Falcon Junior School—Science Curriculum Map

NC

Animals, including humans
*identify that 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
*identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Plants—NC
*identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
* explore the 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
*investigate the way in which water is transported within plants
*explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Rocks
*compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
*describe in simple terms how fossils are formed when things that have lived are trapped within rock
*recognise that soils are made from rocks and organic matter.

Light
*recognise that they need light in order to see things and that dark is the absence of light
* notice that light is reflected from surfaces
*recognise that light from the sun can be dangerous and that there are ways to protect their eyes
* recognise that shadows are formed when the light from a light source is blocked by an opaque object
*find patterns in the way that the size of shadows change.

Forces and magnets
* compare how things move on different surfaces
* notice that some forces need contact between two objects, but magnetic forces can act at a distance
*observe how magnets attract or repel each other and attract some materials and not others
* compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
* describe magnets as having two poles
* predict whether two magnets will attract or repel each other, depending on which poles are facing.

Animals, including humans
*describe the simple functions of the basic parts of the digestive system in humans
* identify the different types of teeth in humans and their simple functions
* construct and interpret a variety of food chains, identifying producers, predators and prey.

Living things and their habitats
*recognise that living things can be grouped in a variety of ways
* explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
* recognise that environments can change and that this can sometimes pose dangers to living things

States of matter
* compare and group materials together, according to whether they are solids, liquids or gases
*observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
* identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound
*identify how sounds are made, associating some of them with something vibrating
*recognise that vibrations from sounds travel through a medium to the ear
* find patterns between the pitch of a sound and features of the object that produced it
*find patterns between the volume of a sound and the strength of the vibrations that produced it
* recognise that sounds get fainter as the distance from the sound source increases.

Electricity
*identify common appliances that run on electricity
*construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
*identify 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
*recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
* recognise some common conductors and insulators, and associate metals with being good conductors.

Animals, including humans
* describe the changes as humans develop to old age.

Living things and their habitats
* describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
* describe the life process of reproduction in some plants and animals.

Properties and changes of material
* compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
* know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
* use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
* give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
* demonstrate that dissolving, mixing and changes of state are reversible changes and explain that 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.

Earth and Space
* describe the movement of the Earth, and other planets, relative to the Sun in the solar system
* describe the movement of the Moon relative to the Earth
* describe the Sun, Earth and Moon as approximately spherical bodies
* use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Forces
* explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
* identify the effects of air resistance, water resistance and friction, that act between moving surfaces
* recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Animals, including humans
* identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
*recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
* describe the ways in which nutrients and water are transported within animals, including humans.

Living things and their habitats
* describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
* give reasons for classifying plants and animals based on specific characteristics.

Evolution and Inheritance
* recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
* recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
* identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light
* recognise that light appears to travel in straight lines
* use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
* explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
* use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity
* associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
* compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
* use recognised symbols when representing a simple circuit in a diagram.

SKILLS

Animals, including humans
I can explain the importance of a nutritious, balanced diet.
I can explain how nutrients, water and oxygen are transported within animals and humans.
I can describe and explain the skeletal system of a human.
I can describe and explain the muscular system of a human.
I can describe the purpose of the skeleton in humans and animals.

Plants
I can describe the function of different parts of flowing plants and trees.
I can explore and describe the needs of different plants for survival.
I can explore and describe how water is transported within plants.
I can describe the plant life cycle, especially the importance of flowers.

Rocks
I can compare and group rocks based on their appearance and physical properties, giving a reason.
I can describe how fossils are formed.
I can describe how soil is made.
I can describe and explain the difference between sedimentary and igneous rock.

Light
I can describe what dark is.
I can explain that light is needed in order to see.
I can explain that light is reflected from a surface.
I can explain and demonstrate how a shadow is formed.
I can explore shadow size and explain.
I can explain the danger of direct sunlight and describe how to keep protected.

Forces and magnets
I can explore and describe how objects move on different surfaces.
I can explain how some forces require contact and some do not, giving examples.
I can explore and explain how objects attract and repel in relation to objects and other magnets.
I can predict whether objects will be magnetic and carry out an enquiry to test this out.
I can describe how magnets work.
I can predict whether magnets will attract or repel and give a reason.

Animals, including humans
I can identify and name the parts of the human digestive system.
I can describe the functions of the organs in the human digestive system.
I can identify and describe the different types of teeth in humans.
I can describe the functions of different human teeth.
I can use food chains to identify producers, predators and prey.
I can construct food chains to identify producers, predators and prey.

Living things and their habitats
I can group living things in different ways.
I can use classification keys to group, identify and name living things.
I can create classification keys to group, identify and name living things (for others to use).
I can describe how changes to an environment could endanger living things.

States of matter
I can group materials based on their state of matter (solid, liquid, gas).
I can describe how some materials can change state.
I can explore how materials change state.
I can measure the temperature at which materials change state.
I can describe the water cycle.
I can explain the part played by evaporation and condensation in the water cycle.

Sound
I can describe how sound is made.
I can explain how sound travels from a source to our ears.
I can explain the place of vibration in hearing.
I can explore the correlation between pitch and the object producing a sound.
I can explore the correlation between the volume of a sound and the strength of the vibrations that produced it.
I can describe what happens to a sound as it travels away from its source.

Electricity
I can identify and name appliances that require electricity to function.
I can construct a series circuit.
I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).
I can draw a circuit diagram.
I can predict and test whether a lamp will light within a circuit.
I can describe the function of a switch in a circuit.
I can describe the difference between a conductor and insulators; giving examples of each.

Animals, including humans
I can create a time-line to indicate stages of growth in humans.

