MARINA INTERNATIONAL SCHOOL

SCIENCE SCHEME OF WORK

YEAR 5 - TERM 1

WEEK	TOPIC	TOPIC DETAILS
1.1	Identify the parts of a flower	Identify the parts of a flower (limited to petals, sepals, anthers, filaments, stamens, stigma, style, carpel, and ovary). Learners can make and/or use a diagram of a flower.
1.2	Describe the functions of the parts of a flower	Describe the functions of the parts of a flower (limited to petals, anthers, stigma and ovary
1.3	Know that not all plants produce flowers	Flowering, non-flowering Learners can use diagrams of different plants to show understanding that not all plants produce flowers.
1.4	----------	----------
2.1	Know that not all plants produce flowers.	Learners can use diagrams of different plants to show understanding that not all plants produce flowers
2.2	Describe seed germination	Describe seed germination and know that seeds, in general, require water and an appropriate temperature to germinate. Learners can make and/or annotate a diagram of the stages of the process of seed germination
2.3	Describe how flowering plants reproduce.	Describe how flowering plants reproduce by pollination, fruit and seed production, and seed dispersal. Learners can examine, make and/or use models of different types of seed to demonstrate dispersal methods; paper helicopters, hook-and-loop
2.4	----------	----------
3.1	Describe how flowering plants are adapted to attract pollinators	Describe how flowering plants are adapted to attract pollinators and promote seed dispersal Learners can create and/or annotate the diagrams of flowers and seeds to show adaptations.

WEEK	TOPIC	TOPIC DETAILS
3.2	Describe how plants and animals are adapted to environments	Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry. Learners can make and/or annotate diagrams of different plants and their specific adaptations
3.3	Identify the parts of a flower.	----------
3.4	----------	----------
4.1	Describe the functions of the parts of a flower.	Describe the functions of the parts of a flower (limited to petals, anthers, stigma and ovary).
4.2	know that not all plants produce flowers.	know that not all plants produce flowers. Take learners on a walk in your local area (within the school grounds or further afield) and look for different plants. Try to find examples of non-flowering plants such as mosses, ferns and conifers.
4.3	Flowering plant life cycle	What are the key stages in the life cycle of a flowering plant? What changes occur to the plant through its life cycle? Can you identify the stages at which the key parts appear and their functions?
4.4	----------	----------
5.1	Describe how flowering plants reproduce	Describe how flowering plants reproduce by pollination, fruit and seed production, and seed dispersal. .
5.2	Understand that substances can be gaseous and know the common gases at room temperature.	Learners can use diagrams to show their understanding that substances can be gaseous. Understand that substances can be gaseous and know the common gases at room temperature (limited to oxygen, carbon dioxide, water (vapors), nitrogen and hydrogen).
5.3	Use the particle model to describe solid, liquids	Use the particle model to describe solid, liquids (including solutions) and gases. Learners, through the learning objective, will continue to develop their understanding of the particle model, which can be represented as a diagram, through explanation or through drama.
5.4	----------	----------

WEEK	TOPIC	TOPIC DETAILS
6.1	ACROSS THE BOARD TEST	REVISION Know the main properties of water (limited to boiling point, melting point, expands when it solidifies, and its ability to dissolve a range of substances) and know that water acts differently from many other substances. Know the main properties of water.
6.2	Describe the processes of evaporation and condensation	Describe the processes of evaporation and condensation, using the particle model and relating the processes to changes in temperature
6.3	Know the ability of a solid to dissolve.	Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid. Learners can develop their use of the particle model to show their understanding of dissolving and use labelled diagrams where the solvent and solid are labelled
6.4	----------	----------
7.1	Investigate and describe the process of dissolving and relate it to mixing.	Learners can develop their use of the particle model to show their understanding of dissolving and use labelled diagrams where the solvent and solid are labelled.
7.2	Understand that dissolving is a reversible process.	Understand that dissolving is a reversible process and investigate how to separate the solvent and solute after a solution is formed.
7.3	Understand that substances can be gaseous and know the common gases at room temperature.	Understand that substances can be gaseous and know the common gases at room temperature (limited to oxygen, carbon dioxide, water (vapors), nitrogen and hydrogen.
7.4	----------	----------
8.1	Use the particle model to describe solid, liquids (including solutions) and gases.	Present the particle model for a solid and liquid. Explain how the model helps us describe a solid or liquid and discuss the differences in the arrangement and difference in movement of the particles in solids and liquids.
8.2	Know the main properties of water.	Know the main properties of water (limited to boiling point, melting point, expands when it solidifies, and its ability to dissolve a range of substances) and know that water acts differently from many other substances.
8.3	Describe the processes of evaporation.	Describe the processes of evaporation and condensation, using the particle model and relating the processes to changes in temperature

