.



Name	What is it for
Cell wall	Holds the cell together
Cell membrane	Controls what enters and leaves the cell.
Vacuole	Contains cell sap
Cytoplasm	Where chemical reactions occur.
Chloroplasts	Contains chlorophyll (green)
Nucleus	Stores DNA. Controls the cell

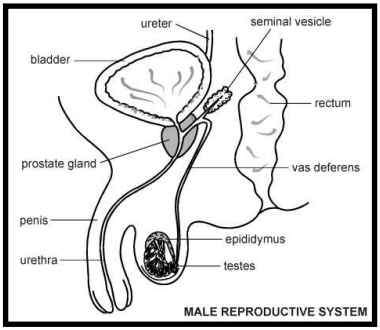
Parts of a flower

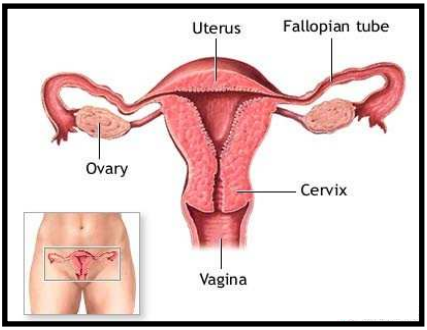


Name	What is it for
Anther	Produces pollen (male sex cell)
Petal	Attracts insects and other pollinators
Stamen	Provides support for the anther
Stigma	Traps pollen
Sepal	Protects the flower as a bud
Pistil/Style	Tube for pollen to travel through
Ovary	Produces eggs (female sex cell)

Pollen is **carried by wind or by insects** from the anther of one flower to the stigma of another. The pollen then forms a tube going down the pistil/style to reach an egg in the ovary. Once the egg has been **fertilised** (when the sex cells meet and combine), the ovary often becomes a fruit which we can eat!

Human Male and Female Reproductive System





Traffic Lights

How can we look at small things?	
How can we make cells easier to see under a microscope?	
How can we work out the total magnification of a microscope?	
What is a cell?	
What jobs can cells do?	
What are the parts of a plant cell?	
What are the parts of an animal cell?	
What are the parts of a cell for?	
What are the parts of a flower?	
What are the parts of a flower for?	
What is fertilisation?	
How does fertilisation happen in flowers?	
What is puberty?	
What are the parts of the human male and female reproductive systems?	
What is each part of the human reproductive system for?	
How does fertilisation happen in humans?	
Where does fertilisation happen in humans?	
What do we call the baby during pregnancy?	
How should a baby be born?	
How can we prevent pregnancy?	