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| Curriculum for Wales | AoLE Focus | SCIENCE AND TECHNOLOGY | | | |
| | Our School Curriculum Vision | Within the Taff Bargoed Learning Partnership, our learners will be provided with experiences that will allow them to; Recognise their importance as a global citizen and take responsibility for their environment and wider world; developing their understanding of organic and inorganic science. They will apply experience, skills and knowledge to develop ideas independently. Authentic contexts will fuel their curiosity and provide opportunities to question, observe, challenge and create solutions to problems. As individuals, our learners will foster a respect for emerging technologies; relating it to their everyday lives. Through the various areas explored, learners will combine their skills and understanding to achieve their potential. | | | |
| | Progression Step | 2 | | | |
| Knowledge – ‘Learn ABOUT’ | | | | | Experience – ‘Learn FROM’ |
| Within our Curriculum, a focus is given to Pupil interest in contributing to the learning that is taking place, in order to develop a child-centred approach. However there is a range of expected knowledge that we aim to develop Pupils Skills through. | | | | | Pupils will be provided with an opportunity to experience: |
| In Year 2, Pupils will learn about... | | In Year 3, Pupils will learn about... | | In Year 4, Pupils will learn about... | <ul style="list-style-type: none">Exploring nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around themFirst-hand experience of investigating and exploring scientific concepts.Engaging in opportunities to develop understanding of technology and engineering in everyday lifeUsing a wide range of resources and equipment that are associated with Science and technology concepts.Experience of working with and visiting Scientists and environments of a Scientific and Technology natureTaking part in regular opportunities to engage with STEM based problems and activitiesOpportunities to engage in design and construction |
| <ul style="list-style-type: none">The varied habitats that exist including the features that make the important to those that live there (including effect of Human activity on Habitats)Life Cycles of Animals and the various processes associated with thisExplore basic properties of materials and features that make them usableThe force of magnetism and their properties that make them usefulAn understanding of wider forces that exist in everyday lifeHow technology (including engineering) and its developments, impact on everyday lifeThe importance of E-safety and navigating safely onlineThe uses of technology in processing information including presentation and spreadsheetsBasic coding.A range of mechanisms which are made up of a collection of parts moving together; controlled by an input and output.Structures and their features including strengthening and stability. | | <ul style="list-style-type: none">The effects of Humans on the environment and how Global Warming affects us all, including some measures being used to reverse the impact of Global Warming.The importance of Nutrition and Health to maintain healthy, happy bodiesExploring the various physical/chemical changes that can take place in the world around us, including some common changes in everyday life.Exploring properties of sound and how sound is heardAn understanding of wider forces that exist (incl. Static)Using technology for communication, such as emails, and the importance of staying safe onlineIncreasing their confidence in coding for a range of purposes including loopsUsing technology to process information, including databases and simulationsPneumatic Systems and how these work as part of a wider mechanismSpecific features of structures including weight, compression and tension. | | <ul style="list-style-type: none">The dangers to living things within the world, including the impacts of Humans on the environmentLife Cycles of Plants understanding the importance of photosynthesis in creating energyJustifying uses of materials according to their propertiesProperties of electricity including creating simple circuitsThe properties of light and shadows and materials that contribute to this.A wide range of technology hardware and how this has an impact on everyday lifeIncreasing their confidence in coding and debugging (incl. use of Micro: bits)The importance of E-Safety and how to keep themselves and others safe onlineThe use of technology in processing and storing information, including spreadsheetsUsing technology creatively including animation and music.How and why products change over timeUnderstand moving things require kinetic energyFurther developing understanding of structuresExploring how electrical items work and identifying the features of common electrical items (e.g. a torch). | |
| SKILLS – ‘Learn TO’ | | | | | |
| Through our Curriculum for Expressive Arts , our pupils will develop as Ambitious, Capable Learners, Healthy confident Individuals, Ethical, informed Citizens & Enterprising, Creative contributors. Enrichment and Experiences within this AoLE, at our School, will include opportunities for Pupils to; | | | | | |
| What Matters Statement | Through opportunities to; | Descriptions of Learning | What this looks like in YEAR 2: | What this looks like in YEAR 3: | What this looks like in YEAR 4: |
