

Long term planning

Science Planning 2016-17 - Autumn 1

| <u>National curriculum links</u> | <u>As scientists we answering the question:</u> | <u>Success criteria (differentiated)</u> | <u>Activities to develop this learning</u> | <u>Cross curricular - including school values</u> | <u>STEM Activities</u> |
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| <p>Foundation stage Personal, Social & Emotional Development</p> <p>Communication & Language</p> <p>Physical Development</p> <p>Literacy</p> <p>Mathematics</p> <p>Understanding the World</p> <p>Expressive Arts & Design</p> | <p>Is it alive or dead?</p> <p>How do we stay alive?</p> <p>What is a habitat?</p> <p>How are animals adapted to their habitats?</p> <p>Which habitat?</p> <p>What are local habitats like?</p> <p>Can you make a habitat?</p> | <p><u>Physical Development</u> Health and Self Care 40-60 months</p> <ul style="list-style-type: none"> Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. <p><u>Understanding the World</u> The World 40 - 60 mths</p> <ul style="list-style-type: none"> Looks closely at similarities, differences, patterns and change. <p><u>Expressive Arts and Design</u> Being Imaginative 40 - 60 months</p> <ul style="list-style-type: none"> Create simple representations of events, people and objects <p>Exploring and Using Media and Materials 40 - 60 months</p> <ul style="list-style-type: none"> Understands that different media can be combined to create new effects. Manipulates materials to achieve a planned effect. Constructs with a purpose in mind, using a variety of resources. Uses simple tools and techniques competently and appropriately. Selects appropriate resources and adapts work where necessary. Selects tools and techniques needed to shape, assemble and join materials they are using. | | | |
| <u>Curriculum drivers</u> | <p><u>Diversity</u></p> <p>Children will compare a range of habitats - local and further a field using maps and the globe to locate them.</p> | <p><u>Environment</u></p> <p>Continuous Provision Areas are developed and enhanced weekly to support and enable independent learning.</p> | <p><u>Enterprise</u></p> <p>As science is a process for finding out and a system for reporting and organising discoveries...</p> <p>Pupils will:</p> <ul style="list-style-type: none"> use their initiative | | |

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| | <p>The children will develop a knowledge and understanding of how plants and animals are suited/adapted to their environments and how we as humans are similar/different and adapted to our environments.</p> | <p>Reading Area - Texts about animals and habitats, life cycles and where/ what animals need to survive.</p> <p>Maths Area - Activities to develop one-to-one correspondence, counting, problem solving, classifying and measuring.</p> <p>Sand - investigate, explore, find...</p> <p>Water - pouring, measuring, recording findings...</p> <p>Writing Table - Creating fact files, posters, stories about animals in their habitats.</p> <p>Creative Station - making animals, making habitats, designing and making their own animals and habitats that will suit their new animals.</p> | <ul style="list-style-type: none"> • make good decisions • solve problems • work with others, as a team • reflect on and review outcomes • communicate effectively. | | |
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Long term planning

Science Planning 2016-17 - Autumn 1 (Environment and Habitats)

| <u>National curriculum links</u> | <u>As scientists we answering the question:</u> | <u>Success criteria (differentiated)</u> | <u>Activities to develop this learning</u> | <u>Cross curricular - including school values</u> | <u>STEM Activities</u> |
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| Keystage 1 | Is it alive or dead? | Entering: | https://www.hamilton-trust.org.uk/browse/science/y | | |

