Name:……

Class: ……

Teachers: ……

Sheringham High School

Year 7

Core Questions Booklet

Core questions are being used in your child's Science lessons to help retain previously taught knowledge. This is being carried out through low-stakes quizzes, meaning that student scores are not recorded. The main purpose is to review knowledge and improve memory of topics. Over time, students will remember more, leading to increased confidence and enjoyment in Science.

Support your child's learning:

We suggest that pupils work with each other or with adults at home to memorise a few at a time in much the same way you may have prepared for spelling tests in the past.

Time required: 15 minutes a week

How to use:

1. Find somewhere quiet and ensure your child can write their answers on something
2. Choose topic/s which your child has learnt at school. Your child should know, but you can also refer to our Curriculum Map on the school website.
3. Choose 5 questions to test your child, it may br a good idea to choose a few questions they haven't remembered previously.
4. Ask them one question at a time.
5. When you've completed all 5 questions, go through the answers together, mark correct answers and improve incorrect answers.
6. Note which questions your child has remembered and not remembered in this booklet, this will help you to identify which questions to repeat next time.

Energy

Question	Answer
What is energy?	Energy is a calculation, or number, that tells us how much work a thing can do.
What units can we use to measure energy?	Joules or calories
How many joules are there in a kilojoule?	1,000 J
How many joules are there in a megajoule?	1,000,000 J
How many joules are there in a millijoule?	0.001 J
How many joules are there in a microjoule?	0.000001 J
Where can I find out how much energy is stored in food?	Food nutrition labels.
What does food provide our bodies with?	Food provides a **store** of energy
Why do athletes need more fuel than sedentary people (e.g. Office workers)?	The body is transferring energy faster because the athlete is doing more work.
Name the energy stores.	Kinetic, thermal, nuclear, chemical potential, elastic potential, gravitational potential
What are the four different pathways energy can be transferred by?	Energy can be transferred mechanically (physically pushing or pulling), by light and sound (waves) through heating or by electricity.
What is the law of conservation of energy?	Energy can never be created or destroyed, only transferred.
What happens to wasted energy?	Wasted energy usually transfers to the surroundings as heat, either through friction or by heating
In which direction is energy transferred by heating?	From the thing with high thermal store to the thing with a low thermal store, until they are the same temperature.
What is the definition for efficiency?	Efficiency is the fraction of energy transferred usefully out of all the energy that is put in.
What is the formula for efficiency?	Efficiency = useful Energy transferred/total Energy transferred
How can we waste less energy?	We have to try and stop the transfers that are not useful. E.g. Oil prevents friction, ball bearings prevent frictions, and insulation prevents heating.
What is a fuel?	A fuel is a store of chemical energy that can be transferred for heating or transferring through electric cables or making things move.
State the main components of a power station.	Furnace, turbine, generator, cooling tower
What does renewable mean?	Renewable fuels are energy resources that can be replenished and won't run out in our lifetimes.
Name three renewable resources.	Solar, hydroelectric, geothermal, tidal, wave, biomass, wind.

What does non-renewable mean?	Non-renewable fuels are energy resources that will run out and cannot be replenished in our lifetimes.
Name two non-renewable resources.	Fossil fuels (Coal/oil/gas) and nuclear fuels (uranium-235)
What is the definition of power?	Power is the rate of energy transfer.
What is the formula for Power?	$Power = \frac{Energy}{time}$
Which home appliances are the most powerful?	Generally, any appliances that have to transfer lots of energy quickly to heat up things (Hair Dryer, oven, iron, microwave, kettle) use lots of energy quickly, and so are powerful.
What are the units for energy transfer in the home?	Kilowatt Hours.