| Being curious and searching for answers is essential to understanding and predicting phenomena | | 2.1 I can ask questions and use my experience to suggest simple methods of inquiry | <ul style="list-style-type: none">Suggest questions or ideas as a basis for investigations/inquiry based on their own experiences.Offer own suggestions and ideas about topics/conceptsWork in a group to decide on a focus for an inquiry, using their own questions as the basis for investigating. | <ul style="list-style-type: none">Using their experience, respond to others and suggest ideas for the basis of an investigation.Work in a group to decide on a focus for an inquiry, using their own questions as the basis for investigating.Begin to understand ‘Fair testing’ when carrying out inquiry. | <ul style="list-style-type: none">Using their experience, decide how to carry out an investigation to find an answer to their questionWork in a group to decide on a focus for an inquiry, using their own questions as the basis for investigating.Recognise the need for a fair test and begin to include this when investigating |
| | | 2.2 I can recognise patterns from my observations and investigations and can communicate my findings. | <ul style="list-style-type: none">Use simple ways of sharing findings/observations from investigations including simple tables.Make simple observations related to the taskUse appropriate scientific language when making observations/evaluations. | <ul style="list-style-type: none">Record and present findings/observations in a variety of ways including the use of digital methods.Collect a range of data as a result of investigations carried out.Begin to explain, in simple terms, observations and simple patterns that occur in their recorded measurements. | <ul style="list-style-type: none">Talk about their findings using relevant scientific vocabulary.Use scientific knowledge in describing and providing simple explanations for their findingsUse a range of methods to display findings including graphs and tables. |
| | | 2.3 I can use my knowledge and understanding to predict effects as part of my scientific exploration | <ul style="list-style-type: none">Using their knowledge an understanding of various concepts, respond to suggestions simply regarding how they may find something out, giving simple predictions e.g. <i>my ice cream melted when I went to the beach so I predict the ice cube will melt in the sun.</i> | <ul style="list-style-type: none">Explain their predictions simply, using their own experience and/or prior learning experiences to justify their predication. <i>E.g. when we explored melting in Year 2 things changed when they got hot so I predict the heat from the flame will melt the wax candle.</i> | <ul style="list-style-type: none">Give a predictions, using their own experience and/or prior learning experiences to justify their predication. |
| | | 2.4 I can recognise that what I do, and the things I use, can have an impact on my environment and on living | <ul style="list-style-type: none">Demonstrate care and respect for their environment.Develop an interest in the world around them.Develop an awareness of what their environment has to offer themBegin to develop an awareness of topical based issues linked to the local environment. | <ul style="list-style-type: none">Develop an awareness of what their environment has to offer them.Begin to understand how what we do affects the environmentRecognise how decisions they make at a local level can have an impact of others around them (e.g. litter in the community makes our communities unattractive, vandalism in the park spoils it for others etc.). | <ul style="list-style-type: none">Develop an awareness of what their environment has to offer them.Recognise that the decisions we make today can have an impact on us in the longer term future (e.g. climate change, healthy lifestyles, mental health)Understand our actions can have a global impact, and contribute to global issues (e.g. deforestation, global warming, ocean pollutions) |

TAFF BARGOED LEARNING PARTNERSHIP

School Curriculum – Whole School Progression

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| | | 2.5 I can explore relationships between living things, their habitats and their life cycles. | <ul style="list-style-type: none"> Identify some local habitats and name a few of the organisms that live there Compare animals living in different habitats. Begin to explore various life cycles of familiar animals e.g. life cycle of a frog. Identify ways in which an animal is suited to its environment, such as fish having fins to help it swim. Identify ways in which the appearance of humans changes as they get older and some characteristics that will not change. | <ul style="list-style-type: none"> Increase the number of habitats and organisms that can be identified and named Compare animals living in different habitats Describe how animals in two habitats are suited to the conditions Represent and explain that food chains begin with a green plant, which 'produces' food for other organisms. State the food source of some animals, distinguishing between those which eat plants and those which eat other animals | <ul style="list-style-type: none"> Recognise that living things include plants as well as animals/humans Recognise that plants need light, water and warmth and healthy leaves, roots and stems in order to grow well. Describe the processes of pollination, fertilisation, seeds dispersal and germination Begin to identify issues globally regarding the reduction of habitats and wild space for animals/plants due to Human activity. |
