Bollin Primary School

Growing hearts and minds together

Science Concepts Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Organisation	Sort or group things into a given criteria eg. floats or sinks.	Sort or group things into a given criteria eg. floats or sinks.	Use observations and testing to compare objects, materials and living things. Sort and group things, identifying their own criteria for sorting. Use simple secondary sources (such as identification sheets) to name living things.	Use observations and testing to compare objects, materials and living things. Sort and group things, identifying their own criteria for sorting. Use simple secondary sources (such as identification sheets) to name living things.	Identify differences, similarities or changes related to simple scientific ideas and processes. Describe criteria for grouping, sorting and classifying and use simple keys. Compare and group according to behaviour or properties, based on testing.	Identify differences, similarities or changes related to simple scientific ideas and processes. Describe criteria for grouping, sorting and classifying and use simple keys. Compare and group according to behaviour or properties, based on testing.	Use and develop keys and other information records to identify, classify and describe living things and materials.	Use and develop keys and other information records to identify, classify and describe living things and materials.
Cause and Effect	Recognise that one event leads to another and begin to explain the process eg, pressing play makes the music start	Recognise that one event leads to another and begin to explain the process eg, pressing play makes the music start	Recognise that events have causes that generate observable patterns. Simple tests can be designed to gather evidence to support or refute children's ideas about causes.	Recognise that events have causes that generate observable patterns. Simple tests can be designed to gather evidence to support or refute children's ideas about causes.	Begin to understand that nature behaves in predictable ways and why. Identify and test cause and effect relationships to explain change.	Begin to understand that nature behaves in predictable ways and why. Identify and test cause and effect relationships to explain change.	Understand that nature behaves in predictable ways and can give explanations. Cause and effect relationships may be used to predict phenomena in natural or designed systems.	Understand that nature behaves in predictable ways and ca give explanations. Cause and effect relationships may be used to predict phenomena in natural or designed systems.

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Systems	Identify parts of systems in their everyday surroundings and describe what happens eg. a water wheel has a funnel and when the water goes down it makes the wheels spin.	Identify parts of systems in their everyday surroundings and describe what happens eg. a water wheel has a funnel and when the water goes down it makes the wheels spin.	Objects and organisms can be described in terms of their parts. Systems in the natural and designed world have parts that work together.	Objects and organisms can be described in terms of their parts. Systems in the natural and designed world have parts that work together.	Understand that a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. Begin to describe a system in terms of its components and their interactions. Begin to use models to represent systems.	Understand that a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. Begin to describe a system in terms of its components and their interactions. Begin to use models to represent systems.	Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems. Models can be used to represent systems and their interactions.	Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems. Models can be used to represent systems and their interactions.
Scale	Use scales to allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).	Use scales to allow objects and events to be compared and described (e.g., bigger and smaller; hotter and colder; faster and slower).	Begin to take measurements, initially by comparisons, then using non-standard units. Begin to use standard units of measurement appropriate to their mathematical understanding.	Begin to take measurements, initially by comparisons, then using non-standard units. Begin to use standard units of measurement appropriate to their mathematical understanding.	Use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	Use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	Select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.	Select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.
Models	Create and verbally describe what their drawing shows, adding simple labels.	Create and verbally describe what their drawing shows, adding simple labels.	Record their observations using drawings and simple labelled diagrams.	Record their observations using drawings and simple labelled diagrams.	Record their observations using drawings and increasingly detailed labelled diagrams. Begin to use these to explain their understanding.	Record their observations using drawings and increasingly detailed labelled diagrams. Begin to use these to explain their understanding.	Record observations using annotated photographs, labelled diagrams, observational drawings or labelled scientific diagrams. Use these to explain their understanding.	Record observations using annotated photographs, labelled diagrams, observational drawings or labelled scientific diagrams. Use these to explain their understanding.

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Change	Recognise and describe changes in natural phenomena over time eg. humans, plants or animals.	Recognise and describe changes in natural phenomena over time eg. humans, plants or animals.	Recognise that some things stay the same while other things change. Things may change slowly or rapidly.	Recognise that some things stay the same while other things change. Things may change slowly or rapidly.	Begin to understand that change is measured in terms of differences over time and may occur at different rates. Some systems appear stable, but over long periods of time will eventually change.	Begin to understand that change is measured in terms of differences over time and may occur at different rates. Some systems appear stable, but over long periods of time will eventually change.	Understand and begin to explain that change is measured in terms of differences over time and may occur at different rates. Small changes in one part of a system might cause large changes in another part. Stability might be disturbed either by sudden events or gradual changes that accumulate over time.	Understand and begin to explain that change is measured in terms of differences over time and may occur at different rates. Small changes in one part of a system might cause large changes in another part. Stability might be disturbed either by sudden events or gradual changes that accumulate over time.
Structure and Function	Recognise objects and organisms and describe what they can do or are used for eg. a fork is used for eating or a car can help us travel.	Recognise objects and organisms and describe what they can do or are used for eg. a fork is used for eating or a car can help us travel.	Recognise how characteristics of organisms and designed objects are related to their function(s) eg. a fish has gills so it can breathe underwater	Recognise how characteristics of organisms and designed objects are related to their function(s) eg. a fish has gills so it can breathe underwater	Explain that organisms and designed objects have different substructures, which can sometimes be observed eg. seeds for dispersal. Understand that substructures have shapes and parts that serve functions eg. teeth in relation to diet.	Explain that organisms and designed objects have different substructures, which can sometimes be observed eg. seeds for dispersal. Understand that substructures have shapes and parts that serve functions eg. teeth in relation to diet.	Understand and explain that organisms and designed objects have structures and substructures, which can sometimes be observed. Explain how these structures and substructures serve functions. Using objects or models, natural and designed structures/systems can be analysed to determine how they function.	Understand and explain that organisms and designed objects have structures and substructures, which can sometimes be observed. Explain how these structures and substructures serve functions. Using objects or models, natural and designed structures/systems can be analysed to determine how they function.

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Variety and Diversity	Recognise similarities and differences between organisms and objects.	Recognise similarities and differences between organisms and objects.	Identify features and properties of organisms and objects that allow them to be grouped.	Identify features and properties of organisms and objects that allow them to be grouped.	Identify and explain how features and properties of organisms and objects allow them to be grouped. Recognise that some organisms and objects have no connection. Begin to understand that diversity in the natural world is essential for survival eg. carnivore, herbivores and omnivores.	Identify and explain how features and properties of organisms and objects allow them to be grouped. Recognise that some organisms and objects have no connection. Begin to understand that diversity in the natural world is essential for survival eg. carnivore, herbivores and omnivores.	Identify and explain variation over time in the natural world. Understand and explain how diversity in the natural world is essential for survival.	Identify and explain variation over time in the natural world. Understand and explain how diversity in the natural world is essential for survival.