Empiribox KS2 – New National Curriculum "I can" statements

Term 1 Physics – Forces and Magnetism

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can compare how things move on different surfaces. I know that some forces need contact between two objects. I know that magnetic forces can act at a distance. I know that magnets can attract or repel each other. I know that magnets attract some materials but not others. I can compare and group everyday materials based on whether they are attracted to a magnet. I can identify some magnetic materials. I can describe magnets as having two poles. I can predict whether two magnets will attract or repel, depending on which poles are facing.	**Forces** I can explain that unsupported objects fall towards Earth because of the force, gravity. I can identify the effects of air resistance. I can identify the effects of water resistance. I can identify the effects of friction. I know that mechanisms (levers, pulleys and gears) allow a smaller force to have a greater effect. I can research how scientists helped to develop the theory of gravity. **Earth and Space** I can describe the movement of the Earth, and other planets, relative to the Sun. I can describe the movement of the Moon relative to the Earth. I can describe the Sun, Earth and Moon as approximately spherical bodies. I can explain day and night and the apparent movement of the Sun across the sky in relation to the Earth's rotation.

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	I know that the Sun is a star. I know and can name the 8 planets in our Solar System. I know that the Moon is a celestial body. I know how ideas about our Solar System have developed over time (geocentric to heliocentric). I can create a simple model of the Solar System. I can find out why some people think that Stonehenge might have been used as an astronomical clock.

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Term 2 Chemistry – Particle Theory

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can compare and group materials based on whether they are solids, liquids or gasses. I can observe that materials change state when they are heated or cooled. I can measure and research temperatures (in degrees Celsius) that cause different materials to change state. I can identify the part played by evaporation and condensation in the water cycle. I can associate the rate of evaporation with temperature. I can observe water as a solid, liquid and gas.	I can compare and group materials based on their properties (including hardness, solubility, transparency, conductivity and response to magnets). I know some materials dissolve in liquid to form a solution. I can describe how to recover a substance from a solution. I can give reasons for the uses of everyday materials, including metals, woods and plastic (these reasons should be based on testing and results).

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Term 3 Biology – Plants and Photosynthesis

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can identify the different parts of a flowering plant. I can describe the functions of different parts of a flowering plant. I can explore what a plant needs to live and grow. I know that different plants have different requirements. I can investigate how water is transported in a plant. I can explore the job of a flower in the lifecycle of a flowering plant. I know how flowers are pollinated. I know how seeds are formed. I know how seeds are dispersed. I can explore the role of the roots and stem in nutrition and support.	I know that plants are adapted to suit their environment in different ways. I can describe how living things are classified into groups according to their characteristics, similarities and differences (micro-organisms, plants and animals). I can give reasons for classifying plants based on characteristics. I can describe the life process of reproduction in some plants. I can find out about sexual and asexual reproduction in plants.

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Term 4 Physics – Energy and Sound

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I recognise some common conductors. I recognise some common insulators. I know that metals are good conductors. I know that I need light to see things. I know that darkness is the absence of light. I notice that light is reflected from surfaces. I can identify how sounds are made through vibration. I know that vibrations travel through a medium to my ear. I can notice patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations that produced it. I know that sounds get fainter as the distance from the sound source is increased. I can explore how sound is made through vibrations and how pitch and volume can be manipulated.	I can associate the brightness of a lamp or the volume of a buzzer with the voltage of cell used. I can associate the brightness of a lamp or the volume of a buzzer with the number of cells used.

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Term 5 Chemistry – Chemical Change

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can observe that materials change state when they are heated or cooled. I can measure and research temperatures (in degrees Celsius) that cause different materials to change state. I can predict whether a material can be changed and if that change can be reversed. I can see that chemical reactions happen at different speeds.	I can demonstrate that dissolving is reversible. I can demonstrate that mixing is reversible. I can demonstrate that changes of state are reversible. I can explain that some changes result in the formation of a new material and that this kind of change is usually irreversible. I can find out how a chemist invented a new material e.g. Spencer Silver or Ruth Benerito.