| | | 2.6 I can observe and describe ways in which materials change when they are mixed together. | <ul style="list-style-type: none"> Describe a variety of ways of grouping materials according to properties and use simple ways of separating them. Recognise some changes can be reversed and some cannot, and they classify changes in that way. Name some solids and liquids Describe when ice melts it turns to liquid Look at simple ways of separating mixed materials e.g. using a sieve. | <ul style="list-style-type: none"> Describe how water can be changed into ice and steam and how these changes can be reversed. Separate an undissolved solid from a liquid by filtering show how to do this With help, investigate an aspect of dissolving and name some materials that will and will not dissolve Identify several factors that affect the rate at which a solid dissolves Separate an undissolved solid form a liquid by filtering | <ul style="list-style-type: none"> State that air is a gas, and that we can change other materials into a gas – e.g. water into steam. Recognise that objects cool or warm to the temperature of their surroundings when they are left and the associated changes caused by this e.g. chocolate melts when it gets too warm. Explore what is meant by an 'insulator' Recognise that solids can be recovered from a solution by evaporation |
| | | 2.7 I can investigate different forms of energy and how it can be transferred. | <ul style="list-style-type: none"> Understand in simple terms that there are different forms of energy. Be able to give simple examples of different forms of energy Begin to understand how all energy comes from a 'source' and explore some simple sources e.g. food is a source for humans, coal is a source of electricity | <ul style="list-style-type: none"> Explore various types of energy – classifying as sustainable or non-sustainable Investigate various forms of energy including uses Understand the benefits of renewable energies, and why we need to rely more on these in the future. Explore the impact of non-renewables. | <ul style="list-style-type: none"> Explore different forms of energy, including how modern technology is helping us to find new and 'cleaner' ways of producing and using energy. Explore various ways that energy can be stored and how this can then be used e.g. solar power garden light at night, thermal water pumps, dynamos, electric cars |
| | | 2.8 I can explore and communicate the basic properties of light, sound, electricity and magnetism. | <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that they cannot see shiny objects in the dark because they are not light sources. Investigate how shadows are formed and that a shadow from the sun changes over the course of the day Describe how sounds are generated by specific objects and that they hear sounds through their ears. Describe what they observe when they move further away from a source of sound, explaining that the sounds they hear become fainter the further they are from the source. <p>MAGNETISM</p> <ul style="list-style-type: none"> Classify materials as magnetic or non-magnetic | <p>MAGNETISM</p> <ul style="list-style-type: none"> Classify materials as magnetic or non-magnetic and describe some uses of magnets Describe the direction of forces between magnets Describe the difference between a magnet and a magnetic material Describe how two bar magnets behave when placed together <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that shadows are formed when light from source is blocked Recognise that shadows are similar in shape to the objects forming them Recognise that when sounds are generated by objects; something moves or vibrates. | <p>ELECTRICITY</p> <ul style="list-style-type: none"> Construct a simple circuit with specified components Explain why some circuits work and others do not Recognise conventional symbols for some electrical components <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that the changes in shadows from the sun over the course of the day arise from the movement of the earth Explain that even transparent objects block some light and form shadows Recognise that light sources are seen when light from them enters the eyes |
| | | 2.9 I can identify things in the environment which may be harmful and can act to reduce the risks to myself | <ul style="list-style-type: none"> Begin to be aware of what we mean by 'risk' - both inside and outside of school Begin to identify some simple actions that can be put in place to reduce risks | <ul style="list-style-type: none"> Understand that some 'risks' can be categorised as 'high' or 'low' Know that there are actions that we can put in place to reduce risks - including at home and in school. | <ul style="list-style-type: none"> Be able to identify a risk as being 'high' or 'low' and give simple examples of the consequences of taking risks. Know that we don't always need to stop an activity because of a possible risk, as long as it can be safely managed. Be able to give examples of actions that can reduce 'risks' from taking place so they are managed safely. |

Within our Curriculum for **Expressive Arts**, our pupils will develop as **Ambitious, Capable Learners**, **Healthy confident Individuals**, **Ethical, informed Citizens** & **Enterprising, Creative contributors**. Enrichment and Experiences within this AoLE, at our School, will include opportunities for;

| What Matters Statement | | Descriptions of Learning | What this looks like in YEAR 2: | What this looks like in YEAR 3: | What this looks like in YEAR 4: |
|--|---------------------------|---|---|--|---|