WEEK	TOPIC	TOPIC DETAILS
8.4	----------	----------
9.1	.Know that the ability of a solid to dissolve.	Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid.
9.2	Know that the ability of a solid to dissolve.	Define evaporation Discuss/demonstrate other everyday examples/substances that evaporate e.g. perfume/after-shave, air freshener. Discuss how the aroma reaches your nose. Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid.
9.3	Use the particle model to describe solid, liquids	Use the particle model to describe solid, liquids.
9.4	----------	----------
10.1	How much salt can dissolve in water?	Investigate and describe the process of dissolving, and relate it to mixing.
10.2	Understand dissolving is a reversible process.	Dissolving is a reversible process and investigate how to separate the solvent and solute after a solution is formed. Use models, including diagrams, to represent and describe scientific phenomena and ideas.
10.3	Know that the ability of a solid to dissolve.	Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid.
10.4	----------	----------
11.1	Use models, including diagrams, to represent and describe scientific phenomena and ideas	REVISION Dissolving is a reversible process and investigate how to separate the solvent and solute after a solution is formed. Use models, including diagrams, to represent and describe scientific phenomena and ideas.
11.2	Know that the ability of a solid to dissolve.	Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid,
11.3	Use the particle model to describe solid, liquids	Know that the ability of a solid to dissolve and the ability of a liquid to act as a solvent are properties of the solid and liquid.

WEEK	TOPIC	TOPIC DETAILS
11.4	----------	----------
12.1	Investigate and describe the process of dissolving and relate it to mixing.	Learners can develop their use of the particle model to show their understanding of dissolving and use labelled diagrams where the solvent and solid are labelled.
12.2	Understand that dissolving is a reversible process	Understand that dissolving is a reversible process and investigate how to separate the solvent and solute after a solution is formed.
12.3	Understand that substances can be gaseous and know the common gases at room temperature.	Understand that substances can be gaseous and know the common gases at room temperature (limited to oxygen, carbon dioxide, water (vapors), nitrogen and hydrogen).
12.4	----------	----------
13.1	Know that air contains water vapour and when this meets a cold surface it may condense.	Provide examples of condensation. Annotate where the water vapors has come from.
13.2	Know the main properties of water.	Know the main properties of water (limited to boiling point, melting point, expands when it solidifies, and its ability to dissolve a range of substances) and know that water acts differently from many other substances.
13.3	Know the main properties of water.	Properties of water Explain that only one substance on Earth exists in all three states naturally, let them discuss in pairs what they think it might be: What substance do you think it is? Why?
13.4	----------	----------
14.1	How to separate sand and salt from a solution	Investigate how to separate sand and salt from a solution – plan and do whole investigation Observe puddles drying up in the playground. Discuss other familiar examples e.g. washing drying etc

WEEK	TOPIC	TOPIC DETAILS
14.2	How to separate sand and salt from a solution	Investigate how to separate sand and salt from a solution – plan and do whole investigation Observe puddles drying up in the playground. Discuss other familiar examples e.g. washing drying etc,
14.3	How to separate sand and salt from a solution	Investigate how to separate sand and salt from a solution – plan and do whole investigation Observe puddles drying up in the playground. Discuss other familiar examples e.g. washing drying etc.
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SCIENCE SCHEME OF WORK