Cells and Microscopy

Question	Answer
Name four parts of a microscope.	Stage, objective lens, eyepiece lens, light, fine focus, course focus.
State the functions of the lenses on a microscope.	Magnifies object.
State the function of the microscope stage.	Holds microscope slide.
State the function of a microscope's focussing dials.	Produces a clear image of the object.
Define: cell.	The smallest unit of a living organism.
Name the four main components of animal cells.	Cell membrane, cytoplasm, mitochondria, nucleus.
Describe the function of the cell nucleus.	It controls the activities of the cell and contains genetic material.
State the function of the cell membrane.	It acts as a barrier around the cell and controls what can move in and out.
Describe the function of the mitochondria in cells.	They carry out aerobic respiration to release energy.
Where do chemical reactions occur in the cell?	Cytoplasm.
Name three differences between animal and plant cells.	Plant cells have a vacuole, chloroplasts and a cell wall, animal cells do not.
List three similarities between animal and plant cells.	Both have a nucleus, cell membrane, cytoplasm, mitochondria.
Describe the function of the chloroplast within plant cells.	Carry out photosynthesis.
State the function of the cell wall in plant cells.	It strengthens the cell and provides support.
State the function of the cell sap within the vacuole of a plant cell.	It keeps the cell firm.
Define the term "specialised cell".	Cells that can perform particular functions or functions.

Name two examples of specialised cells.	Red blood cell, sperm cell, egg cell, nerve cell, muscle cell, root hair cell, ciliated cell etc.
Relate a sperm cell's structure to its function.	A tail (flagellum) to swim, streamlined, many mitochondria for energy.
Define the term "diffusion".	The movement of particles from a high concentration to a low concentration.
Name two substances that diffuse into a body cell.	Glucose (food particles) and oxygen.
Name a substance that diffuses out of a body cell.	Carbon dioxide.
State what is uni-cellular means.	A living thing made up of only one cell.
State two structures found in both an animal cell and amoeba.	Cytoplasm, nucleus, cell membrane.
State one difference between a euglena and an amoeba.	Euglena has an eye spot, flagellum, chloroplast and carries out photosynthesis.
List the following in size order from smallest to biggest: organism, tissue, cell, organ system, organ.	Cell → tissue → organ → organ system → organism

Movement

Question	Answer
State why a muscle is a tissue?	It contains many specialised muscle cells working together to cause movement
What happens to the length of a muscle when it contracts?	The muscle gets shorter
What is an antagonistic muscle pair?	Muscles working together, one contracts whilst the other relaxes.
Name some parts of your skeleton	Skull, jaw bone, collar bone, pelvis, femur, kneecap, backbone…
State the functions of a skeleton	To support the body, protect vital organs, allow movement and to make blood cells
State where joints are found	Where two or more bones join together
What stops your bones from rubbing against each other?	Cartilage
What connects and holds bones in place	Ligaments
How are muscles attached to bones?	By tendons
Name the tissue that produces red and white blood cells	Bone marrow

Particle Model

Question	Answer
What is the smallest part of any material?	A particle.
What is a substance?	A material that has the same properties all the way through
What is meant by the properties of a substance?	A description of what a substance looks like and how it behaves
What is density?	How heavy a substance is for its size
What are the 3 states of matter?	solid, liquid and gas
How are the particles arranged in a solid?	The particles are in a fixed pattern, touching their neighbours. There is very little space between particles.
How are the particles arranged in a liquid?	The particles are not in a fixed pattern, they come into contact with different particles when they move.
How are the particles arranged in a gas?	The particles are widely spaced.
How do particles move in a solid?	They vibrate on the spot with the least energy.
How do particles move in a liquid?	They move over each other.
How do particles move in a gas?	They move randomly throughout the whole container with the most energy.
Why can't you compress a liquid or a solid?	Its particles touch their neighbours
What state change takes place when a substance freezes?	Liquid to solid
What state change takes place when a substance melts?	Solid to liquid
What is a melting point?	The temperature at which a substance changes from solid to liquid.
What is the state change that takes place when a substance boils?	Liquid to gas
What is a boiling point?	The temperature at which a substance changes from liquid to gas.
What is the boiling point of water?	100°C
What state change takes place when a substance sublimes?	Solid to gas
What state change takes place when a substance condenses?	Gas to liquid
What is diffusion?	When particles move and spread out from an area where there are lots of particles to where there are few.
What is gas pressure?	The force caused by particles colliding with the walls of their container and each other.