| Design thinking and engineering offer technical and creative ways to meet society's needs and wants. | Through opportunities to; | 2.10 I can produce designs to communicate my ideas in response to particular contexts. | <ul style="list-style-type: none"> Generate and communicate ideas using sketching and modelling Create a group/class design criteria for a product | <ul style="list-style-type: none"> Design an item with key features to appeal to a specific person/purpose Draw and label designs using 2D shapes, including material needs and colours Develop a design criteria from a design brief, identifying a target audience/user. Understand that different types of drawings are used in design to explain ideas clearly. | <ul style="list-style-type: none"> Design products that are aesthetically pleasing Design a product/item, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. Write a design criteria for a product, articulating decisions made. |
| | | 2.11 I can make design decisions, using my knowledge of materials and existing products, and suggest design improvements. | <ul style="list-style-type: none"> Select appropriate materials based on their properties and characteristics. Select a suitable linkage system to produce the desired motions/movements. Make a structure according to a design criteria Learn about different types of structures found in the natural world and in everyday objects. | <ul style="list-style-type: none"> Design and make a template from an existing product, applying individual design criteria. Select materials due to their functional and aesthetic characteristics. Identify and suggest points for modification of the individual designs. Evaluating success of a product/item against the original design criteria, suggesting improvements. | <ul style="list-style-type: none"> Select materials to create a desired effect. Selecting appropriate materials to build a structure Making and testing products with accuracy, keeping with the design criteria |
| | | 2.12 I can explore how different component parts work together. | <ul style="list-style-type: none"> Begin to understand how an input from a user can impact on components to complete a task e.g. creating a moving picture with a slider. Identify everyday objects that rely on a series of components working together in order to operate Be provided with opportunities to cut, stick and join pieces together to achieve a task | <ul style="list-style-type: none"> Explore everyday items, understanding that the items we use are made of several components/parts e.g. exploring a ball point pen and the various components the make this. Further develop their skills of cutting, sticking, sawing, joining and attaching when creating a product/item which uses different components. | <ul style="list-style-type: none"> Plan for, and consider the various components need for a design, as part of the design process. Explore a wider range of components to create an outcome e.g. Pupils use a cam to move a character they have designed, pressing a switch on a car moves turns on an electrical motor. Use techniques of cutting, folding, marking, joining and strengthening with an increasing degree of accuracy. |
| | | 2.13 I can safely use a range of tools, materials and equipment to construct for a variety of reasons. | <ul style="list-style-type: none"> With support, develop an increasing awareness of how to handle simple tools and materials safely Know the consequences of not handling tools/materials safely Be provided with an increasing range of opportunities, both structured and unstructured, to engage with construction activities for a variety of reasons. | <ul style="list-style-type: none"> With growing independence, develop an increasing awareness of how to handle an increasing range of tools and materials safely Know the consequences of not handling tools/materials safely Be provided with opportunities to engage with construction activities for a variety of reasons. | <ul style="list-style-type: none"> Know how to handle a range of tools and materials safely Know the consequences of not handling tools/materials safely Engage with construction activities for a variety of reasons. |
| | | 2.14 I have experienced using basic prototyping techniques to improve outcomes. | <ul style="list-style-type: none"> Explore various ways of constructing items, using various materials e.g. creating a box from a net or from using separate pieces. Identify ways of improving a prototype e.g. using art straws for strengthening a structure they had made. | <ul style="list-style-type: none"> Be provided with opportunities to develop their joining techniques to make a structure/prototype. Evaluate their prototype and identifying the necessary requirements to improve the outcome e.g. when designing a toy powered by wind, pupil explores the effect of including a bigger surface area. | <ul style="list-style-type: none"> Create a prototype as part of the wider design process, understanding and evaluating their design for any changes that are required to improve outcome. e.g. building frame structures to support weight. Evaluate their prototype and identifying the necessary requirements to improve the outcome |
| | | 2.15 I can identify things in the environment which may be harmful and can act to reduce the risks to myself and others. | <ul style="list-style-type: none"> Begin to be aware of what we mean by 'risk' - both inside and outside of school Begin to identify some simple actions that can be put in place to reduce risks | <ul style="list-style-type: none"> Understand that some 'risks' can be categorised as 'high' or 'low' within their environment Know that there are actions that we can put in place to reduce risks - including at home and in school. | <ul style="list-style-type: none"> Be able to identify a risk as being 'high' or 'low' and give simple examples of the consequences of taking risks. Identify things in the environment that could be harmful to them Be able to give examples of actions that can reduce 'risks' from taking place so they are managed safely. |