Living things and their habitats
I can describe the life cycle of different living things, e.g. mammal, amphibian, insect bird.
I can describe the differences between different life cycles.
I can describe the process of reproduction in plants.
I can describe the process of reproduction in animals.

Properties and changes of material
I can compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets).
I can describe how a material dissolves to form a solution; explaining the process of dissolving.
I can describe and show how to recover a substance from a solution.
I can describe how some materials can be separated.
I can demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating).
I know and can demonstrate that some changes are reversible and some are not.
I can explain how some changes result in the formation of a new material and that this is usually irreversible.
I can give evidenced reasons why materials should be used for specific purposes.

Earth and Space
I can describe and explain the movement of the Earth and other planets relative to the Sun.
I can describe and explain the movement of the Moon relative to the Earth.
I can explain and demonstrate how night and day are created.
I can describe the Sun, Earth and Moon (using the term spherical).

Forces
I can explain what gravity is and its impact on our lives.
I can identify and explain the effect of air resistance.
I can identify and explain the effect of water resistance.
I can identify and explain the effect of friction.
I can explain how levers, pulleys and gears allow a smaller force to have a greater effect.

Animals, including humans
I can identify and name the main parts of the human circulatory system.
I can describe the function of the heart, blood vessels and blood.
I can discuss the impact of diet, exercise, drugs and life style on health.
I can describe the ways in which nutrients and water are transported in animals, including humans.

Living things and their habitats
I can classify living things into broad groups according to observable characteristics and based on similarities & differences.
I can describe how living things have been classified.
I can give reasons for classifying plants and animals in a specific way.

Evolution and Inheritance
I can explain how fossils can be used to find out about the past.
I can explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).
I can explain how animals and plants are adapted to suit their environment.
I can link adaptation over time to evolution.
I can explain evolution.
I can explain characteristics into inherited and acquired.

Light
I can explain how light travels.
I can explain and demonstrate how we see objects.
I can explain why shadows have the same shape as the object that casts them.
I can explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

Electricity
I can explain how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.
I can compare and give reasons for why components work and do not work in a circuit.
I can draw circuit diagrams using the correct symbols.

VOCAB

Animals including humans
movement, muscles, bones, skull, nutrition, skeletons, vertebrate

Plants
air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, pollinate, germinate, leaves, flower, root, stem, stamen, stigma, pollen, petal, sepal, ovule, carpe

Rocks
fossils, soils, sandstone, granite, marble, pumice, chalk, crystals, absorbent, permeable, impermeable

Light
light, shadows, mirror, reflective, dark, reflection

Forces and magnets
magnetic, force, contact, attract, repel, friction, north pole, south pole, push, pull, twist

Animals including humans
mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, omnivore, canine, incisor, molar

Living things and their habitats
vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, environment, habitats

States of Matter
solid, liquid, gas, evaporation, evaporate, condensation, condense, particles, temperature, freezing, heating, melting point, boiling, thermal

Sound
volume, vibration, wave, pitch, tone, speaker, amplitude

Electricity
cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators

Animals including humans
foetus, embryo, womb, gestation, baby, toddler, teenager, elderly, growth, development, puberty,

Living things and their habitats
mammal, reproduction, insect, amphibian, bird, offspring, stamen, stigma, ovule, carpels, filament, anther, style, sepal, stigma, stamen, asexual

States of Matter
Hardness, Solubility,
Transparency, Conductivity, magnetic, filter, evaporation, dissolving, mixing, sieving ,insulator, conductor, classify, reversible, irreversible

Earth and Space
earth, sun, moon, axis, rotation, day, night, phases of the moon, star, constellation, Mars, Venus, Saturn, Uranus, Jupiter, Neptune, Mercury, solar system

Forces
air resistance, water resistance, friction, gravity, newton, gears, pulleys

Animals including humans
circulatory, heart, blood vessels, veins, arteries, oxygenated, deoxygenated, valve, exercise, respiration

Living things and their habitats
classification, vertebrates, invertebrates, microorganisms, amphibians, reptiles, mammals, insects, arachnids, molluscs

Evolution and Inheritance
fossils, adaptation, evolution, characteristics, reproduction, genetics, environment, survival, species, adapt, offspring, genes

Light
reflection, light, emits, straight lines, angle of light,

Recap—translucent, transparent, opaque

Electricity
cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators, amps, volts, cell, voltage

SCIENCE

Research
Relevant questions, scientific enquiry

Comparative and fair test
Systematic careful observations, accurate measurements, conclusion, predictions, differences, similarities changes

Equipment
thermometer, data logger, data, gather record, classify, present

Record
drawings labelled, diagrams, keys, bar charts, tables

Classification
guides, keys, evidence, improve, guides, keys, construct, interpret

Research
Relevant questions, scientific enquiry

Comparative and fair test
Systematic careful observations, accurate measurements, conclusion, predictions, differences, similarities changes

Equipment
thermometer, data logger, data, gather record, classify, present

Record
drawings labelled, diagrams, keys, bar charts, tables

Classification
guides, keys, evidence, improve, guides, keys, construct, interpret

Report and Present
conclusions, causal relationships, explanations, degree of trust, oral and written, display, presentation.

Further comparative and fair testing
predictions, accuracy, plan, variables, measurements, precision, repeat readings,

Evidence
support, refute ideas or arguments, systematic, quantitative measurements, patterns

Record data
scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs

Classification
identify, classify, describe, secondary sources.

Record data
scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs

Classification
identify, classify, describe, secondary sources.

Evidence
support, refute ideas or arguments, systematic, quantitative measurements, patterns

Further comparative and fair testing
predictions, accuracy, plan, variables, measurements, precision, repeat readings,

Report and Present
conclusions, causal relationships, explanations, degree of trust, oral and written, display, presentation