Why does adding more air increase the pressure inside a container?	There are more particles causing more frequent collisions with the walls inside the container
What is an element?	A substance that contains just one type of atom
What is an atom?	An atom is the smallest particle of an element that can exist
What is a molecule?	A substance made from a group of two or more atoms joined together.
What is a compound?	A substance made from a group of two or more atoms from different elements joined together.

Forces and Speed

Question	Answer
Can you list different types of forces?	Friction, Gravity, Electrostatic, Magnetism, Tension, Upthrust, Reaction Force, air resistance, thrust.
What effect does a force have on an object?	Push, pull. Change speed and direction.
What is the scientific unit for force?	Newtons.
What is an interactive pair?	A pair of forces of equal size acting in opposite directions.
How do we measure forces?	With a Newtonmeter.
What is a contact force?	A force that occurs when objects are touching, e.g. friction.
What is a non-contact force?	A force that occurs when objects are **not** touching, e.g. gravity
What is a resultant force?	All of the forces acting on an object added together.
What is a balanced force?	When the forces acting on an object are the same size but act in opposite directions
What are unbalanced forces?	When the forces acting in opposite directions on an object are NOT the same size
How would you represent balanced or unbalanced forces?	Arrow diagrams to scale.
What happens to an object if the forces acting on it are unbalanced?	It changes speed (accelerates, decelerates).
What happens to an object if the forces acting on it are balanced?	It remains stationary or moving at a constant speed.
What is speed?	A measure of how far something travels in a particular time.
What is speed measured in?	m/s (metres per second).

How would you calculate speed?	S = d / t. speed= distance/time.
Describe relative motion	Different people judge speeds differently if they are also moving. (walking on a moving train).
How would you represent a journey on a distance time graph?	A straight diagonal line represents constant speed. A horizontal line represents it being stationary.
How would you work out speed from a distance-time graph?	The gradient represents the speed. (Take the total distance and divide it by the total time).
What is acceleration?	How quickly your speed is changing.

Earth Structure

Question	Answer
Name the three layers of the Earth.	Crust, mantle, core
State the thickness of the Earth's crust	8-40km
State what 'mineral' means.	Naturally occurring metal compounds
Describe the state of matter of the inner and outer core.	Inner core is solid Outer core is liquid.
Name the three types of rock.	Sedimentary, igneous, metamorphic.
Describe three properties of sedimentary rocks.	Porous, soft, made of separate grains.
List the four stages in making sedimentary rocks	Weathering, transportation (erosion), deposition, compaction/cementation
State three properties of igneous rocks	Hard, durable, and not porous
Describe how marble and slate are formed.	• Marble is formed when limestone below the Earth's surface is heated. • Slate is formed when high underground pressure squashes mudstone.
Describe one way that rocks change over time	• Weathering breaks down existing rock • sediments join together to make new rock • lava freezes to make rock • high pressure and/or high temperature deep within the crust
State what is meant by 'uplift'	Uplift is the process by which huge forces inside the Earth push rocks upwards
Name the processes that changes: **a. metamorphic rock into magma** **b. magma into igneous rock** **c. layers of sediment into sedimentary rock**	a. Melting b. cooling and freezing c. cementation or compaction