| | | 2.16 I can explore and describe the properties of materials and justify their uses. | <ul style="list-style-type: none"> Understand that different materials will have different properties/features Suggest several reasons why a material may or may not be suitable for a particular purpose Describe a variety of ways of grouping materials according to properties and use simple ways of separating them. | <ul style="list-style-type: none"> Identify uses of some common materials, suggesting several reasons why the material is suitable. Explain it is important to test materials to find out whether descriptions of characteristics are reliable Explain why some materials are particularly suitable for specific purposes, such as copper for making electrical cables. | <ul style="list-style-type: none"> Identify uses of some common materials, suggesting several reasons why the material is suitable for a particular use. Demonstrate an understanding of material properties, using these to classify/groups given materials. |

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| What Matters Statement | | Descriptions of Learning | What this looks like in YEAR 2: | What this looks like in YEAR 3: | What this looks like in YEAR 4: |
|---|---------------------------|---|--|--|---|
| The world around us is full of living things which depend on each other for survival. | Through opportunities to; | 2.17 I can recognise patterns from my observations and investigations and can communicate my findings. | <ul style="list-style-type: none"> Use simple ways of sharing findings/observations from investigations including simple tables. Make simple observations related to the task Use appropriate scientific language when making observations/evaluations. | <ul style="list-style-type: none"> Record and present findings/observations in a variety of ways including the use of digital methods. Collect a range of data as a result of investigations carried out. Begin to explain, in simple terms, observations and simple patterns that occur in their recorded measurements. | <ul style="list-style-type: none"> Talk about their findings using relevant scientific vocabulary. Use scientific knowledge in describing and providing simple explanations for their findings Use a range of methods to display findings including graphs and tables. |
| | | 2.18 I can use my knowledge and understanding to predict effects as part of my scientific exploration. | <ul style="list-style-type: none"> Using their knowledge and understanding of various concepts, respond to suggestions simply regarding how they may find something out, giving simple predictions e.g. <i>my ice cream melted when I went to the beach so I predict the ice cube will melt in the sun.</i> | <ul style="list-style-type: none"> Explain their predictions simply, using their own experience and/or prior learning experiences to justify their predication. <i>E.g. when we explored melting in Year 2 things changed when they got hot so I predict the heat from the flame will melt the wax candle.</i> | <ul style="list-style-type: none"> Give a predictions, using their own experience and/or prior learning experiences to justify their predication. |
| | | 2.19 I can recognise that what I do, and the things I use, can have an impact on my environment and on living things. | <ul style="list-style-type: none"> Demonstrate care and respect for their environment. Develop an interest in the world around them. Develop an awareness of what their environment has to offer them Begin to develop an awareness of topical based issues linked to the local environment. | <ul style="list-style-type: none"> Develop an awareness of what their environment has to offer them. Begin to understand how what we do affects the environment Recognise how decisions they make at a local level can have an impact of others around them (e.g. litter in the community makes our communities unattractive, vandalism in the park spoils it for others etc.). | <ul style="list-style-type: none"> Develop an awareness of what their environment has to offer them. Recognise that the decisions we make today can have an impact on us in the longer term future (e.g. climate change, healthy lifestyles, mental health) Understand our actions can have a global impact, and contribute to global issues (e.g. deforestation, global warming, ocean pollutions) |
| | | 2.20 I can explore relationships between living things, their habitats and their life cycles. | <ul style="list-style-type: none"> Identify some local habitats and name a few of the organisms that live there Compare animals living in different habitats. Begin to explore various life cycles of familiar animals e.g. life cycle of a frog. Identify ways in which an animal is suited to its environment, such as fish having fins to help it swim. Identify ways in which the appearance of humans changes as they get older and some characteristics that will not change. | <ul style="list-style-type: none"> Increase the number of habitats and organisms that can be identified and named Compare animals living in different habitats Describe how animals in two habitats are suited to the conditions Represent and explain that food chains begin with a green plant, which 'produces' food for other organisms. State the food source of some animals, distinguishing between those which eat plants and those which eat other animals | <ul style="list-style-type: none"> Recognise that living things include plants as well as animals/humans Recognise that plants need light, water and warmth and healthy leaves, roots and stems in order to grow well. Describe the processes of pollination, fertilisation, seeds dispersal and germination Begin to identify issues globally regarding the reduction of habitats and wild space for animals/plants due to Human activity. |