YEAR 5 - TERM 2

WEEK	TOPIC	TOPIC DETAILS
1.1	Identify a range of forces.	Identify a range of forces (limited to gravity, applied forces, normal forces, up thrust, friction, air resistance and water resistance). Learners can use diagrams to represent the range of forces.
1.2	Know that an object may have multiple forces acting on it.	Know that an object may have multiple forces acting upon it, even when at rest. Learners can use force diagrams, of their own design, to show multiple forces acting on an object.
1.3	Use force diagrams to show the name and direction of forces acting on an object.	Use force diagrams to show the name and direction of forces acting on an object. Learners will use force diagrams extensively within this unit.
2.1	Know that forces act over a distance between magnets	Know that forces act over a distance between magnets, and between a magnet and a magnetic material. Learners can be shown a diagram of a magnetic field showing how it extends beyond the magnet
2.2	Know the difference between a magnet and a magnetic material.	Learners can use diagrams, and appropriate models, to show the difference between a magnet and a magnetic material.
2.3	Know that magnets can have different magnetic strengths	Learners can use diagrams to show their understanding that magnets can have different strengths.
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WEEK	TOPIC	TOPIC DETAILS
3.1	Identify a range of forces.	Learners draw a diagram of an object at rest on a flat surface showing gravity pulling it down and the normal force pushing up; there is no need to introduce force diagrams at this stage, learners choose how they want to show the forces.
3.2	Know that an object may have multiple forces acting upon it, even when at rest.	Make predictions, referring to relevant scientific knowledge and understanding within familiar and unfamiliar contexts
3.3	Use force diagrams to show the name and direction of forces acting on an object	----------
3.4	----------	----------
4.1	Know that forces act over a distance between magnets	Know that forces act over a distance between magnets, and between a magnet and a magnetic material. Carry out practical work safely.
4.2	Know the difference between a magnet and a magnetic material.	Provide learners with a variety of different materials. Learners test each material by touching it with a magnet; they then group the materials into those that are magnetic and those that are not. What similarities are there between the magnetic materials? Were there any materials that you were surprised by? Can you predict whether a material will be magnetic or not?
4.3	Know that magnets can have different magnetic strengths.	Give learners a range of different sized and shaped magnets; include some neodymium magnets if possible. Can you predict the strength of a magnet based on its size or shape?
4.4	----------	----------
5.1	.Describe the human digestive system.	Describe the human digestive system, including the functions of the organs involved (limited to mouth, esophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system. Learners could create (or annotate) diagrams of the digestive system to show their understanding.

WEEK	TOPIC	TOPIC DETAILS
5.2	Balanced diet- know that animals, including humans, need an adequate, balanced diet in order to be healthy	Learners can create (or annotate) a diagram showing their understanding of an adequate and balanced diet.
5.3	Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry	Learners could create (or annotate) diagrams of animals which highlight the adaptations that help them to survive in a specific environment
5.4	---------	----------
6.1	Describe the commons adaptations of predator and prey animals.	Learners could create (or annotate) diagrams of prey and predator animals, which highlight the adaptations that help them to survive in a specific environment
6.2	Describe the human digestive system, including the functions of the organs involved.	Describe the human digestive system, including the functions of the organs involved (limited to mouth, esophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system
6.3	Know that animals, including humans, need an adequate, balanced diet in order to be healthy.	Weekly food diary Learners keep a diary of what they eat in the course of a week; they note down approximate portion sizes and which of the major food groups their food fits into (i.e. fruit and vegetables, starchy carbohydrates, oils and fats, dairy, protein).
6.4	----------	----------
7.1	Animal adaptations in different environments.	Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry.
7.2	Describe the common adaptations of predator and prey animals.	Remind learners that animals can be predators and/or prey. Where do animals get their food? Do you know any examples of animals that are predators, prey or both?