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| | <p>How do we stay alive?</p> <p>What is a habitat?</p> <p>How are animals adapted to their habitats?</p> <p>Which habitat?</p> <p>What are local habitats like?</p> <p>Can you make a habitat?</p> <p>What is a food chain?</p> | <ul style="list-style-type: none"> • Pupils can identify and classify some things that are living, dead and have never been alive and can identify one of the processes used to inform their sorting with prompting questions. • Pupils match some animals and plants to their habitats and give some reasons for their matching with prompting questions. • Pupils sort animals and plants into two contrasting habitats. • From a number of deconstructed food chains pupils can identify that a plant is at the beginning of each.. <p>Developing:</p> <ul style="list-style-type: none"> • Pupils can identify and classify some things that are living, dead and have never been alive and can identify two or three of the processes used to inform their sorting with prompting questions. • Pupils match a range of animals and plants to the most appropriate habitats and give reasons for their | <p>1/everyday-materials-year-1/110421</p> | | |
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| | | <p>matching with prompting questions.</p> <ul style="list-style-type: none">• Pupils identify the animals and plants which live in two contrasting habitats.• Draw and label a diagram of a simple food chain for a carnivorous animal and for a human meal. <p>Secure:</p> <ul style="list-style-type: none">• Pupils sort things that are living, dead and have never been alive accurately and consistently into groups explaining their reasoning by referring to more than three of the processes used to inform their sorting.• Pupils explain the relationship between animals and plants living in habitats, giving examples from more than two contrasting habitats.• Pupils identify the animals and plants which live a range of contrasting habitats and explain the features of the habitats which meet the needs of those animals and plants.• Draw and label diagrams of food chains using appropriate scientific | | | |
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| | | vocabulary for a human meal and at least two carnivorous animals. | | | |
| Working Scientifically Year 1 and 2 | <p>Observe closely, using simple equipment.</p> <p>Perform simple tests</p> <p>Use their observations to suggest answers to questions.</p> <p>Asking and answering simple questions.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Identify and classify.</p> <p>Observe closely.</p> <p>Ask simple questions, recognising that they can be answered in different ways.</p> <p>Identify and classify</p> <p>Use their observations and ideas to suggest answers to questions.</p> | <p>Observe animals in their own environment. Making notes and taking photographs of where animals live and why.</p> <p>Observe closely how animals are adapted to their environments and ask questions and find answers as to why they are adapted in these ways.</p> <p>Observe food chains and offer answers to questions as to why they are in this order.</p> | | | |
| <u>Curriculum drivers</u> | <u>Diversity</u> Children will compare a range of habitats - local and further a field using maps and the globe to locate them. | <u>Environment</u> Continuous Provision Areas are developed and enhanced weekly to support and enable independent learning. | <u>Enterprise</u> As science is a process for finding out and a system for reporting and organising discoveries... Pupils will: <ul style="list-style-type: none"> • use their initiative | | |

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| | <p>The children will develop a knowledge and understanding of how plants and animals are suited/adapted to their environments and how we as humans are similar/different and adapted to our environments.</p> | <p>Reading Area - Texts about animals and habitats, life cycles and where/ what animals need to survive.</p> <p>Maths Area - Activities to develop one-to-one correspondence, counting, problem solving, classifying and measuring.</p> <p>Sand - investigate, explore, find...</p> <p>Water - pouring, measuring, recording findings...</p> <p>Writing Table - Creating fact files, posters, stories about animals in their habitats.</p> <p>Creative Station - making animals, making habitats, designing and making their own animals and habitats that will suit their new animals.</p> | <ul style="list-style-type: none"> • make good decisions • solve problems • work with others, as a team • reflect on and review outcomes <p>communicate effectively.</p> | | |
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Long term planning

Science Planning 2016-17 - Autumn 1 (Animals - Skeletons & Movement)

| <u>National curriculum links</u> | <u>As scientists we answering the question:</u> | <u>Success criteria (differentiated)</u> | <u>Activities to develop this learning</u> | <u>Cross curricular - including school values</u> | <u>STEM Activities</u> |
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| <p>Years 3 and 4</p> | <p>What do humans and animals need to be healthy and grow?</p> <p>What are the different food groups?</p> <p>How is food broken down and delivered to all parts of the body?</p> <p>What are the main functions of the skeleton?</p> <p>What is the job of the muscles?</p> <p>How do muscles work?</p> <p>What are exoskeletons?</p> <p>How are exoskeletons different to human skeletons?</p> <p>What are the different types of joints in a human skeleton?</p> <p>What are the effects of exercise on the human body?</p> | <p>Entering:</p> <ul style="list-style-type: none"> Identify that some animals (including humans) have skeletons from pictures/x-rays of skeletons. Identify a limited number of bones and muscles. <p>Developing:</p> <ul style="list-style-type: none"> Recognise that that all vertebrates have a skeletal and muscular system that enables movement, support and protections. Pupils can identify some key human bones e.g. skull, spine, ribcage and muscles e.g. biceps, triceps. Pupils explore the simple mechanics of contraction and relaxation of muscles in combination with bones at joints in vertebrate movement. <p>Secure:</p> <ul style="list-style-type: none"> Increased awareness of the adaptations of invertebrates and how they might be protected, e.g. exoskeletons, shells, etc. and how not having a skeleton enables different movement. | <p>NB: the new year 4 will have an understanding of the different of the different food groups, balanced meal and nutrition transported around the body as this was taught last year.</p> <p>https://www.hamilton-trust.org.uk/browse/science/y3/animals-including-humans-year-3/86880</p> <p>First two activities from STEM Learning (INSIDE THE HUMAN BODY)</p> <p>https://www.stem.org.uk/elibrary/resource/35233</p> | <p>Cross Curricular links:</p> <ul style="list-style-type: none"> Healthy School PE | <p>First two activities from STEM Learning</p> <p>https://www.stem.org.uk/elibrary/resource/35233</p> |
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| Year 3 and 4 Working Scientifically | What are the effects of exercise on the body? | Investigate the effects of exercise on the body by measuring pulse rate. Draw graphs of their findings. They will understand the importance of taking several measurements. | | | |
| <u>Curriculum drivers</u> | <u>Diversity</u> <ul style="list-style-type: none"> Promote equality and address prejudice issues by discussing that we are ALL the same despite looking different on the outside. | <u>Environment</u> <ul style="list-style-type: none"> Use the environment outside to explore movement of body and exercise. | <u>Enterprise</u> <ul style="list-style-type: none"> Meet with Mrs O'Brien to discuss Healthy School status and how this can be promoted throughout school. Meet with Govenors/Head to discuss Healthy Meals/Healthy Schools. | | |