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|---|---------------------------|---|---|---|--|
| Matter and the way it behaves defines our universe and shapes our lives | Through opportunities to; | 2.21 I can recognise patterns from my observations and investigations and can communicate my findings. | <ul style="list-style-type: none"> Use simple ways of sharing findings/observations from investigations including simple tables. Make simple observations related to the task Use appropriate scientific language when making observations/evaluations. | <ul style="list-style-type: none"> Record and present findings/observations in a variety of ways including the use of digital methods. Collect a range of data as a result of investigations carried out. Begin to explain, in simple terms, observations and simple patterns that occur in their recorded measurements. | <ul style="list-style-type: none"> Talk about their findings using relevant scientific vocabulary. Use scientific knowledge in describing and providing simple explanations for their findings Use a range of methods to display findings including graphs and tables. |
| | | 2.22 I can use my knowledge and understanding to predict effects as part of my scientific exploration | <ul style="list-style-type: none"> Using their knowledge an understanding of various concepts, respond to suggestions simply regarding how they may find something out, giving simple predictions e.g. <i>my ice cream melted when I went to the beach so I predict the ice cube will melt in the sun.</i> | <ul style="list-style-type: none"> Explain their predictions simply, using their own experience and/or prior learning experiences to justify their predication. <i>E.g. when we explored melting in Year 2 things changed when they got hot so I predict the heat from the flame will melt the wax candle.</i> | <ul style="list-style-type: none"> Give a predictions, using their own experience and/or prior learning experiences to justify their predication. |
| | | 2.23 I can make design decisions, using my knowledge of materials and existing products, and suggest design improvements. | <ul style="list-style-type: none"> Select appropriate materials based on their properties and characteristics. Select a suitable linkage system to produce the desired motions/movements. Make a structure according to a design criteria Learn about different types of structures found in the natural world and in everyday objects. | <ul style="list-style-type: none"> Design and make a template from an existing product, applying individual design criteria. Select materials due to their functional and aesthetic characteristics. Identify and suggest points for modification of the individual designs. Evaluating success of a product/item against the original design criteria, suggesting improvements. | <ul style="list-style-type: none"> Select materials to create a desired effect. Selecting appropriate materials to build a structure Making and testing products with accuracy, keeping with the design criteria |
| | | 2.24 I can explore and describe properties of materials and justify their uses. | <ul style="list-style-type: none"> Understand that different materials will have different properties/features Suggest several reasons why a material may or may not be suitable for a particular purpose Describe a variety of ways of grouping materials according to properties and use simple ways of separating them. | <ul style="list-style-type: none"> Identify uses of some common materials, suggesting several reasons why the material is suitable. Explain it is important to test materials to find out whether descriptions of characteristics are reliable Explain why some materials are particularly suitable for specific purposes, such as copper for making electrical cables. | <ul style="list-style-type: none"> Identify uses of some common materials, suggesting several reasons why the material is suitable. Demonstrate an understanding of material properties, using these to classify/groups given materials. |
| | | 2.25 I can observe and describe ways in which materials change when they are mixed together. | <ul style="list-style-type: none"> Describe a variety of ways of grouping materials according to properties and use simple ways of separating them. Recognise some changes can be reversed and some cannot, and they classify changes in that way. Name some solids and liquids Describe when ice melts it turns to liquid Look at simple ways of separating mixed materials e.g. using a sieve. | <ul style="list-style-type: none"> Describe how water can be changed into ice and steam and how these changes can be reversed. Separate an undissolved solid from a liquid by filtering show how to do this With help, investigate an aspect of dissolving and name some materials that will and will not dissolve Identify several factors that affect the rate at which a solid dissolves Separate an undissolved solid form a liquid by filtering | <ul style="list-style-type: none"> State that air is a gas, and that we can change other materials into a gas – e.g. water into steam. Recognise that objects cool or warm to the temperature of their surroundings when they are left and the associated changes caused by this e.g. chocolate melts when it gets too warm. Explore what is meant by an ‘insulator’ Recognise that solids can be recovered from a solution by evaporation |

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|--|---------------------------|--|--|--|---|