Separating Mixtures

Question	Answer
What is a pure substance?	Something that contains only **one** substance. **All** pure substances have a fixed and unique boiling point.
What is a mixture?	A substance that contains **two** or more different substances, which may be elements or compounds. These substances can be **easily separated** as they are not chemically joined.
What is a solution?	A solution is made when a solid or a gas (known as the **solute**) dissolves in a liquid (known as the **solvent**).
Why is water is known as the "Universal solvent"	Water is able to dissolve a large number of different substances.
What does solubility mean?	The amount of solute that will dissolve in a given amount of a solvent at a fixed temperature.
How does increasing the temperature affect the solubility of a solute?	Increasing the temperature will increases the solubility. It also helps solutes to dissolve faster.
What does it mean if you have a saturated solution?	The solvent has dissolved the maximum amount of a substance that it can.
Which method is used to separate mud and water?	Filtration
Why can filtration be used to separate sand and water?	Sand particles will not go through the gaps in the filter paper whereas water particles will.
What is the name given to the liquid that passes through filter paper?	Filtrate
What is the name given to the solid that doesn't pass through filter paper?	Residue
What method is used to get salt from sea water?	Evaporation of water and crystallisation of the salt
What method is used to get water from sea water?	Distillation
Which property of salt and water allows the water to be obtained by distillation?	The boiling points of salt and water are different.
Which method is used to separate a mixture of different food colourings?	Chromatography
What should you always use when writing on chromatography paper?	A pencil as pencil marks are insoluble in most solvents.

How can I tell from a chromatogram if a dye is insoluble in the solvent used?	It will not move from the line.

Sound

Question	Answer
What is sound?	Sound is a wave which travels as vibrations.
What is the speed of sound in air?	Sound travels at 330 m/s in air.
What state of matter does sound travel fastest in?	Sound travels fastest in solids.
Why does sound travel fastest in a solid?	Sound travels fastest in solids because the particles are closer together than in liquids or gases.
What does sound need in order to travel?	Sound needs a medium (particles) to travel through.
Why can't we hear the sound of the sun?	We can't hear the Sun because there are no particles in Space (it is a vacuum).
What type of wave is sound an example of?	A sound wave is a longitudinal wave.
What are the squashed up of a sound wave called?	The squashed areas in a sound wave are called compressions (high pressure).
What are the stretched-out bits of a sound wave called?	The stretched areas in a sound wave are called rarefactions (low pressure).
What is pitch?	Pitch tells us how high or low a sound is.
What is frequency?	Frequency is how many sound waves pass a point in one second.
What is the amplitude of a sound wave tell us?	Amplitude tells us the loudness of a sound.
How can we see sound waves?	On an oscilloscope or equalizer.
What does sound transmit?	Sound waves transmit energy.
What are the parts of the ear called, working from the outside inwards?	Pinna (ear flap) → ear canal → ear drum → ossicles → cochlea → auditory nerve
What is the range of human hearing?	The range of human hearing is 20 – 20,000Hz
What is ultrasound?	Sounds above 20,000Hz are called Ultrasound.
What is infrasound?	Infrasound refers to sounds below 20 Hz
What is ultrasound used for?	Ultrasound is used for scanning soft tissue inside the body (e.g. scans of babies in the womb), bat echolocation, dolphin communication.
What is infrasound used for?	Infrasound is used by elephants for communication, and is generated by earthquakes.

Variation

Question	Answer
State what is meant by "variation".	The differences in characteristics of organisms within and between species
State what is meant by "species".	A group of organisms that are so similar that they can mate and produce fertile offspring
Describe what causes variation	Genetics and the environment
State what is meant by continuous variation.	Where differences in characteristics between living things have a numerical value.
Give two examples of continuous variation	Height, body mass, hair length, arm span.
State what is meant by discontinuous variation	Where differences in characteristics between living things can only be grouped into categories
Give two examples of discontinuous variation	Blood group, eye colour, hair colour, dominant hand, ability to roll tongue
Define: adaptation	A characteristic that helps an organism survive in its environment
Give two ways a great white shark is adapted to its environment	Many Sharp teeth to rip into flesh, streamlined shape to swim fast through the water, grey colour at the top of the body to camouflage from above, white colour on the belly to camouflage from below, good sense of smell to detect blood,
Give two ways a cactus is adapted to its environment.	Thick waxy layer to reduce water loss, stems that store water, spines instead of leaves to prevent animals eating the plant, widespread roots to collect as much water as possible from a wider area.
State what is meant by Natural Selection	A process by which a species changes over time in response to changes in the environment, or competition between organisms, in order for the species to survive
Name who came up with the Theory of Natural Selection	Charles Darwin
Define what extinct means.	When no more individuals of a species remain anywhere in the world.
State what is meant by biodiversity.	The variety of plant and animal life in a particular habitat
State two ways scientists can preserve biodiversity	Gene banks, captive breeding, conservation
Name 4 types of gene bank	Seed bank, tissue bank, cryobank, pollen bank
Describe DNA?	The molecule of inheritance shaped as a double helix
Who discovered DNA	Watson, Crick, Franklin and Wilkins
How many chromosomes do humans have?	46 (26 pairs)
Define gene and state where they are found	a unit of inheritance found on a chromosome