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Term 6 Biology – Human Health and Fitness

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I know that humans have muscles for support, protection and movement. I know that humans need the right types and amounts of nutrition. I know that humans have skeletons for support, protection and movement. I can describe the simple functions of the digestive systems in humans. I can name the main parts of the human digestive system.	I can identify the main parts of the human circulatory system. I can name the main parts of the human circulatory system. I can describe the functions of the heart, blood vessels and blood. I recognise the impact of diet on the way my body functions. I recognise the impact of exercise on the way my body functions. I recognise the impact of drugs on the way bodies function. I recognise the impact of lifestyle on the way my body functions. I can describe the way nutrients and water are transported within animals. I know some things that are harmful to my body. I can describe changes as humans develop to old age. I can draw a timeline to indicate stages in human growth and development. I can learn about some changes experienced during puberty. I can research the gestation period of other animals and comparing this with human gestation.

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Term 7 Physics - Electricity

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can identify common appliances that run on electricity. I can make a simple series electrical circuit. I can name basic electrical components – cells, wires, bulbs, switches and buzzers. I can identify whether or not a lamp will light based on whether or not the lamp is part of a complete loop with a cell. I recognise that a switch can be open or closed. I know that a switch can control whether a lamp will light in a simple series circuit. I recognise some common conductors. I recognise some common insulators. I know that metals are good conductors. I can draw a circuit using conventional circuit symbols. I know the precautions for working safely with electricity.	I can associate the brightness of a lamp and the volume of a buzzer with the voltage of cell used. I can associate the brightness of a lamp and the volume of a buzzer with the number of cells used. I can compare variations in how components function (brightness of bulbs, loudness of buzzers, on/off position of switches). I can give reasons for variations in how components function (brightness of bulbs, loudness of buzzers, on/off position of switches). I can use recognised symbols when representing a simple circuit on a diagram. I know what precautions to take to work safely with electricity. I can design and make a set of traffic lights using electrical components.

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Term 8 Chemistry – Geology, Mixtures and Separations

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can compare different rocks based on their appearance and their physical properties. I can group different rocks based on their appearance and their physical properties. I can use a microscope to identify and classify rocks according to whether they are made of grains or crystals. I can describe how fossils are formed. I can recognise that soils are made from rocks and organic matter. I can explore different soils and identify similarities and differences between them.	I can use my knowledge of solids, liquids and gases to decide how to separate a mixture (including filtering, sieving and evaporating). I can demonstrate that dissolving is reversible. I can demonstrate that mixing is reversible. I can demonstrate that changes of state are reversible. I can explain that some changes result in the formation of a new material and that this kind of change is usually irreversible. I can find out how a chemist invented a new material e.g. Spencer Silver or Ruth Benerito.

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Term 9 Biology – Environment, Ecology and Evolution

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I know that animals need the right types and amounts of nutrition. I know that animals cannot make their own food. I know that some animals have skeletons for support, protection and movement. I can group animals with and without skeletons and compare their movement. I know that some animals have muscles for support, protection and movement. I know that living things can be grouped in a variety of ways. I can explore and use classification keys to group living things in the wider environment. I can explore and use classification keys to identify and name living things in their local environment. I know that environments can change and that this can pose dangers to living things.	I know that living things have changed over time. I know that fossils provide information about living things that inhabited the Earth millions of years ago. I know that living things produce offspring, but normally offspring are not identical to their parents. I know that animals are adapted to suit their environment in different ways. I know that adaptation can lead to evolution. I know that characteristics are passed from parents to their offspring. I can find out about the work of palaeontologists e.g. Mary Anning. I can find out about how Darwin and Wallace developed their ideas about evolution. I can describe the difference in the life cycles of mammals, amphibians, insects and birds. I can describe the life process of reproduction in some animals. I can find out about the work of a naturalist e.g. David Attenborough or Jane Goodall.