| Forces and energy provide a foundation for understanding our universe. | Through opportunities to; | 2.26 I can recognise patterns from my observations and investigations and can communicate my findings. | <ul style="list-style-type: none"> Use simple ways of sharing findings/observations from investigations including simple tables. Make simple observations related to the task Use appropriate scientific language when making observations/evaluations. | <ul style="list-style-type: none"> Record and present findings/observations in a variety of ways including the use of digital methods. Collect a range of data as a result of investigations carried out. Begin to explain, in simple terms, observations and simple patterns that occur in their recorded measurements. | <ul style="list-style-type: none"> Talk about their findings using relevant scientific vocabulary. Use scientific knowledge in describing and providing simple explanations for their findings Use a range of methods to display findings including graphs and tables. |
| | | 2.27 I can use knowledge an understanding to predict effects as part of my scientific exploration. | <ul style="list-style-type: none"> Using their knowledge an understanding of various concepts, respond to suggestions simply regarding how they may find something out, giving simple predictions e.g. <i>my ice cream melted when I went to the beach so I predict the ice cube will melt in the sun.</i> | <ul style="list-style-type: none"> Explain their predictions simply, using their own experience and/or prior learning experiences to justify their predication. <i>E.g. when we explored melting in Year 2 things changed when they got hot so I predict the heat from the flame will melt the wax candle.</i> | <ul style="list-style-type: none"> Give a predictions, using their own experience and/or prior learning experiences to justify their predication. |
| | | 2.28 I can investigate different forms of energy and how it can be transferred. | <ul style="list-style-type: none"> Understand in simple terms that there are different forms of energy. Be able to give simple examples of different forms of energy Begin to understand how all energy comes from a 'source' and explore some simple sources e.g. food is a source for humans, coal is a source of electricity | <ul style="list-style-type: none"> Explore various types of energy – classifying as sustainable or non-sustainable Investigate various forms of energy including uses Understand the benefits of renewable energies, and why we need to rely more on these in the future. Explore the impact of non-renewables. | <ul style="list-style-type: none"> Explore different forms of energy, including how modern technology is helping us to find new and 'cleaner' ways of producing and using energy. Explore various renewable energies and discuss the benefits and problems with these energies. Explore various ways that energy can be stored and how this can then be used e.g. solar power garden light at night, thermal water pumps, dynamos, electric cars |
| | | 2.29 I can communicate the effect forces have on myself and on objects. | <ul style="list-style-type: none"> Explain how the direction or speed of movement of an object changes according to the force/energy applied to it – speed up, slow down, or change direction or shape. Recognise that pushes and pulls are forces. Begin to explain that things move or change shape because of the force that affects them | <ul style="list-style-type: none"> Begin to explain that things move or change shape because of the force that affects them e.g. a spring Begin to make simple generalizations about forces/energy changing the way things move/act Recognise that forces act in a particular direction | <ul style="list-style-type: none"> Compare how easy or hard it is to move objects on different surfaces Recognise the word friction and the effect of friction on speed Begin to understand how gravity is a force that acts on all objects and look at examples of this. |
| | | 2.30 I can explore and communicate the basic properties of light, sound, electricity and magnetism. | <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that they cannot see shiny objects in the dark because they are not light sources. Investigate how shadows are formed and that a shadow from the sun changes over the course of the day Describe how sounds are generated by specific objects and that they hear sounds through their ears. Describe what they observe when they move further away from a source of sound, explaining that the sounds they hear become fainter the further they are from the source. <p>MAGNETISM</p> <ul style="list-style-type: none"> Classify materials as magnetic or non-magnetic | <p>MAGNETISM</p> <ul style="list-style-type: none"> Classify materials as magnetic or non-magnetic and describe some uses of magnets Describe the direction of forces between magnets Describe the difference between a magnet and a magnetic material Describe how two bar magnets behave when placed together <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that shadows are formed when light from source is blocked Recognise that shadows are similar in shape to the objects forming them Recognise that when sounds are generated by objects; something moves or vibrates. | <p>ELECTRICITY</p> <ul style="list-style-type: none"> Construct a simple circuit with specified components Explain why some circuits work and others do not Recognise conventional symbols for some electrical components <p>SOUND AND LIGHT</p> <ul style="list-style-type: none"> Explain that the changes in shadows from the sun over the course of the day arise from the movement of the earth Explain that even transparent objects block some light and form shadows Recognise that light sources are seen when light from them enters the eyes |

