Science Cycle A LKS2

<table>
<tr><td colspan="4">LKS2 - Animals including humans
Autumn 1</td></tr>
<tr><td colspan="2">Substantive Knowledge</td><td colspan="2">Disciplinary Knowledge</td></tr>
<tr><td>What will pupils know?</td><td>Vocabulary</td><td colspan="2">Techniques the pupils will learn and apply.</td></tr>
<tr><td rowspan="2">• 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

• that humans and some other animals have skeletons and muscles for support, protection and movement</td><td rowspan="2">• nutrition
• balanced diet
• vitamins
• minerals

• skeleton - skull, clavicle, scapula, rib cage, humerus, spinal column, pelvis, ulna, radius, femur, tibia, fibula
• exoskeleton
• endoskeleton

• muscle - biceps, triceps
• soft tissue
• tendon
• relax, contract</td><td colspan="2">I can set up simple, practical enquiries and fair tests.

I can make careful observations, taking accurate measurements.

I can record findings using simple scientific language, drawings, labelled diagrams and tables.</td></tr>
<tr><td colspan="2">Skills</td></tr>
<tr><td>Year 3</td><td>Year 4</td></tr>
<tr><td>I can group and classify bones and muscles.

I can identify similarities and differences related to simple scientific ideas.

I can use results to draw simple conclusions.</td><td>I can explain about bones and muscles.

I can explain similarities and differences related to simple scientific ideas.

I can use results to explain simple conclusions.</td></tr>
<tr><td colspan="4">Prior Learning- What should they already know?</td></tr>
<tr><td colspan="4">KS1
The basic parts of the human body and say which part of the body is associated with each sense.
The structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).
The importance for humans of exercise, eating the right amounts of different types of food and hygiene.</td></tr>
</table>

Science Cycle A LKS2

<table>
<tr><td colspan="3">LKS2 – Sound
Autumn 2</td></tr>
<tr><td colspan="2">Substantive Knowledge</td><td>Disciplinary Knowledge</td></tr>
<tr><td>What will pupils know?</td><td>Vocabulary</td><td>Techniques the pupils will learn and apply.</td></tr>
<tr><td rowspan="2">how sounds are made, associating some of them with something vibrating.
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.
that sounds get fainter as the distance from the sound source increases.</td><td rowspan="2">vibrates
material
volume
pitch
sound wave</td><td>I can make systematic and careful observations.

I can take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

I can gather, record, classify and present data in a variety of ways to help in answering questions.</td></tr>
<tr><td>Skills<table><tr><td>Year 3</td><td>Year 4</td></tr><tr><td>I can identify differences, similarities or changes related to simple scientific ideas and processes.

I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</td><td>I can explain differences, similarities or changes related to simple scientific ideas and processes.

I can summarise results to draw simple conclusions, make predictions for new values, explain improvements and raise further questions.</td></tr></table></td></tr>
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</table>

Science Cycle A LKS2

KS1
The basic parts of the human body and say which part of the body is associated with each sense.

<table>
<tr><th colspan="4">KS2- Rocks
Spring term</th></tr>
<tr><th colspan="2">Substantive Knowledge</th><th colspan="2">Disciplinary Knowledge</th></tr>
<tr><th>What will pupils know?</th><th>Vocabulary</th><th colspan="2">Techniques the pupils will learn and apply.</th></tr>
<tr><td rowspan="3">Compare and group together different kinds of rocks on the basis of their simple, physical properties.
Relate the simple physical properties of some rocks to their formation (igneous or sedimentary).
Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.
Recognise that soils are made from rocks and organic matter.</td><td rowspan="3">erosion
magma
tectonic plates
solidify
dissolve
sedimentary
metamorphic
igneous</td><td colspan="2">I can set up simple practical enquiries.

I can record findings using simple scientific language, drawings, labelled diagrams and tables.</td></tr>
<tr><td colspan="2">Skills</td></tr>
<tr><td>Year 3</td><td>Year 4</td></tr>
<tr><td>I can summarise my findings from enquiries – written or oral.

I can ask relevant questions and use different types of scientific enquiries to answer them.</td><td>I can explain my findings from enquiries – written or oral.

I can ask relevant questions and use different types of scientific enquiries to speculate answers to them.</td></tr>
<tr><td colspan="4">Prior Learning- What should they already know?</td></tr>
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Science Cycle A LKS2

KS1
Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, paper/cardboard for particular uses.

<table>
<tr><th colspan="4">LKS2 - Living things and their habitats</th></tr>
<tr><th colspan="3">Substantive Knowledge</th><th>Disciplinary Knowledge</th></tr>
<tr><th>What will pupils know?</th><th colspan="2">Vocabulary</th><th>Techniques the pupils will learn and apply.</th></tr>
<tr>
<td rowspan="2">Recognise that living things can be grouped in a variety of ways.
Explore and use classification keys.
Recognise that environments can change and that this can sometimes pose dangers to specific habitats.</td>
<td>vertebrates
invertebrates
insect
arachnid
mollusc
flowering plants
non-flowering plants
grasses, cereals, garden shrubs, deciduous trees</td>
<td>coniferous
algae
gills
fins
scales
lungs
body temperature
section</td>
<td>I can set up simple practical enquiries, comparative and fair tests.

I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

I can gather, record, classify and present data in a variety of ways to help in answering questions.

I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</td>
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<tr><th colspan="2">Skills</th></tr>
<tr><th>Year 3</th><th>Year 4</th></tr>
<tr><td>I can summarise results to draw simple conclusions, make</td><td>I can explain results to speculate about simple conclusions, make</td></tr>
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</table>

			predictions for new values, suggest improvements and raise further questions. I can **identify** differences, similarities or changes related to simple scientific ideas and processes. I can **use** straightforward scientific evidence to answer questions or to support their findings.	predictions for new values, suggest improvements and raise further questions. I can **explain** differences, similarities or changes related to simple scientific ideas and processes. I can **synthesise about** straightforward scientific evidence to answer questions or to support their findings.

Prior Learning- What should they already know?
KS1 Explore and compare the differences between things that are living, that are dead and that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

LKS2 - Forces and magnets		
Substantive Knowledge		Disciplinary Knowledge
What will pupils know?	Vocabulary	Techniques the pupils will learn and apply.
• Compare how things move on different surfaces.	• squeezed • contact • magnetic	I can set up simple practical enquiries, comparative and fair tests. I can gather, record, classify and present data in a variety of ways to help in answering questions.

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- 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.

</td>
<td>

- attract
- repel

</td>
<td colspan="2">

I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

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<tr><th colspan="2">Skills</th></tr>
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<td>I can summarise results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
I can identify differences, similarities or changes related to simple scientific ideas and processes.

I can use straightforward scientific evidence to answer questions or to support their findings.</td>
<td>I can explain results to speculate about simple conclusions, make predictions for new values, suggest improvements and raise further questions.

I can explain differences, similarities or changes related to simple scientific ideas and processes.

I can synthesise about straightforward scientific evidence to answer questions or to support their findings.</td>
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<tr><th colspan="3">Prior Learning- What should they already know?</th></tr>
<tr><td colspan="3">KS1
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</td></tr>
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