State what is meant by allele	an alternate form of a gene
Which allele is only expressed when there are 2 of them?	Recessive
Which allele is always expressed when present?	Dominant

Light

Question	Answer
What is light?	Light is a type of wave which travels in straight lines.
What is a shadow?	A shadow is the absence of light.
What are three examples of luminous objects?	The Sun, candles, lights.
What does luminous mean?	An object that gives out its own light.
What do transparent materials do to light? Give two examples of transparent materials.	Transparent materials allow light to pass through easily. For example, glass and water.
What do translucent materials do to light?	In a translucent material, light is scattered so you can't see through it clearly.
What does opaque materials do to light?	Opaque materials do not allow light to pass through them.
What is specular reflection? Where does it happen?	**Specular reflection** is when light is reflected in a regular way by a smooth surface like a mirror.
What is diffuse reflection? Where does it happen?	**Diffuse reflection** is when light is scattered by a rough surface like paper.
What is the Law of Reflection?	The law of reflection states that the angle of incidence is **equal to** the angle of reflection.
How do we see objects that don't emit their own light?	We see the light reflected by these objects.
What is a medium?	A 'medium' is a material or substance.
What is the 'normal' line?	A normal line is a line at 90° to a surface drawn where a ray of light touches the surface.
What is refraction?	Refraction is when light changes speed and direction when it passes from one substance into another.
What happens to light rays when they pass through a convex lens?	A convex lens focuses the light rays at a point beyond it.
Where do we find convex lenses?	Convex lenses are found in cameras and in our eyes.
What happens to light rays when they pass through a concave lens?	A concave lens causes light rays to spread out.
Where do we find concave lenses?	Concave lenses are found in door spyholes.
Name the six different parts of eye.	**Cornea, pupil, iris, lens, retina, optic nerve.**
How does the lens in the eye help us see?	The **lens** in our eye focuses the light rays passing through it.

What does it mean to be short sighted and what could cause short-sightedness?	Being short sighted means you can't see distant objects very clearly. This may be caused by the eyeball being too long.
What does it mean to be long sighted and what could cause long-sightedness?	Being long sighted means you can't see close by objects very clearly. This may be caused by the eyeball being too short.
How do rainbows form?	Rainbows form when light is spread out into different colours inside water droplets in the atmosphere. This is called **dispersion**.
What is dispersion?	Dispersion is the spreading out of light into different colours (**wavelengths**).
What is white light?	White light is made up of all different colours of light combined together.
How many primary colours of light are there? What are they?	Three primary colours (red, green, blue).
How many secondary colours of light are there? What are they?	Three secondary colours (magenta, cyan, yellow).
What is a colour filter?	A colour filter is a coloured sheet which only allows that specific colour of light to pass through.
What is the speed of light?	Light travels at 300,000,000 m/s (in a vacuum).

