



Mablethorpe Primary Academy

Science Knowledge & Vocabulary Progression Map

EYFS

Materials - material, frozen, ice/melting, dry/wet, texture, waterproof, reflection, symmetry, floating, sinking, bumpy/smooth, absorb

Plants - flower, stem, petals, roots, vegetable, fruit, plant, tree, branches, trunk, leaves

Healthy living - healthy, diet, exercise, hygiene, hydrated, mental health, mindfulness, nutrients, emotions

Influential scientists /people: Neil Armstrong

Year 1

Year 2

Influential scientists /people: Louis Braille Gustave Eiffel

Influential scientists /people: Charles Macintosh John Dunlop

Animals Including Humans

Amphibians, arms, birds, body parts, carnivores, ears, elbows, environment, eyes, face, fish, habitat, hair, head, hearing, herbivores, knees, legs, mammals, mouth, neck, nocturnal, omnivores, pets, reptiles, seeing, senses, smells, sounds, taste, teeth, touch. Changes over time, comparing, contrasting, criteria, data/results, describing, equipment, grouping, identify, name, observations, patterns, record, sorting, test.

Names of a variety of common animals including fish, amphibians, reptiles, birds and mammals. *vocab: fish, amphibians, reptiles, birds, insects and mammals*

names of a variety of common animals that are carnivores, herbivores and omnivores *vocab: herbivore, carnivore, omnivore*

Structure of a variety of common animals. *vocab: fish, amphibians, reptiles, birds, insects and mammals, including pets*

Basic parts of the human body and which part of the body is associated with each sense. *vocab: sense; taste - tongue, mouth; sight - eyes; hearing - ears, sound; touch - fingers, skin, nerves; smell - nose; hands, feet, arms, legs, head, neck, torso, chest, back*



Animals Including Humans

Including vocabulary from year 1

off -spring, survival, healthy, hygiene, exercise, nutrition, diet, proteins fats adult, baby, bacteria, balanced diet, carbohydrates, child, circulation, dairy, fibre, fitness, food groups, germs, growth, healthy, heart rate, infection, life cycle, minerals, nutrition, protein, teenager, toddler, unhealthy, vitamins.

Animals, including humans, have offspring which grow into adults. *vocab: offspring, young, adult, calf, foal, kitten, baby, puppy, piglet*

Basic needs of animals, including humans, for survival (water, food and air) *vocab: survival, water, food, air, needs*

Importance for humans of exercise, eating the right amounts of different types of food, and hygiene. *vocab: hygiene, nutrition, exercise, food*



Plants

branches, bud, bulb, deciduous tree, evergreen tree, flowers, fruit, garden/flowering plants, leaves, petals, roots, seed, stem, trunk, wild plants. changes over time, identify, name, describe, vegetable, environment, blossom

Names of a variety of common wild and garden plants, including deciduous and evergreen trees. *Vocab: plant, flower, deciduous, evergreen*

Basic structure of a variety of common flowering plants, including trees. *Vocab: stem, trunk, leaf, branch, flower*



Seasonal Changes

Autumn, Spring, Summer, Winter, weather, temperature, thermometer, Weather symbol, seasonal changes dark, day length, days, hours, light, months, moon, movement, shadow, spring, summer, sun, winter. observations, patterns, record

Changes across the four seasons.

Vocab, Summer, Autumn, Winter, Spring

Weather associated with the seasons and how day length varies.

Vocab: weather, snow, rain, sun, temperature, longer, shorter, light

Living Things & Their Habitats

Dinosaur, rivers, woodland, ponds, sea, rainforest, desert, species, adaptation, alive, carnivore, characteristics, conditions, consumer, dead, excrete, feed, food chain, grow, habitat, heat, herbivore, life processes, light, living/non-living, micro-habitat, move, ocean, omnivore, producer, rainforest, reproduce, respire, respond to stimuli, seashore, sound, touch,

Differences between things that are living, dead, and things that have never been alive. *Vocab: living, dead, never lived, extinct, movement, respiration, sensitivity, nutrition, excretion, reproduction, growth*

Most living things live in habitats to which they are suited and different habitats provide for the basic needs of different kinds of animals and plants, and they depend on each other. *Vocab: habitat, suitability, adapted*

Names of a variety of plants and animals in their habitats, including micro-habitats. *Vocab: plants, animals, habitats, micro-habitats*

How animals obtain their food from plants and other animals, using the idea of a simple food chain, and different sources of food. *Vocab: food chain, food source, predator, prey, producer*



