



"The art and science of asking questions is the source of all knowledge." -

Thomas Berger

| Y6 LIFE | Y6 ENERGY | Y6 MATTER | Y6 BEING SCIENTIFIC | VOCABULARY |
|--|--|--|--|--|
| <ol style="list-style-type: none"> 1. Explain the mechanism of breathing and how this links to the circulatory system 2. Describe the effects of diet, exercise, drugs and lifestyle on the way bodies function and the consequences of imbalance in the diet (i.e. drug abuse, eating disorders, the impact of maternal lifecycle on a foetus) 3. Reason about the classification of living things according to common observable characteristics 4. Explain the concept of 'natural selection' and adaptation 5. Explain how fossils provide information about the changes to living things over time | <ol style="list-style-type: none"> 1. Compare and explain the effects of changes to voltage and position of components in an electrical circuit: 2. Represent circuits using recognised symbols 3. Describe the concept of absorption linked to the transmission of light through material 4. Explain imaging in mirrors using a ray model | <ol style="list-style-type: none"> 1. Explain changes of state in terms of particle model 2. Use and explain simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography | <ol style="list-style-type: none"> 1. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables. 2. Use test results to make predictions and to set up further comparative and fair tests. 3. Take measurements using a range of scientific equipment; record data and results accurately. 4. Report and present findings from enquiries 5. Use scientific evidence to support or refute ideas or arguments | classification, observable characteristics, class, genus, species, vertebrates, invertebrates, microorganisms, organism, natural selection, adaptation, fossils, evolution, inherited traits, adaptive traits, DNA, genes, variation, fossilisation, mechanisms, breathing, circulatory system, diet, exercise, drugs, imbalance, absorption, transmission, imaging, ray model, reflection, voltage, components, electrical circuit, switch, bulb, circuit diagram, changes in state, particle model, separating mixtures, filtration, evaporation, distillation, chromatography |

SUM 1: Electricity – Y6 E1,2, BS1,2

SUM 2: Matter – Y6 M1,2 BS1-4

SPR 1: Animals incl. Humans– Y6 L1,2, BS3,4

SPR 2: Light – Y6 E3,4 BS1,2

AUT 1: Living Things & Habitats– Y6 L3, BS4,5

AUT 2: Evolution/inheritance – Y6 L4,5, BS4,5

| Y5 LIFE | Y5 ENERGY | Y5 MATTER | Y5 BEING SCIENTIFIC | VOCABULARY |
|---|--|--|--|--|
| <ol style="list-style-type: none"> 1. Describe the interdependence of organisms, including food webs and insect-pollinated crops. 2. Describe reproduction in humans, including the development of male and female reproductive organs and systems 3. Discern the differences in the life cycles of a mammal, amphibian, reptile, bird and fish. 4. Discern the processes of reproduction in plants and animals | <ol style="list-style-type: none"> 1. Explain the effect of the force of gravity, including its impact on the moon, planets and solar system 2. Relate knowledge of air and water resistance to make predictions about the speed of movement 3. Compare and contrast how pulleys, levers and gears enable a smaller force to have a greater effect 4. Explain the effect of the earth's rotation, tilt and movement around the sun (i.e. day and night/movement of sun across sky/seasons) | <ol style="list-style-type: none"> 1. Demonstrate that dissolving, mixing and changes of state are reversible changes 2. Use knowledge of solids, liquids and gases to separate materials 3. Explore and identify reversible and irreversible changes on the basis of temperature 4. Justify the grouping of everyday materials based on evidence from comparative and fair tests. | <ol style="list-style-type: none"> 1. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables. 2. Use test results to make predictions and to set up further comparative and fair tests. 3. Take measurements using a range of scientific equipment; record data and results accurately. 4. Report and present findings from enquiries 5. Use scientific evidence to support or refute ideas or arguments | rotation, tilt, movement, orbit, axis, spherical, heliocentric, geocentric, hemisphere, season, gravity, moon, planets, solar system, air resistance, water resistance, speed, pulleys, levers, gears, force, effect, friction, accelerate, decelerate, dissolving, mixing, change of state, reversible, irreversible, solids, liquids, gas, separate, temperature, comparative and fair tests, evaporation, filtering, sieving, melting, interdependence, organisms, food webs, insect-pollinated crops, fertilization, producers, photosynthesis, consumers, predators, reproduction, reproductive organs and systems, gestation, fertilisation, foetus, life cycles, mammal, amphibian, bird, fish, reptile |