Reproduction

Question	Answer
What is meant by adolescence?	The period of time in which a person changes from a child into an adult
What does the word puberty mean?	The physical changes a person's body experiences as they change from a child to an adult
Name changes that happen during puberty to the female body	Breasts develop, ovaries release eggs, periods start, hips widen
Name changes that only happen to the male body during puberty	Voice breaks, testes and penis get bigger, testes start to produce sperm, shoulders widen etc
What causes the changes that happen during puberty?	Sex hormones
What is the function of the male reproductive system?	To produce sperm cells and release them inside a female
What is the function of the female reproductive system?	To produce eggs cells and to grow a baby
Where does an unborn baby develop in its mother?	Uterus (womb)
What are gametes?	Sex cells (sperm and egg cells)
Where are egg cells made?	The ovaries
Where are sperm cells made?	Testes
What is the menstrual cycle?	A monthly cycle in which the lining of the uterus thickens then breaks down
What is the length of the average menstrual cycle?	28 days

What are the main stages of the menstrual cycle?	Menstruation, re-growth of uterus lining, ovulation, breakdown of uterus lining
What is contraception?	A method of preventing pregnancy
Name two methods of contraception	Contraceptive pill, condom
What is meant by ovulation?	The release of an egg cell from one of the ovaries
What does the term fertilisation mean?	Joining of the sperm and egg cell nuclei
How does an egg cell travel down the oviduct?	Moved along by cilia
Where does fertilisation take place?	Oviduct (fallopian tube)
What happens during sexual intercourse?	Penis releases semen/sperm into vagina
What happens during implantation of the fertilised egg?	The fertilised egg/embryo attaches to the lining of the uterus
State what the term embryo means.	A ball of cells produced by the fertilised egg dividing several times
Name some causes of low fertility.	Low sperm count, sperm which don't swim properly, blocked oviduct, egg cells not released
What does the term gestation mean?	The time between fertilisation and birth
How long does gestation last in humans?	9 months (40 weeks)
What is the job of the placenta?	Allows substances to pass between the mother's blood and foetus' blood
What is the job of the umbilical cord?	It connects the foetus to the placenta
What is the job of the amniotic fluid?	It acts as a shock absorber, protecting the foetus from bumps
What does a foetus need to grow?	Nutrients and oxygen
Describe how a baby is born	Cervix relaxes and uterus muscles contract, pushing the baby out of the vagina

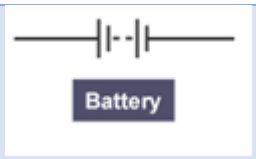
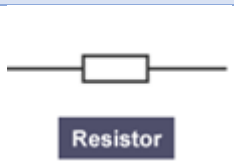
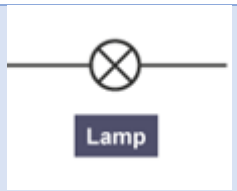
Acids and Alkalis

Question	Answer
What type of change forms a new product?	Chemical change
What type of change does not form a new product?	Physical change
State two pieces of evidence that show that a chemical reaction has taken place.	Fizzing, colour change, change in temperature, a new smell being formed, sparks or flames given off.
What hazard word describes a chemical that burns skin or eyes?	Corrosive
What is the pH of a neutral substance?	7

What is an indicator?	An indicator is a chemical that contains a dye which changes colour depending on the pH of the solution it is added to.
What colour will Universal Indicator turn in a strong acid?	Red
Estimate the pH when a solution turns Universal Indicator blue.	9 to 11
What is the pH of a strong acid?	0 to 3
What is the name given to the type of reaction when an acid reacts with a base?	Neutralisation
What is a base?	An insoluble substance that neutralises an acid.
What is a salt?	A salt is a substance formed from the reaction of an acid with a metal or a metal compound.
Which salt is produced when sodium hydroxide is reacted with hydrochloric acid?	Sodium chloride