Plants

Germination, insect pollination, nutrients, pollination, seed dispersal, wind pollination. roots deciduous evergreen blossom bulb trunk stem woodland habitat oxygen

How seeds and bulbs grow into mature plants. *Vocab: seed, bulb, seedling*

Plants need water, light and a suitable temperature to grow and stay healthy. *Vocab: temperature, water, light, grow*

Everyday Materials

Materials, wood, plastic, metal, magnetic, liquid, gas, stretch, rigid, flexible, shiny, opaque, transparent, absorbent/not absorbent, bending, bendy/not bendy, gas, glass, hard/soft, liquid, metal, plastic, property, rock, rough/smooth, shiny/dull, solid, squashing, stretching, stretchy/stiff, twisting, water, waterproof/not waterproof, wood, changes over time, comparing, contrasting, criteria, data/results, describing, equipment, grouping, identify, name, observations, patterns, record, sorting, test.

There is a difference between an object and the material from which it is made. *Vocab: object, material*

Names of a variety of everyday materials. *Vocab: wood, plastic, glass, metal, water, and rock*

Simple physical properties of a variety of everyday materials. *Vocab: property, rough, smooth, hard, soft, strong, weak,*

Everyday Materials and Their Uses

As year 1 plus - characteristics, classification, man-made, natural, properties, squash bend twist stretch

Suitability of a variety of everyday materials for particular uses.

Vocab: suitable, unsuitable, wood, metal, plastic, glass, brick, rock, paper, cardboard

Shapes of solid objects made from some materials can be changed by... *vocab: squashing, bending, twisting and stretching.*



Year 3

Influential scientists /people: **Mary Anning**



Animals Including Humans

ankle, arteries, backbone, ball and socket joints, bone, brain, branching blood vessels, capillaries, cardio-vascular system, cartilage, collar bone (clavicle), contract, endoskeleton, exoskeleton, extensor, fibula, finger, fixed joints, flexor, foot, hand, heart, hinge joints, humerus, involuntary muscles, joints, knee cap (patella), ligaments, moveable joints, movement, muscles, opposing pairs, pelvis, protection, shoulder blades (scapula), skeletal and muscular systems, radius, relax, ribs, skeletons, skull, sliding joints, spinal cord, sternum, support, thigh bone (femur), tibia, toe, ulna, veins, vertebrates, voluntary muscles, wrist.

Animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. *Vocab: food, nutrition*
Humans and some other animals have skeletons and muscles for support, protection and movement. *Vocab: skeleton, muscle, ligament, tendon, vertebrate, invertebrate*

Year 4

Influential scientists/ people: **Benjamin Franklin**



Animals Including Humans

pancreas oesophagus intestine organ salivary gland molars pre-molars incisors canine enamel pupil food chain predators prey cavities enzymes, chewing, dentine, digestion, digestive system, enamel, faeces, fluoride toothpaste, gastric juice, gums, incisors, intestine, molars, nerves, plaque, premolars, pulp cavity, predators, prey, producers, reabsorption of water from waste, saliva, swallowing, tooth decay.

Simple functions of the basic parts of the digestive system in humans. *vocab: digestive system, oesophagus, stomach, liver, small intestine, large intestine, rectum, anus*

Different types of teeth in humans and their simple functions.

Vocab: teeth, incisor, canine, molar, jaw, enamel

Variety of food chains, identifying producers, predators and prey.

Vocab: producer, predator, prey, food chain



Magnets and Forces

air resistance, attract, compress, direction of force, faster, floating, flying, force meter, forces, friction, gravity, magnetic, magnetic field, magnetic forces, Newton meter, Newtons (N), non-magnetic, north pole, poles, pull, push, repel, sinking, sliding,



Electricity

circuits buzzers conductor battery cells switch socket appliance insulator

Names of common appliances that run on electricity.

Vocab, electricity, plug, wire

slower, south pole, speed, streamlined, stretch, twist, water resistance.

Things move differently on different surfaces. **Vocab: friction, surface**

Some forces need contact between two objects, but magnetic forces can act at a distance. **Vocab: force, contact, magnetic, push, pull**

Magnets attract or repel each other and attract some materials and not others. **Vocab: attract, repel**

Some materials are attracted by magnets and others are not. **Vocab: magnetic**

Magnets have two poles. **Vocab: pole, North, South**

Two magnets will attract or repel each other, depending on which poles are facing.

Names of basic parts of simple circuits. **Vocab: circuit, cells, wires, bulbs, switches and buzzers**

Whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.