YEAR 6

AUT 1: Earth in Space– Y5 E4, BS5

AUT 2: Forces – Y5 E1-3, BS1-4

SPR 1: Properties & Changes of Materials – Y5 M1-4, BS1-4

SPR 2: Properties & Changes of Materials – Y5 M1-4, BS1-4

SUM 1: Living Things & Habitats– Y5 L1, BS5

SUM 2: Animals incl. Humans – Y5 L2-4, BS5

| Y4 LIFE | Y4 ENERGY | Y4 MATTER | Y4 BEING SCIENTIFIC | VOCABULARY |
|--|---|---|---|---|
| <ol style="list-style-type: none"> 1. Sequence the simple functions of the digestive system, including the role of teeth 2. Distinguish the functions of the heart, vessels, and blood 3. Use classification keys to group living things 4. Explain the impact of the environment on specific habitats | <ol style="list-style-type: none"> 1. Describe the role of components in a circuit through construction and make predictions about components. 2. Recognise the impact of common conductors and insulators 3. Recognise that sounds are made from vibrations and that these travel through different mediums to the ear: explore the impact of distance on volume 4. Compare and contrast the pitch of sounds made by different materials | <ol style="list-style-type: none"> 1. Compare and group materials together according to whether they are solids liquids or gas. 2. Describe the impact of temperature on a range of materials. 3. Explore and describe the concepts of evaporation and condensation linked to the water cycle. | <ol style="list-style-type: none"> 1. Ask relevant questions and use different types of scientific enquiry to answer them 2. Carry out simple practical enquiries, comparative and fair tests. 3. Observe systematically and carefully; where appropriate take measurements using standard units 4. Identify differences, similarities or changes related to simple scientific ideas or processes 5. Gather, record, classify and present data to answer questions. 6. Report on findings of investigations 7. Use scientific evidence to answer questions, draw simple conclusions, make predictions, suggests improvements and raise further questions | component, circuit, prediction, conductor, insulator, cell, vibration, volume, pitch, air, medium, solid, liquid, gas, temperature, evaporation, condensation, water cycle impact, environment, habitat, human impact, deforestation, digestive system, digestion, tongue, saliva oesophagus, acid, enzymes, teeth, incisors, canines, molars, function, heart, vessels, blood, classification keys |

YEAR 5

SUM 1: The Human Body Y4 L1-3, BS5

SUM 2: The Human Body Y4 L1-3, BS5

SPR 1: Electricity – Y4 E1,2, BS4

SPR 2: Habitats- Y4 L4, BS3,6,7

AUT 1: States of Matter Y4 M1-3, BS3,6,7

AUT 2: Sound – Y4 E3,4, BS1,2

| Y3 LIFE | Y3 ENERGY | Y3 MATTER | Y3 BEING SCIENTIFIC | VOCABULARY |
|--|--|---|---|---|
| <ol style="list-style-type: none"> 1. Identify and describe the role of skeletons and the circulatory system in animals 2. Describe the life cycle and process of reproduction in plants 3. Explain the specific nutritional needs of plants, animals and humans 4. Explain how different plants' needs vary | <ol style="list-style-type: none"> 1. Compare and contrast the movement of objects across surfaces and explain this using knowledge of friction. 2. Explain how magnets attract and repel one another using knowledge of poles; use this to make predictions 3. Identify the effect of the force of gravity 4. Identify the effect of air resistance and water resistance on movement 5. Recognise that light travels in straight lines and explain the effect of the position of an object in relation to a light source on its shadow. 6. Explain that objects are seen because they give out or reflect light into the eye. | <ol style="list-style-type: none"> 1. Compare and group rocks on the basis of their simple physical properties 2. Recognise that soils are made from rocks and organic matter 3. Describe in simple terms how fossils are formed | <ol style="list-style-type: none"> 1. Ask relevant questions and use different types of scientific enquiry to answer them 2. Carry out simple practical enquiries, comparative and fair tests. 3. Observe systematically and carefully; where appropriate take measurements using standard units 4. Identify differences, similarities or changes related to simple scientific ideas or processes 5. Gather, record, classify and present data to answer questions. 6. Report on findings of investigations 7. Use scientific evidence to answer questions, draw simple conclusions, make predictions, suggests improvements and raise further questions | movement, surfaces, friction, attract, repel, poles, gravity, air resistance, water resistance, magnetic poles, north, south, physical properties, soil, rock, organic matter, fossils, sedimentary, grains, crystals, circulatory system, nutritional needs, nutrients, carbohydrates, protein, fats, fibre, water, vitamins, minerals, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrate, invertebrate, contract, relax, muscles, ball joint socket, joint hinge, joint gliding, air, light, water, soil, room, straight lines, light source, shadow, reflect, surface, blocked, solid, artificial, natural, life cycle, reproduction, germination, pollen, fertilization, pollination, dispersal, ovary, spores |