WEEK	TOPIC	TOPIC DETAILS
7.3	Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry	Learners could create (or annotate) diagrams of animals which highlight the adaptations that help them to survive in a specific environment
7.4	----------	----------
8.1	Describe the common adaptations of predator and prey animals.	Learners could create (or annotate) diagrams of prey and predator animals, which highlight the adaptations that help them to survive in a specific environment.
8.2	Describe the common adaptations of predator and prey animals.	Learners could create (or annotate) diagrams of prey and predator animals, which highlight the adaptations that help them to survive in a specific environment.
8.3	Describe the common adaptations of predator and prey animals.	Remind learners that animals can be predators and/or prey. Where do animals get their food? Do you know any examples of animals that are predators, prey or both?
8.4	----------	----------
9.1	Know that animals, including humans, need an adequate, balanced diet in order to be healthy.	Learners keep a diary of what they eat in the course of a week; they note down approximate portion sizes and which of the major food groups their food fits into (i.e. fruit and vegetables, starchy carbohydrates, oils and fats, dairy, protein).
9.2	Animal adaptations in different environments.	Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry.
9.3	Describe the common adaptations of predator and prey animals.	Remind learners that animals can be predators and/or prey. Where do animals get their food? Do you know any examples of animals that are predators, prey or both?
9.4	----------	----------
10.1	MID YEAR ASSESSMENT	MID YEAR ASSESSMENT

WEEK	TOPIC	TOPIC DETAILS
11.1	: Describe the human digestive system.	Describe the human digestive system, including the functions of the organs involved (limited to mouth, esophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system. Learners could create (or annotate) diagrams of the digestive system to show their understanding.
11.2	REVIEW: Balanced diet- know that animals, including humans, need an adequate, balanced diet in order to be healthy	Learners can create (or annotate) a diagram showing their understanding of an adequate and balanced diet.
11.3	REVIEW: Describe how plants and animals are adapted to environments that are hot, cold, wet and/or dry	) diagrams of animals which highlight the adaptations that help them to Learners could create (or annotate survive in a specific environment
11.4	----------	----------
12.1	Describe the commons adaptations of predator and prey animals.	Learners could create (or annotate) diagrams of prey and predator animals, which highlight the adaptations that help them to survive in a specific environment
12.3	REVIEW:.	Describe the human digestive system, including the functions of the organs involved (limited to mouth, esophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system
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13.1	END OF TERM	END OF TERM
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16.4	----------	----------

SCIENCE SCHEME OF WORK

YEAR 5 - TERM 3

WEEK	TOPIC	TOPIC DETAILS
1.1	Investigate how sounds are made by vibrating sources.	Learners could use diagrams to show their understanding of how vibrations travel from a source through the air to our ears.
1.2	Describe sounds in terms of high or low pitch and loud or quiet volume.	Learners could use diagrams to show their understanding of pitch and volume.
1.3	Investigate how to change the volume and pitch of sounds.	Learners could use diagrams to show their understanding of pitch and volume.
1.4	----------	----------
2.1	Investigate how sounds are made by vibrating sources	Ask learners what they already know about sound and what questions they have about it. These might include: How do we make sounds? Where do sounds come from? How does sound get to our ears? How can we make different sounds?
2.2	Describe sounds in terms of high or low pitch and loud or quiet volume	Play learner some sounds on a stringed musical instrument (if an instrument is not available a video recording can be used). Play a high note and a low note (using open strings). Can you hear the difference between the two sounds? What is the difference between them? What do you know about the strings that made the different sounds?

WEEK	TOPIC	TOPIC DETAILS
2.3	Investigate how to change the volume and pitch of sounds.	Making musical instruments Show learners that the volume of the sound produced by a stringed musical instrument depends on how hard you pluck the string. You can also demonstrate this by striking a drum softly and then harder. Explain how the sound of the instrument is changed by the way in which it is played.
2.4	----------	----------
3.1	Investigate how to change the volume and pitch of sounds.	played Show learners that the volume of the sound produced by a stringed musical instrument depends on how hard you pluck the string. You can also demonstrate this by striking a drum softly and then harder. Explain how the sound of the instrument is changed by the way in which it is.
3.2	Describe the orbit of the Earth around the Sun (limited to slight ellipse, anticlockwise direction and the duration).	Learners can create (or annotate) diagrams, physical models, drama and/or online simulations to help describe the orbit of the Earth around the Sun.
3.3	Describe how the tilt of the Earth can create different climates and seasons over the year in different places.	----------
3.4	----------	----------
4.1	Describe how the tilt of the Earth can create different climates and seasons over the year in different places.	variation Learners can create (or annotate) diagrams, physical models and/or online simulations to describe how the tilt of the Earth leads to the seasons and contributes to climate.
4.2	Know that a satellite is an object in space that orbits a larger object and a moon is a natural satellite that orbits a planet.	Learners can create (or annotate) diagrams to describe satellites orbiting a larger object (e.g. the Moon and the ISS orbiting the Earth, a moon orbiting another planet, the Earth as a satellite of the Sun).
4.3	Know that the Earth is surrounded by a layer of air called the atmosphere, which is a mixture of different gases (including nitrogen, carbon dioxide and oxygen).	Learners can create (or annotate) a diagram of the Earth and its atmosphere, including identifying the composition of the atmosphere.