Vocab: complete, incomplete, loop, battery

A switch opens and closes a circuit and determines whether or not a lamp lights in a simple series circuit. **Vocab: series circuit, parallel circuit, switch, break**

Some common conductors and insulators, and metals are good conductors. **Vocab: conductor, insulator, metal**

Rocks

Crystalline, crystals, erosion, fossils, grains, layers (strata), molten magma, particles, permeability, permeable, physical properties, soils.

Different kinds of rocks can be grouped together on the basis of their appearance and simple physical properties. **Vocab: rock, hardness, metamorphic, igneous, sedimentary**

Fossils are formed when things that have lived are trapped within rock **vocab: fossil, fossilisation**

Soils are made from rocks and organic matter. **Vocab: soil, organic**



Living Things & Their Habitats

micro -organism vertebrate/invertebrate species fungi algae
mammals birds fish amphibians reptiles

Living things can be grouped in a variety of ways. **Vocab: reptile, mammal, amphibian, bird, fish, insect, arachnid, plant**

classification keys can help group, identify and names of a variety of living things in their local and wider environment **vocab: environment, suited, identify**

Environments can change and that this can sometimes pose dangers to living things. **Vocab: environment, climate, adapt, danger**

Plants

(as for previous years, plus)

absorb, competition for resources, function, minerals, optimum conditions, plant life cycle, plant tissues, pores (stomata), reproduction, seed formation, structure, support, well-aerated soil, well-drained soil

Functions of different parts of flowering plants.

Vocab: roots, stem/trunk, leaves, flowers

Requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. *Vocab: nutrients*

How water is transported within plants. *Vocab: stem*

What part flowers play in the life cycle of flowering plants, *vocab: pollination, seed formation and seed dispersal.*



Light

light wave light source concave convex refraction lens retina cornea iris pupil

We need light in order to see things and that dark is the absence of light. *vocab: darkness, light, sight*

Light is reflected from surfaces. *Vocab: reflect, surface*

Light from the sun can be dangerous and that there are ways to protect their eyes. *Vocab: rays, sun, light, protection, blindness, danger*

Shadows are formed when the light from a light source is blocked

by an opaque object. *Vocab: light source, shadow, block, opaque*

There are patterns in the way that the size of shadows change.

Sound



volume sound wave decibel amplitude medium insulation auditory frequency vibrating pitch echo, frequency of vibration, pitch (higher, lower), reflection of sound, sound insulation, sound wave, tuning fork, vacuum, vibration, volume (louder, softer).

How sounds are made, associated with something vibrating. *Vocab: sound, vibration.*

vibrations from sounds travel through a medium to the ear, *vocab: vibration, medium, ear*

There are patterns between the pitch of a sound and features of the object that produced it. *Vocab: pitch, high, low*

There are patterns between the volume of a sound and the strength of the vibrations that produced it. *Vocab: volume, loud, quiet*

Sounds get fainter as the distance from the sound source increases. *Vocab: faint, distance, wave*



States of Matter

matter solid liquid gas evaporation condensation precipitation temperature Celsius freezing point melting point molecules reversible irreversible

Materials can be grouped together, according to whether they are solids, liquids or gases. *Vocab: solid, liquid, gas*

some materials change state when they are heated or cooled, at different temperatures in degrees Celsius ($^{\circ}\text{C}$) *vocab: change state, heat, cool, temperature, degrees Celsius*

Evaporation and condensation plays a part in the water cycle and the rate of evaporation is affected by temperature. *Vocab: evaporation, condensation, temperature*