Within our Curriculum for **Expressive Arts**, our pupils will develop as **Ambitious, Capable Learners**, **Healthy confident Individuals**, **Ethical, informed Citizens** & **Enterprising, Creative contributors**. Enrichment and Experiences within this AoLE, at our School, will include opportunities for;

| What Matters Statement | | Descriptions of Learning | What this looks like in YEAR 2 : | What this looks like in YEAR 3 : | What this looks like in YEAR 4 : |
|--|---------------------------|--|---|---|--|
| Computation is the Foundation for our digital world. | Through opportunities to; | 2.31 I can safely use a range of tools, materials and equipment to construct for a variety of reasons. | <ul style="list-style-type: none"> With support, develop an increasing awareness of how to handle simple equipment safely Know the consequences of not handling equipment safely Be provided with an increasing range of opportunities, both structured and unstructured, to engage with construction activities for a variety of reasons. | <ul style="list-style-type: none"> With growing independence, develop an increasing awareness of how to handle an increasing range of equipment safely Know the consequences of not handling equipment safely Be provided with opportunities to engage with construction activities for a variety of reasons. | <ul style="list-style-type: none"> Know how to handle a range of equipment safely Know the consequences of not handling equipment safely Engage with construction activities for a variety of reasons. |
| | | 2.32 I can use computational thinking techniques, through unplugged or offline activities. | <ul style="list-style-type: none"> Explain to others how a designed solution works e.g. explain a design for a simple playground game and test the game correcting any issues that arise whilst playing | <ul style="list-style-type: none"> Identify repetitions or loops in a sequence e.g. identify where to shorten a set of instructions by repeating steps, for instance, when learning a new song. | <ul style="list-style-type: none"> Provided with opportunities to further develop and use computational thinking techniques, through unplugged or offline activities. |
| | | 2.33 I can create simple algorithms and am beginning to explain errors. | <ul style="list-style-type: none"> Create a simple solution that tests an idea e.g. predict what would happen if it went wrong such as the sequence of waking up to go to school. | <ul style="list-style-type: none"> Represent a solution/algorithm symbolically e.g. the order of waking up, through a diagram or flow chart, and find the variables in the solution. Detect and correct mistakes in sequences of instructions e.g. identify mistakes in a solution that would cause it to fail (debug). | <ul style="list-style-type: none"> Demonstrate how part of a solution might need repetition. Further develop their skills of 'debugging' in searching for errors in a line of instruction/algorithm and explaining the cause of the error e.g. a line of instruction means that a light bulb won't light. |
| | | 2.34 I can follow algorithms to determine their purpose and predict outcomes. | <ul style="list-style-type: none"> Predict the outcome of simple sequences of instructions e.g. predict what will happen if instructions are followed accurately. | <ul style="list-style-type: none"> Using simple formats, follow a set of rules/algorithms to reach a solution e.g. follow a flow chart to get to an answer. | <ul style="list-style-type: none"> Represent a simple solution in a flow chart that contains a looping element e.g. identify where a repeat or loop may work in a flow chart for instance traffic lights, and select variables. |
| | | 2.35 I am beginning to explain the importance of accurate and reliable data to ensure a desired outcome. | <ul style="list-style-type: none"> Collect and organise data into groups e.g. gather data by voting or sorting and representing in pictures, objects or drawings Extract information from simple tables and graphs Record data collected in a variety of suitable formats | <ul style="list-style-type: none"> Collect data, enter and begin to analyse in given formats e.g. table, charts, databases and spreadsheets Begin to understand the importance of accuracy of data and begin to identify the effects of incorrect data e.g. incorrect amount entered into a banking app when sending data, wrong letters in a password. | <ul style="list-style-type: none"> Begin to create data sets and extract information from them with tables, charts, spreadsheets and databases. Understand methods that are in place for improving accuracy of data known as 'data verification' e.g. verifying your password twice to ensure that data is not entered incorrectly, rules being applied to fields in an application form to ensure the correct information is entered. |
| | | 2.36 I can follow instructions to build and control a physical device. | <ul style="list-style-type: none"> Control simple devices, by giving them instructions e.g. moving a beebot Experience a range of simple resources that are controlled by user input – e.g. a remote control car | <ul style="list-style-type: none"> Explore a range of simple controllable technology and explore the impacts of changing instructions, including desired outcomes. E.g. programming a beebot to navigate a course, correcting where instructions are incorrect. | <ul style="list-style-type: none"> Explore a wider range of controllable devices and programs that produce an outcome e.g. using a microbit to display various messages/lights as a result of simple coding. |