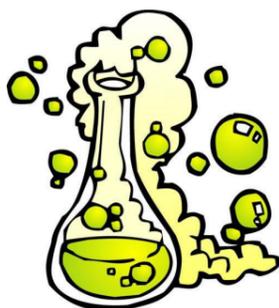


WORKING SCIENTIFICALLY DEVELOPMENT

Y5	<ul style="list-style-type: none"> Plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary Make a prediction with reasons Use test results to make predictions to set up comparative fair tests Present a report of their findings through writing, display and presentation Take measurements using a range of scientific equipment with increasing accuracy and precision Take repeat readings when appropriate Record more complex data and results, using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs Report and present findings from enquires through written explanations and conclusions Use a graph to answer scientific questions
Y6	<ul style="list-style-type: none"> Explore different ways to test an idea, choose the best way, and give reasons Vary one factor whilst keeping the others the same in an experiment and explain why they do this Plan and carry out an investigation by controlling variables fairly and accurately Make a prediction with reasons Use test results to make further predictions and set up further comparative tests Explain, in simple terms, a scientific idea and what evidence supports it Present a report of their findings through writing, display and presentation Explain why they have chosen specific equipment (including ICT) Decide which units of measurement need to be repeated Explain why a measurement needs to be repeated Record their measurements in different ways (bar charts, tables and line graphs) Take measurements using a range of scientific equipment with increasing accuracy and precision Find a pattern from their data and explain what it shows Use a graph to answer scientific questions Link what they have found out to other science Suggest how to improve their work and say why they think this Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models Report findings from investigations through written explanations and conclusions Identify scientific evidence that has been used to refute ideas or arguments Report and present findings from enquires, including conclusions, casual relationships and explanation and degree of trust in results, in oral and written forms such as displays and other presentations



Science focused projects in Cornerstones

Science is covered in all of the Cornerstones projects but some of the projects have a really strong focus on scientific learning. Look out for the following projects which have Science as their primary subject.

Yr 1/2—Towers, Tunnels and Turrets (Living Things and their habitats/Working scientifically)

- **Wiggle and Crawl** (Animals/Living Things and their habitats/Working scientifically)

- **Muck, Mess and mixtures** (Everyday materials/Working scientifically).

Yr 3/4— Urban pioneers (Light/Urban pioneers (Light/Working scientifically)).

- **Predator !**(Animals, plants, rocks/ Working scientifically).

- **Road Trip USA!** (Electricity/Working scientifically).

Yr 5/6— Stargazers (Earthand space/Working scientifically)

- **Scream Machine** (Forces/Properties and changing materials/Working scientifically)

- **Tomorrow's world** (Electricity/Light/Working scientifically)



Finding out more...

Some good websites for developing scientific knowledge include:

www.rigb.org/kids (interactive games and quizzes)

www.sciencekids.co.nz/ (quizzes, videos, experiment ideas, lesson plans, homework projects and science jokes!)

www.kidsites.com/sites-edu/science.htm (full of links to games/activities, all topic based—some similar to cornerstone topics)

Spotlight on Science

Our Vision: To.....

Subject Leader: Mrs Innes

The National Curriculum Purpose of Study for Science

“A high quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.”

Science at Milton Court: Historically Science was planned by individual teachers to fit in with their topic work—which was challenging to monitor for progression and coverage.

Science is now taught through a topic based learning approach using the Cornerstones curriculum units (Years R—6). They are themed and are cross-curricular. Where the topics have less of Science focus, we are beginning to use supplementary Cornerstones units to ensure even coverage of the curriculum.

All teachers plan and set appropriate pitch for their Science sessions using the end of year expectations for each year group. We aim for each child to achieve the knowledge and skills relative to their Year group, by the end of the academic year.

Assessment— is not currently formally recorded on OTrack, but assessed informally at the end units by class teachers, against the end of year expectations. The only exception being at the end of Year 2 and Year6, where NC level data was used for the end of 2014/15.

What we are good at:

- * Progression of science skills and knowledge is evident through the school and is age –appropriate.
- * Cornerstones ensures that a variety of science topics are covered in every year group.
- * Teachers personal subject knowledge in Science is at least at a good level.