WEEK	TOPIC	TOPIC DETAILS
4.4	----------	----------
5.1	MID TERM BREAK	MID TERM BREAK
5.2	Understand that pollution is the introduction of substances by humans that harm the environment and identify examples of pollution.	Learners can use diagrams to show their understanding of what pollution is and to represent examples of pollution.
5.3	Learners can use diagrams to show their understanding of what pollution is and to represent examples of pollution.	Describe the orbit of the Earth around the Sun (limited to slight ellipse, anticlockwise direction and the duration).
5.4	----------	----------
6.1	01 Describe the orbit of the Earth around the Sun (limited to slight ellipse, anticlockwise direction and the duration).	Earth and Sun model Recap previous learning about the parts that make up the Solar System. What objects are in our Solar System? What object is at the centre of the Solar System? How do all the objects in the Solar System
6.2	Describe how the tilt of the Earth can create different climates and seasons over the year in different places.	Seasons and climates Ask the learners to discuss in pairs: Which places on Earth have seasons? What are spring, summer, autumn and winter like? Where do seasons come from?
6.3	Know that a satellite is an object in space that orbits a larger object and a moon is a natural satellite that orbits a planet.	Satellites and moons Discuss with the learners: What is a satellite? Are all satellites artificial? What are the main satellites in our Solar System?
6.4	------	----------

WEEK	TOPIC	TOPIC DETAILS
7.1	Know that the Earth is surrounded by a layer of air called the atmosphere, which is a mixture of different gases (including nitrogen, carbon dioxide and oxygen).	Recap prior learning about gases in the air around us. Discuss with learners if air is everywhere. Does air keep going and going? In space there is no air, which is why astronauts need special suits and habitats to live in space. Explain, using a model (either a diagram or a physical representation of the Earth) that the Earth is surrounded by a layer of air and we call this the atmosphere. What are the different gases in the atmosphere
7.2	Understand that pollution is the introduction of substances by humans that harm the environment and identify examples of pollution.	Pollution Learners use relevant websites to research the following questions: What is pollution? Which parts of the Earth are affected by pollution? What are the main human activities responsible for pollution? What are the main effects of pollution? How are humans trying to tackle the issues caused
7.3	Describe the water cycle (limited to evaporation, condensation and precipitation).	Water Cycle model Recap previous work on evaporation and condensation with specific reference to water. Explain that in nature, many things are in a cycle and this includes water. What does the word 'cyclical' mean? What does cyclical mean for the water on Earth?
8.1	Understand that most water on Earth is not pure and has dissolved substances in it	Pure water Show the learners an image of the Earth from space. What do you notice about the surface of the Earth? What type of water is most of the
8.2	Understand that most water on Earth is not pure and has dissolved substances in it.	Explain that more than 70% of the Earth's surface is covered with water but over 96% of the water is salt water in the oceans. Of the remaining 4% that is fresh water and over 60% of that is frozen in the ice caps. Only about 0.3% of fresh water is accessible in lakes and rivers.

WEEK	TOPIC	TOPIC DETAILS
8.3	Understand that pollution is the introduction of substances by humans that harm the environment and identify examples of pollution.	Pollution Learners use relevant websites to research the following questions: What is pollution? Which parts of the Earth are affected by pollution? What are the main human activities responsible for pollution? What are the main effects of pollution? How are humans trying to tackle the issues caused by pollution?
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9.1	END OF YEAR EXAM	END OF YEAR EXAM
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10.1	REVIEW	REVIEW
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11.1	YEAR 3 NAT	YEAR 3 NAT
12.1	END OF TERM ACTIVITIES.	END OF TERM ACTIVITIES.
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WEEK	TOPIC	TOPIC DETAILS
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