Long term planning

Science Planning 2016-17 - Autumn 1 (Animals/Health Exercise, Health & Circulatory System

| <u>National curriculum links</u> | <u>As scientists we answering the question:</u> | <u>Success criteria (differentiated)</u> | <u>Activities to develop this learning</u> | <u>Cross curricular - including school values</u> | <u>STEM Activities</u> |
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| Years 5 and 6 | What is the job of the heart? | Entering: | https://www.hamilton-trust.org.uk/browse/science/y | Cross Curricular links: | Circulatory activity from |

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| | <p>How does a heart work?</p> <p>What is the human circulatory system?</p> <p>What are the jobs of the lungs?</p> <p>How do the lungs work?</p> <p>What are the different jobs of blood?</p> <p>Why is blood important?</p> <p>Why is exercise important?</p> <p>Why is a healthy balanced diet important?</p> <p>What are the effects of different drugs on the body e.g. caffeine, tobacco, alcohol?</p> | <ul style="list-style-type: none"> • Pupils list the main parts of the circulatory system including : heart, vein, artery, arteriole, capillary. • Pupils identify the materials carried by the blood using correct vocabulary i.e. nutrients not food, oxygen and carbon dioxide not air, water, waste, urea. • Pupils state that soluble nutrients and water are carried in blood (plasma). <p>Developing:</p> <ul style="list-style-type: none"> • Pupils accurately label a diagram of the circulatory system, annotating the heart as a 'double pump' with arteries running away from the heart, capillaries linking arteries to veins(in organs) and veins running towards the heart. • Pupils describe the potential detrimental effects of under or over eating i.e. underdevelopment, anorexia, obesity leading to increased risk of type II diabetes, heart disease etc. | <p>6/animals-including-humans-year-6/86877</p> <p>Circulatory activity from STEM Learning</p> <p>https://www.stem.org.uk/elibrary/resource/35233</p> | <ul style="list-style-type: none"> - Healthy School - PE | <p>STEM Learning</p> <p>https://www.stem.org.uk/elibrary/resource/35233</p> |
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| | | <ul style="list-style-type: none"> • Pupils state that soluble nutrients and water are carried in blood (plasma). <p>Secure:</p> <ul style="list-style-type: none"> • Pupils identify the materials carried by the blood using correct vocabulary i.e. nutrients not food, oxygen and carbon dioxide not air, water, waste, urea. • Pupils detail in scientific terms what is meant by a balanced diet and what the outcomes of having too much or too little of one particular food group might be. Pupils explain the physiological effect of a drug e.g. in terms of raised heart rate the effects of caffeine. Analyse the effects a range of lifestyle choices on health. • Pupils associate the soluble nutrients from ingested and digested food: sugars from carbohydrates; lipids from fats and amino acids from proteins that are transported. | | | |
| Year 5 and 6 Working Scientifically | What are the effects of exercise on the body? | Investigate the effects of exercise on the body by measuring pulse rate. Draw graphs of their | | | |

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| | | findings. They will understand the importance of taking several measurements & then calculating the average (mean) result. | | | |
| <u>Curriculum drivers</u> | <u>Diversity</u> <ul style="list-style-type: none"> Promote equality and address prejudice issues by discussing that we are ALL the same despite looking different on the outside. | <u>Environment</u> <ul style="list-style-type: none"> Use the environment outside to explore movement of body and exercise. | <u>Enterprise</u> <ul style="list-style-type: none"> Meet with Mrs O'Brien to discuss Healthy School status and how this can be promoted throughout school. Meet with Govenors/Head to discuss Healthy Meals/Healthy Schools. | | |