YEAR 4

AUT 1: Forces & Magnets – Y3 E1-4, BS2,3,5,6

AUT 2: Rocks – Y3 M1-3, Y3 BS1

SPR 1: Animals incl. Humans - Y3 L1,3, BS1,7

SPR 2: Light & Shadows - Y3 E5,6 BS2-7

SUM 1: Plants - Y3 L2-4, BS1,7

SUM 2: Plants - Y3 L2-4, BS1,7

| Y2 LIFE | Y2 ENERGY | Y2 MATTER | Y2 BEING SCIENTIFIC | VOCABULARY |
|--|--|--|--|---|
| <ol style="list-style-type: none"> 1. Identify what living things needs to survive and flourish (i.e. food, water, exercise etc.) 2. Recognise and describe how living things differ to non-living things, and how they change as they grow (including plants and animals). 3. Construct and interpret food chains, identifying predators, producers and prey | <ol style="list-style-type: none"> 1. Describe the effect of applying a greater or lesser force to object (i.e. pushing/pulling harder) 2. Recognise that light is reflected from surfaces 3. Describe the features associated with season change | <ol style="list-style-type: none"> 1. Compare the suitability of materials for particular purposes 2. Explore the how the shapes of materials can be changed by the application of force | <ol style="list-style-type: none"> 1. Ask simple questions and recognise that these can be answered in different ways 2. Observe closely using simple equipment 3. Carry out simple tests 4. Identify and classify 5. Gather and record data to help answer simple questions 6. Use observations and ideas to suggest answers to questions | force, greater, lesser, reflect, surface, light, food, water, temperature, survive, flourish, leaf, root, leaves, bud, flowers, blossom, petals, stem, deciduous, evergreen, trunk, branches, germination, reproduction |

YEAR 3

SUM 1: Plants/Seasonal Change – Y2 L1,2, Y2 E3 Y2 BS1-6

SUM 2: Forces/Seasonal Change – Y2 E1-3, Y2 BS1-6

SPR 1: Living Things & Habitats – Y2 L1-3, Y2 BS1-6

SPR 2: Plants/Seasonal Change – Y2 L1,2, Y2 E3 Y2 BS1-6

AUT 1: Animals incl. Humans/ Seasonal Change – Y2 L1-3, E3, BS1,4,6

AUT 2: Materials/Seasonal Change – Y2 M1,2, Y2 BS1-6

| Y1 LIFE | Y1 ENERGY | Y1 MATTER | Y1 BEING SCIENTIFIC | VOCABULARY |
|--|--|---|--|---|
| <ol style="list-style-type: none"> 1. Recognise and describe the differences and similarities in plants and animals (i.e. herbivores/omnivores, fish, reptiles, mammals, amphibians, birds, evergreen/deciduous | <ol style="list-style-type: none"> 1. Identify and describe simple forces, including pushes and pulls. 2. Recognise that dark is the absence of light 3. Observe the features associated with season change | <ol style="list-style-type: none"> 1. Describe, compare and group a variety of materials and their uses on the basis of their simple physical properties | <ol style="list-style-type: none"> 1. Ask simple questions and recognise that these can be answered in different ways 2. Observe closely using simple equipment 3. Carry out simple tests 4. Identify and classify 5. Gather and record data to help answer simple questions 6. Use observations and ideas to suggest answers to questions | carnivores, herbivores, omnivores, fish, reptiles, mammals, amphibians, birds, deciduous and evergreen, seasons, summer, winter autumn, spring, day, daytime, push, pull, force, light, dark hard, soft, smooth, bumpy, curved, straight, shiny, dull, bendy, plastic, metal, fabric, glass, wood, brick. |

