

LIVING THINGS - LIFE PROCESSES - MRS NERG

ANIMALS

MOVEMENT REPRODUCE SENSITIVITY NUTRITION
EXCRETION (GET RID OF WASTE) RESPIRATION (BREATHE) GROWTH

Animals need FOOD WATER OXYGEN (from AIR) -

BALANCED DIET is important for HEALTH

The body is made up of VITAL ORGANS which work in SYSTEMS

SYSTEMS -

CIRCULATION/RESPIRATION - Heart (which is like a pump) pumps blood around the body **away** from the heart through **arteries** and **back** to the heart through **veins/LUNGS** take in AIR, Use OXYGEN Breathe out CARBON-DIOXIDE
EXERCISE makes the heart beat faster, (to send OXYGEN to the muscles quickly) so the PULSE beats faster

Smoking and being fat can lead to HEART DISEASE.

SYSTEMS - SKELETAL/MUSCULAR - Skeleton **holds** the body up and **protects** the organs, helps in **movement**, MUSCLES move parts of the body by CONTRACTING muscles often work in pairs

LIFE CYCLE - BABY - CHILD - ADOLESCENT/PUBERTY - ADULT - FEMALE BECOMES PREGNANT - BABY GROWS INSIDE MOTHER - BIRTH

Plants and Animals are SUITED or ADAPTED to the environment they live in eg Fish have fins/gills; they are streamlined etc

PREDATORS hunt PREY . Animals are consumers they CONSUME other animals or plants A FOOD CHAIN shows this, it starts with a PRODUCER (A Plant) - this is eaten by a CONSUMER (an Animal) and so on

The FOOD CHAIN **MUST** be arrowed from the PRODUCER to the CONSUMER and onwards

KNOW the differences **VERTEBRATES - MR FAB**
MAMMALS...REPTILE...FISH...AMPHIBIAN...BIRDS

There are tiny objects called MICRO-ORGANISMS - Bacteria, Fungi and Viruses - also known as MICROBES - ALL VIRUSES ARE HARMFUL. Some fungi/bacteria can be useful/harmful

USEFUL - Fungi Yeast in bread/brewing..... Bacteria to break down dead materials; help digestion; make cheese; vinegar;

HARMFUL - bacteria on your teeth; fungi causes Athlete's foot

PLANTS

Plants need WATER OXYGEN WARMTH for GERMINATION (WOW)

Plants need WATER CARBON DIOXIDE WARMTH SUNLIGHT NUTRIENTS for GROWTH Mnemonic - (**WCWSN**) - Weird Cats Walk Stupidly at Night

Plants produce their own food in the leaves by using SUNLIGHT/CARBON DIOXIDE/WATER-Photosynthesis

Parts of the plant - ROOTS (holds the plant down and takes in WATER and NUTRIENTS

STEM - Holds up the plant and the water and nutrients go through the stem to the other parts of the plant

LEAF FLOWER

LIFE CYCLE - SEED GERMINATES - SEEDLING - PLANT - FLOWER - FLOWER IS POLLINATED - FERTILISATION-FLOWER DIES - SEED IS SPREAD - STARTS AGAIN

Seeds - Plants **produce** seeds to **continue** the species

Seeds - Plants **disperse** seeds to give the seeds a better chance of **survival** eg germinating and growing on.

Seeds dispersed (spread) - by AIR/WIND, (Sycamore); by ANIMAL, (Sticky Bud); by EXPLOSION, (Conkers/Peas etc)

SEPAL -base of flower protects the bud

PETALS- Protects the Plants Reproduction Organs

CARPEL = Female part of flower ... STIGMA STYLE OVARIES

STAMEN = Male part of flower ANTHER FILAMENT (Anther produces POLLEN)

POLLEN is transported from the MALE to the FEMALE this is called POLLINATION (Pollination by wind; animal etc)

When the pollen grain fuses with egg cell is called FERTILISATION

SPACE

SUN EARTH MOON are (SPHERICAL) = BALL Shaped

As EARTH ROTATES ON ITS AXIS (Once in 24 Hours), the SUN **appears** to move.

It is LOW in the MORNING, HIGH at MIDDAY (NOON) and LOW in the EVENING.