Things we are working on:

- * Supplementing the Cornerstones units which have less of a science focus.
- * Ensuring coverage of all of the Science curriculum.
- * Finding a system to track and record progress in Science, throughout Yr's 1 –6.



Key skills in Science

We look at and develop science skills throughout our wide curriculum. As a result, we cover the Early Years and National Curriculum requirements and go further to extend children's knowledge and understanding. Underpinning our curriculum delivery throughout years 1-6 are key skills that we ensure are taught, embedded and applied in each year group. Our aim is that every child has a firm understanding of these key skills within their year group expectations as a minimum. In this document you will find the areas of science covered in each key stage and progression through school with regards to working scientifically.

In the Early Years science is looked at through Knowledge and Understanding of the World—split into people and communities, the world and technology; as well as Physical development—Health and self-care.

Working scientifically key skill expectations and topic coverage for each year group are shown below.

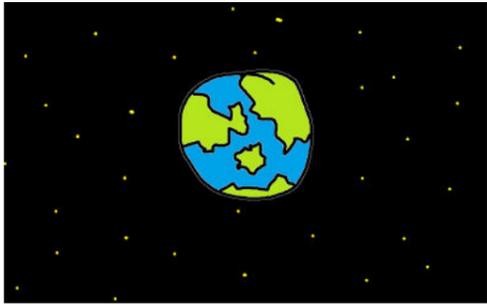
Science in the Early Years, Knowledge and Understanding of the World—split into:

People and communities— They know about similarities and differences between themselves and others and among families and communities.

The world— the children talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Physical development—Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.

TOPICS COVERED IN THE NATIONAL CURRICULUM

Year 1 + 2	<ul style="list-style-type: none"> Working scientifically (Year 1 and 2) Plants (Year 1 and 2) Animals, including humans (Year 1 and 2) Everyday materials Seasonal changes Living things in their habitats Uses of everyday materials 	
Year 3 + 4	<ul style="list-style-type: none"> Working scientifically (Year 3 and 4) Plants Animals, including humans (Year 3 and 4) Rocks Light Forces and magnets Living things in their habitats States of matter Sound Electricity 	
Year 5 + 6	<ul style="list-style-type: none"> Working scientifically (Year 5 and 6) Living things in their habitats (Year 5 and 6) Animals, including humans (Year 5 and 6) Properties and changes of materials Earth and space Forces Evolution and inheritance Light Electricity 	

WORKING SCIENTIFICALLY DEVELOPMENT

V1	<ul style="list-style-type: none"> Talk about what they see, touch, smell, hear or taste Use simple equipment to help make observations Perform a simple test and tell other people about what they have done Identify and classify what they observe Think of some questions to ask Answer some scientific questions and give simple reasons for their answers Explain what they have found out Show their work using pictures, labels and captions Record their findings using standard units Put some information in a chart or table 	
V2	<ul style="list-style-type: none"> Use <see, touch, smell, hear or taste> to help them answer questions Use some scientific words to describe what they have seen and measured Compare several things Carry out simple fair tests Explain why it might not be fair to compare two things Say whether things happened as they expected Suggest how to find things out Use prompts to find things out Organise things into groups Find simple patterns (or associations) Identify animals and plants by a specific criteria e.g. lay eggs or not; have feathers or not Use text, diagrams, pictures, charts and tables to record their observations Measure using simple equipment 	
V3	<ul style="list-style-type: none"> Use different ideas and suggest how to find things out Make and record a prediction before testing Plan a fair test and explain why it was fair Set up a simple fair test to make comparisons Explain what why they need to collect information to answer questions Measure using different equipment and units of measure Record their observations in different ways (diagrams, charts etc.) Describe what they have found using scientific languages Make accurate measurements using standard units Explain what they have found out and use their measurements to say whether it helps to answer their questions 	
V4	<ul style="list-style-type: none"> Set up a simple fair test to make comparisons Plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated Suggest improvements and predictions Decide which information needs to be collected and decide which is the best way for collecting it Use their findings to draw simple conclusions Take measurements using different equipment and units of measure and record what they have found in a range of ways Make accurate measurements using standard units Explain their findings in different ways (display, presentation, writing) Find any patterns in their evidence or measurements Make a prediction based on something they have found out Evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables Use straightforward scientific evidence to answer questions or to support their findings Identify differences, similarities or changes related to simple scientific ideas or processes 	