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I can use the local environment to identify and study plants and animals in their habitats. I know how habitats change through the year. I can put vertebrate animals into groups: fish, amphibians, reptiles, birds and mammals. I can put invertebrate animals into groups: snails and slugs, worms, spiders and insects. I can explore how the teeth of carnivores and herbivores are different. I can construct simple food chains. I can interpret a variety of food chains. I can identify producers, predators and prey.	I can describe how living things are classified into groups according to their characteristics, similarities and differences (micro-organisms, plants and animals). I can give reasons for classifying animals based on characteristics. I can look at a classification system in greater detail. I can look at subdivisions within a class of living things. I can classify animals through direct observations. I can find out about significant scientists e.g. Carl Linnaeus (pioneer of classification).

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Term 10 Physics - Light

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I know that I need light to see things. I know that darkness is the absence of light. I notice that light is reflected from surfaces. I can play mirror games to explore how light behaves. I know that light from the Sun can be dangerous. I know ways to protect my eyes from sunlight. I know that a shadow is formed when a light from a light source is blocked by a solid object. I can find patterns in the way that the size of shadows change.	I can recognise that light travels in straight lines. I know that because light travels in straight line, I am able to see objects because they give out or reflect light into the eye. I can explain that we see things because light travels from a light source to our eyes or from a light source to an object to our eyes (reflection). I know that shadows have the same shape as objects that cast them because light travels in straight lines. I can design and make a periscope and use my knowledge of how light travels to explain how it works. I can look at rainbows, colours on soap bubbles, objects that look bent in water and coloured filters and explain why these phenomena occur.

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Term 11 Chemistry – Acids and Alkalis

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can observe that materials change state when they are heated or cooled. I can measure and research temperatures (in degrees Celsius) that cause different materials to change state. I can identify the part played by evaporation and condensation in the water cycle. I can associate the rate of evaporation with temperature. I can observe water as a solid, liquid and gas.	I can demonstrate that dissolving is reversible. I can demonstrate that mixing is reversible. I can demonstrate that changes of state are reversible. I can explain that some changes result in the formation of a new material and that this kind of change is usually irreversible. I can find out how a chemist invented a new material e.g. Spencer Silver or Ruth Benerito. I can compare and group materials based on their properties (including hardness, solubility, transparency, conductivity and response to magnets). I know some materials dissolve in liquid to form a solution. I can describe how to recover a substance from a solution. I can give reasons for the uses of everyday materials, including metals, woods and plastic (these reasons should be based on testing and results).

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Term 12 Biology – Senses

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I know that humans have skeletons for support, protection and movement. I can identify different types of teeth in humans. I know the functions of different teeth in humans. I know that vibrations travel through a medium to my ear. I can notice patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations that produced it.	I know that because light travels in straight line, I am able to see objects because they give out or reflect light into the eye. I can explain that we see things because light travels from a light source to our eyes or from a light source to an object to our eyes (reflection). I can describe the way nutrients and water are transported within animals.

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Working Scientifically

Black- statutory objective

Blue – non-statutory objective

Underlined – key vocabulary to be displayed during unit

Lower Key Stage 2	Upper Key Stage 2
I can ask relevant questions. I can conduct a scientific enquiry to answer my own questions. I can set up a simple scientific enquiry. I can make careful observations. I can take accurate measurement using standard units of measure. I can gather data to answer a question. I can record data to answer a question. I can report findings using simple scientific language. I can report findings using drawings. I can report findings using labelled diagrams. I can report findings using a table. I can report findings from an enquiry orally and in a written conclusion. I can use results to draw a simple conclusion. I can use results to make a prediction for further values. I can identify difference, similarities and changes related to simple scientific ideas.	I can plan different types of scientific enquiries to answer questions. I can recognise and control variables. I can take accurate and precise measurements using scientific equipment. I can take repeat measurements where appropriate. I can record data and results using diagrams with labels. I can record data and results using tables. I can record data and results using bar and line graphs. I can use test results to make further predictions which will feed into further comparative and fair tests. I can report findings from an enquiry both orally and in writing. I can make a conclusion based on a test. I can explain results from an enquiry. I can identify a degree of trust within an enquiry.

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