YEAR 2

AUT 1: Animals incl. humans - Y1 L1, Y1 BS1,4,6

AUT 2: Plants & Seasonal Change – Y1 L1, Y1 E3, Y1 BS2-5

SPR 1: Living Things - Y1 L1, Y1 BS1

SPR 2: Forces & Seasonal Change – Y1 E1,3, Y1 BS1, 3, 5, 6

SUM 1: Light & Seasonal Change – Y1 E2,3, Y1 BS1,3,6

SUM 2: Materials - Y1 M1, Y1 BS1-6

| YR LIFE | YR ENERGY | YR MATTER | YR BEING SCIENTIFIC | VOCABULARY |
|---|--|--|--|---|
| <ol style="list-style-type: none"> 1. Identify and name common animals and plants: talk about change | <ol style="list-style-type: none"> 1. Explore the effect of simple forces (i.e. pushes and pulls, magnets) through continuous provision | <ol style="list-style-type: none"> 1. Experience, explore and describe a range of common materials. | <ol style="list-style-type: none"> 1. Explore, describe and question the world around them. | Identify, name, explore, experience, describe, question, change, similarities, differences, push, pull, magnets, attract, plastic, metal, paper, wood, hard, soft, rough, smooth, bumpy, shiny, spring, summer, autumn, winter, |

YEAR 1

EYFS ELG (The Natural World): Explore the natural world around them, making observations and drawing pictures of animals and plants; know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

YEAR R

Reception cover the full range of concepts over the course of the year; the timing of this is guided by children's interests. This is planned and delivered through highly personalised objective-led planning, as well as through ongoing continuous provision opportunities.

Novels linked to Science

Y6 AUT
Moth – Isabel Thomas
Where the World Turns Wild – Nicola Penfold
Wild Animals of the North – Dieter Braun

Y6 SPR
Pig Heart Boy – Malorie Blackman
How does a Lighthouse Work? – Roman Belyere

Y6 SUM
The Element in the Ro – Barfield
Itch – Simon Mayo

Y5 AUT
Cosmic – Frank Cottrell Boyce
Moon Juice – Kate Wakeling
Older than the Stars – Karen C. Fox
The Jamie Drake Equation – Christopher Edge
The Kid that came from Space – Ross Welford
Sputnik's Guide to Life on Earth – Frank Cottrell Boyce

Y5 SUM
Bloom – Nicola Skinner
The Watcher – Jeanette Winter
The Lost Spells – Robert Macfarlane
The Island at the End of Everything – Karen Millwood Hargrave

Y4 AUT
The Drop in my Drink – Meredith Hooper

Y4 SPR
Where the forest meets the sea – Jeannie Baker
Mouse, Bird, Snake, Wolf – David Almond
Tiger Tiger Burning Bright – Fiona Walters

Y4 SUM
George's Marvellous Medicine – Roald Dahl

Y3 AUT
If – David Smith
The Pebble in my Pocket – Meredith Hooper
The Street Beneath my Feet – Charlotte Gullian

Y3 SPR
On a Beam of Light – Jennifer Berne
This Morning I Met a Whale – Michael Morpurgo

Y3 SUM
The Lost Words – Robert Macfarlane

Y2
The Story of Life – Catherine Barr
Yucky Worms – Vivian French
Sophie's Snail – Dick King Smith
Dear Greenpeace – Simon James
We build our homes – Laura Knowles

Y1
Tadpole's Promise – Jeanne Willis
A Planet Full of Plastic – Neal Layton
Here We Are – Oliver Jeffers
Stellaluna – J. Cannon
Ada Twist Scientist – Andrea Beaty
Rosie Revere Engineer – Beatty

Y1
The Tiny Seed – Eric Carle
Funnybones – Janet and Allan Ahlberg
The Darkest Dark – Chris Hadfield
Out and About – Shirley Hughes
The Big Book of Bugs – Yvael Zimmer

EYFS
Biscuit Bear – Mini Grey
How to catch a star – Oliver Jeffers
Can't you Sleep Little Bear? – Benji Davies
Waddell
The Rainbow Fish – Marcus Pfister
Let's Build a House – Mick Manning
Tad – Benji Davies
The Growing Story – Ruth Krauss
Zim Zam Zoom – James Carter
The Wind Blew – Pat Hutchins
Whatever Next – Jill Murphy
Look Out Ladybird – Jack Tickle
Owl Babies – Martin Waddell
How Many Legs? – Jim Field
Tree – Britta Teckentrup