This means the SHADOWS are LONGEST in the MORNING/EVENING and SHORTEST at MIDDAY

NIGHTTIME is when we have turned on the EARTH to face away from the SUN

DAYTIME is when we have turned on the EARTH to face towards the SUN

The EARTH rotates (spins) on its axis once in every 24 hours

The EARTH goes around the SUN (orbits) once in every 365days

The MOON goes around the EARTH once in about 28 Days

MATERIALS

Materials are used because of their **properties**

glass - see through etc

steel - strong etc

plastic - waterproof etc

wood - doesn't let heat pass easily

Materials that keep HEAT in things are called THERMAL INSULATORS

Materials that let HEAT out are called THERMAL CONDUCTORS

Materials that let LIQUIDS through are called PERMEABLE

Materials that DON'T let LIQUIDS through are called IMPERMEABLE

ALL materials can be classified as

SOLID - it keeps its shape (wood, cloth, paper, wool etc)

LIQUID - it will pour (downwards), and cover an area; all joined together (Water, pop, coffee, tea)

GAS - it will fill up a space, it can be squashed up (air, carbon-dioxide, steam, inside bubbles in pop or balloon); it can rise up

NOTE THAT petrol is a liquid, but Americans call it Gas

If materials are BURNT, this cannot usually be REVERSED

This is usually a chemical change....

MELTED materials can be FROZEN this can be REVERSED

FROZEN objects can be MELTED this can be REVERSED

A MIXTURE, means two materials mixed together, like sand and rocks.

A SOLUTION is if one material is DISSOLVED in another, like sugar dissolves in tea or coffee.

If a material will dissolve, it is said to be SOLUBLE

SEPARATING MATERIALS

If the mixture is made up of things like peas and sugar, you would SIEVE the mixture.

If the mixture is made up of things like orange juice and flesh and pips, you would FILTER the mixture.

If the solution is made up of things like salt which is dissolved in water, you would BOIL the solution until the water EVAPORATED - you would be left with the salt

When a gas, like steam hits a cold surface, like your bathroom mirror or window, it turns back into liquid, this is called CONDENSATION

WATER CYCLE - Rain falls on hills - Streams/Rivers - Flows to the Sea - the Sun then EVAPORATES - the water, it CONDENSES in the air as CLOUDS - Rains

LIGHT

LIGHT comes from a SOURCE

We see LIGHT because the light ENTERS OUR EYES

LIGHT passes through some materials but not others - that's why we get SHADOWS

LIGHT is REFLECTED from SURFACES eg Mirrors Polished objects

SOUND

SOUNDS are made when objects VIBRATE - You can sometimes see vibrations VIBRATIONS travel through the AIR (they also travel through SOME materials)

You can change the PITCH and LOUDNESS of some objects

Mnemonic - SHELL - **Shorter** the **Higher** & **Longer** the **Lower**

FORCES

NEWTON METERS are also called FORCEMETERS or SPRING BALANCES

GRAVITY is the force pulling everything down... to the centre of the earth

FRICTION is a gripping force were two objects rub together, like your shoes along the floor, it slows things down

AIR RESISTANCE is a type of friction - it is the force of air pushing back at something falling or moving through the air

UPTHRUST is the force of water pushing back at something floating/sinking

When SPRINGS or ELASTIC BANDS are STRETCHED they PULL BACK

When SPRINGS are COMPRESSED (SQUASHED) they PUSH BACK

FORCES act in different directions

FORCES can BALANCE

FORCES can stop things, slow down objects, speed them up, or change their direction or shape.

ELECTRICITY/MAGNETS

CIRCUIT - **MUST BE** connected to both terminals on a battery + and -

A SWITCH can turn on or off a CIRCUIT

CIRCUITS can be shown as DIAGRAMS

Bulbs (and/or batteries) can be connected in SERIES

When a circuit has the bulbs in series, if one bulb goes out, they all do.

Materials that DON'T LET electricity through are called INSULATORS

Materials that LET electricity through are called CONDUCTORS

Make a bulb dimmer by adding bulbs or using longer wire or less powerful batteries

Make a bulb brighter by removing bulbs or using shorter wire/more powerful batteries

MAGNETS ATTRACT MAGNETIC MATERIALS

MAGNETIC MATERIALS are Mainly objects that contain **IRON** like **STEEL-**

MNEMONIC - SNIC - Steel, Nickel, Iron, Cobalt

If you put **NORTH** to **NORTH** or **SOUTH** to **SOUTH** with 2 magnets they will REPEL each other

If you put **NORTH** to **SOUTH** or **SOUTH** to **NORTH** with 2 magnets they will ATTRACT each other