Year 5	Year 6
<p>Influential scientists/ people: Neil Armstrong and Buzz Aldrin Isaac Newton Jane Goodall</p>	<p>Influential scientists/ people: William Harvey Carl Linnaeus Thomas Edison Charles Darwin</p>
<p><u>Animals Including Humans</u> (see also <u>Living Things & Their Habitats</u>)</p> <p>(as for previous years, plus) reproduction animal behaviourist, birth, chromosomes, cross-pollination, death, egg cell (ovum), embryo, fallopian tubes, female gamete, fertilization, gestation, growth, hormones, life cycles, male gamete, menstrual cycle, microorganisms, naturalist, ovaries, ovary, ovulation, penis, placenta, puberty, sepals, sexual reproduction, sperm, testes, uterus, vagina, vertebrates (reptiles, fish, amphibians, birds, mammals), zygote Changes as humans develop to old age. <i>Vocab: baby, toddler, child, teenager, adult, elderly</i></p>	<p><u>Animals Including Humans</u> blood vessels, drugs, atriums, cardiovascular, ultrasound cardiologists, capillaries, pulse, ventricles muscle Names of the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood <i>vocab: heart, lungs, artery, vein, capillary, blood, red cell, white cell, oxygen, ventricle, atrium</i> Impact of diet, exercise, drugs and lifestyle on the way their bodies function. <i>Vocab: diet, exercise, drug, weight, addiction, illness, fitness, health</i> Ways in which nutrients and water are transported within animals, including humans. <i>Vocab: nutrient, circulation, arteries, veins</i></p>
<p><u>Properties & Changes of Materials</u> Solubility, conductivity, transparency, thermal, evaporation, dissolve, bicarbonate soda, separate, irreversible/reversible, filtering, melting Everyday materials can be grouped together on the basis of their properties. <i>Vocab: hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</i> Some materials will dissolve in liquid to form a solution, and how to recover a substance from a solution. <i>Vocab: substance, dissolve, solution</i> mixtures might be separated <i>vocab: filtering, sieving and evaporating</i> To know reasons for the particular uses of everyday materials for specific products, including metals, wood and plastic <i>vocab: properties, products, suitable, unsuitable</i> Dissolving, mixing and changes of state are reversible changes. <i>Vocab: reversible, irreversible</i></p>	<div data-bbox="1518 804 1720 995" data-label="Image"> </div> <p><u>Electricity</u> Conductor, insulator, socket, series circuits, cells, volts, generator dimmer switch, fuses The brightness of a lamp or the volume of a buzzer is affected by the number and voltage of cells used in the circuit. <i>Vocab: cell, voltage, brightness, volume, circuit</i> To know about variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. <i>Vocab: component, bulb, buzzer, switch</i> To recognise symbols for representing a simple circuit in a diagram. <i>Vocab: symbol, circuit diagram</i></p>

Some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. *Vocab: chemical reaction, formation, burning, acid*

Living Things & Their Habitats

Puberty, gestation, classification, reproduction, teenager, obese, toddler, embryo

To know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. *Vocab: life cycle: mammal - young, baby, live birth, grow; insect - egg, larva, insect; amphibian - egg, frogspawn, tadpole, adult; bird - egg, chick*

Reproduction in some plants and animals. *Vocab: reproduction, egg, live birth, young, sexual, asexual, seeds*

Living Things & Their Habitats

micro-organism vertebrates invertebrates species fungi bacteria algae

Living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. *Vocab: micro-organism*

Plants and animals can be classified based on specific characteristics.

Earth and Space

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
(My Very Educated Mother Just Served Us Noodles)

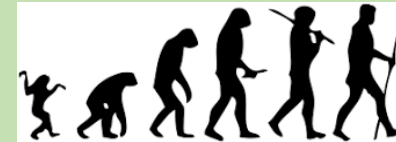
orbit rotation solar system astronomical planet spherical
crescent moon, gibbous moon, eclipse lunar solar

The movement of the Earth, and other planets, relative to the Sun in the solar system. *Vocab: Earth, Sun, solar system, Milky Way, planet (planet names)*

The movement of the Moon relative to the Earth. *Vocab: moon, Earth, orbit*

Sun, Earth and Moon are approximately spherical bodies. *Vocab: Earth, Sun, Moon, spherical*

The Earth's rotation explains day and night and the apparent movement of the sun across the sky. *Vocab: rotation, day, night, axis*



Evolution and inheritance

Living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. *Vocab: evolution, fossils, evidence palaeontologist excavating*

Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. *Vocab: offspring, adapted, parents, genes inheritance chromosomes*

Animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. *Vocab: suited, adaptation, evolution*

Forces

friction gravity air resistance water resistance surface resistance
(friction) levers pulleys gears parachute

Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. *Vocab: gravity, force, fall*

Air resistance, water resistance and friction all have an effect when they act between moving surfaces. *Vocab: air resistance, water resistance, friction, surfaces*

Some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. *Vocab: mechanism, lever, pulley, gear*

Light

light wave light source concave convex refraction lens retina cornea
iris pupil

Light appears to travel in straight lines. *Vocab: light, straight line, ray*

Objects are seen because they give out or reflect light into the eye. *Vocab: reflect, eye*

We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. *Vocab: light source, travel, straight line*

Shadows have the same shape as the objects that cast them. *Vocab: shadow, shape, cast*