Electromagnets

Question	Answer
What is potential difference?	Potential difference (p.d. for short) is the push provided by a cell or battery to make charges move
State what a cell or battery provides in a circuit.	A cell or battery is a chemical store of energy the provides the push that moves charges around a circuit.
State the instrument used to measure potential difference.	A voltmeter
What is potential difference measured in?	Volts, V
State what is meant by electrical resistance	Resistance is a measure of how easy or difficult it is for charges to pass through electrical components
State the unit of resistance	Ohms, Ω
State the equation for calculating resistance	$Resistance = \frac{Potential\ difference}{current}$
State the equation for calculating current	$Current = \frac{potential\ difference}{resistance}$
What is an electrical current?	Current is the amount of charge flowing in a circuit per second
Describe an electrical insulator	Does not allow charges to move
Describe an electrical conductor	Allows charges to move

Name a good electrical conductor	metal
Name two electrical insulators	Air and plastic
State how components are arranged in a series circuit	Components form one loop including the battery in a series circuit
State how components are arranged in a parallel circuit	Parallel circuits have more than one loop or branch
Describe the link between the pd across components in a series circuit and the pd across the battery	The potential difference across the components add up to be the same as the potential difference over the battery.
Describe the link between the pd across components in a parallel circuit and the pd across the battery	The pd across the components is the same as across the battery
In a series circuit, state what happens to the brightness of a bulb if you insert another bulb in series	The brightness reduces because the pd is shared
In a parallel circuit, state what happens to the brightness of a bulb if you insert another bulb in parallel	The brightness does not change
State the instrument used to measure current	Ammeter
State the unit of current	Amperes, Amps, A
In a series circuit _____ is the same anywhere in the circuit	Current
What is the circuit symbol for a battery?	
What is the circuit symbol for a resistor?	
What is the circuit symbol for a filament bulb?	
In a parallel circuit, the charges divide and join up at _____	Junctions/Branches
State what happens to the current in a parallel circuit when you add another branch	The current in the other branches does not change but the total current increases

State what happens to the current in a series circuit when you add another bulb	The current gets smaller because the resistance increases
What are the parts of an atom that can move?	Electrons
What is the unit of charge?	Coulomb
What kind of charge does an electron have?	Negative
What do we call a build-up of charge on an insulator?	Static Electricity
What is needed for an insulator to build up a static charge?	Friction to transfer charges
Name two requirements for a charge to flow	closed loop, source of potential difference
State what an electric field is	An area around a charge where a force charged object would experience a force
What is the non-contact force between two charged objects called?	An electrostatic force

Metals and Non-metals

Questions	Answers
What are the three magnetic elements in the Periodic Table?	Iron, cobalt and nickel
What are the two elements that are liquids at room temperature?	Bromine and mercury
Describe the position of the non-metals in the Periodic Table.	The top right-hand corner
A substance that is a good conductor of heat and electricity is likely to be what type of substance?	A metal
What do you call the chemicals that react with each other in a chemical reaction?	The reactants
What do you call the new chemicals that are made in a chemical reaction?	The products
What is produced when iron reacts with oxygen?	Iron oxide
What is produced when carbon reacts with oxygen?	Carbon dioxide
Metal oxides turn Universal Indicator purple because they are ……?	Bases
What is the name for a chemical reaction where a substance reacts with oxygen?	Oxidation

What gas is produced when a metal reacts with an acid?	Hydrogen
What salt is produced when iron reacts with hydrochloric acid?	Iron chloride
What salt is produced when magnesium reacts with sulfuric acid?	Magnesium sulfate
Name a metal that will not react with dilute acids	Platinum, gold, silver or copper
What is produced when magnesium reacts with oxygen?	Magnesium oxide
Name a metal which does not react with oxygen.	Gold, platinum or silver
What is produced when iron reacts with oxygen?	Iron oxide (or rust)
Name the product of the reaction of calcium with water that is a liquid at room temperature.	Calcium hydroxide solution
Name the product of the reaction of calcium with water that is a gas at room temperature.	Hydrogen
Name one metal that reacts with steam but not with cold water	Magnesium, zinc or iron
State what is meant by a displacement reaction.	A reaction where a more reactive metal pushes (displaces) a less reactive metal from its compound.
State why copper can't displace magnesium from magnesium sulfate solution	Copper is less reactive than magnesium.

Ecosystems

Questions	Answers
State the name of the first link of a food chain.	Producer
State the name of an animal that only eats plants.	Herbivore
State the name of an animal that only eats animals.	Carnivore
Draw the symbol that shows the direction of consumption in a food chain.	→
Using British animals, describe a simple food chain.	e.g. grass → rabbit → fox
Define: interdependence.	The way in which living organisms depend on each other to survive, grow and reproduce
Define: population.	The number of animals or plants of the same species that live in the same area
State two factors that can affect the population size of a species.	Number of predators, number of prey, disease, pollution, competition
State what is meant by "bioaccumulation".	The build-up of chemicals in food chains
Define the word: ecosystem	The plants and animals that are found in a particular location and the area in which they live

Define the word: community.	All the organisms in an ecosystem
Define the word: habitat.	The place in which an organism lives
Define the word: environment.	The conditions found in a habitat
State what is meant by "niche"	A place or role that an organism has within an ecosystem
Name two resources that animals compete for.	Food, water, space, mates
Name two resources that plants compete for.	Light, water, space, minerals
State the function of the petals.	Brightly coloured to attract insects
State the function of the anther.	Produces pollen (the male sex cells)
State the function of the filament.	Holds up the anther
State the function of the stigma.	Sticky to "catch" grains of pollen
State the function of the style.	Holds up the stigma
State the function of the ovary.	Contains ovules (the female sex cells)
State what is meant by "pollination".	Pollen from an anther transferring to a stigma
Name two ways that pollen can be transferred to the stigma	Wind, insects, other animals
Describe the process of fertilisation (in plants).	When the nucleus of the pollen grain joins with the nucleus of the ovule
What parts of the flower develop into the fruit and the seeds.	Ovary develops into the fruit, ovules into the seeds
State germination.	When a seed starts to grow
Describe the three things do seeds need to start to germinate.	Water, oxygen and warmth
Name the 5 ways seeds can be dispersed	Wind, animal (internal), animal (external), water, explosive
Explain why do seeds need to be dispersed.	So they have space to grow and so they do not have to compete for resources

Gravity and the Universe

Question	Answer
What is the value of g on Earth?	9.8 N/kg
What is the value of g on the Moon?	1.6 N/kg
What is mass?	The amount of matter inside an object.
What is the unit for mass?	kg

What is weight?	A measure of the force of gravity acting on an object.
What is the unit for weight?	Newtons
What is gravity?	An attractive force between two objects that depends on their masses and the distance between them.
What is the unit for gravitational field strength?	N/kg
What formula relates weight, gravitational field strength and mass?	Weight = mass x gravitational field strength
What is an orbit?	The path taken by one object travelling around another
Why do objects stay in orbits?	The force of gravity changes the direction of motion
What shapes can orbits be?	Spherical or elliptical
What effects the speed of an object in its orbit?	Its radius
What shape are stars, planets and moons?	Spherical
What is the rank of size of objects in the universe, starting with the largest?	universe > galaxies > solar system > Sun > planets > moons
What is a light year?	The distance light travels in one year
In our Solar System, what orbits the Sun?	Planets, planetoids, asteroids and comets
What is the order of the planets in our solar system?	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
What do most stellar objects do?	Rotate
How long does the Earth take to rotate once?	24 hours
How long does the Earth take to orbit the Sun once?	365 days
What causes the seasons?	A tilt in the Earth's axis
What are moons?	Natural satellites which orbit planets
How long does the moon take to orbit the Earth?	28 days
How long does the moon take to rotate once?	28 days
Why does the moon have phases?	Half of the moon is lit all of the time, but we see different portions of this when it is in different positions in its orbit
What are exoplanets?	Planets outside our solar system