

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
School: Al Ain Juniors	Next Revision Date:
Reference No.: AJS-GDC-001	Version No.: 6

SCIENCE POLICY

Al Ain Juniors School Science Department aims that children are given opportunities to observe, record, and draw conclusions about the world around them. We hope to introduce children to the basic elements of experiments and investigations and help them to become more inquisitive.

This policy outlines the teaching and learning of Science at Al Ain Juniors School. The implementation of the policy is the responsibility of all teaching staff and will be monitored by the Science Head of the Department, Phase Coordinators and Head Teacher.

AIMS AND PURPOSE

The school aims to:

Deliver high quality, interesting and engaging science lessons;

- Using scientific contexts to develop and consolidate cross curricular skills in literacy, Math and ICT;
- Teaching science in a global and historical context; including the contributions of significant scientists from a range of cultures;
- Developing and extending pupils' scientific knowledge and understanding;
- Developing pupils' ability to work scientifically and involve pupils in planning, carrying out and evaluating investigations;
- Developing pupils' scientific vocabulary and ability to articulate scientific concepts clearly and precisely;
- Ensuring that all pupils are appropriately challenged to make good progress in science.

STRATEGIES

These aims and purpose are taught through:

Knowledge and Understanding

Children should:

- Be curious about things they observe experience and explore the world about them with all of their senses.
- Use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences.
- Begin to think about models to represent things they cannot directly experience.
- Try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.



AJ GROUP OF SCHOOLS

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
School: Al Ain Juniors	Next Revision Date:
Reference No.: AJS-GDC-001	Version No.: 6

Process and Skills

Children should:

- Acquire and refine the practical skills needed to investigate questions safely.
- Develop skills of predicting, asking questions, making inferences, concluding and evaluating based on evidence and understanding and use these skills in investigative work.
- Practical mathematical skills in real contexts.
- Learn why numerical and mathematical skills are useful and helpful to understanding Science.

Language and Communication

Children should:

- Think creatively about Science and enjoy trying to make sense of phenomena.
- Develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds.
- Use scientific and mathematical language including technical vocabulary and conventions and draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from sources such as reference books, CD-ROMs or the Internet.

ASSESSMENT

Formative assessment is used to guide the progress of individual pupils in Science. It involves identifying each child's progress in each area of the Science curriculum, determining what each child has learnt and what therefore should be the next stage in his/her learning. Teachers in the course of their teaching usually carry out formative assessment informally.

Suitable tasks include:

- Small group discussions, usually in the context of a practical task.
- Individual discussions in which children are encouraged to approve their own work and progress.

Summative assessment takes place at the end of each term and at the end of each academic year, when a level of the child's attainment is given. This assessment may be carried out through assessment sheets. At the end of each Key Stage 2 the assessment is carried out through SATs. For Year 2 children this is based on teacher assessment and for Year 6 children there is a formal written testing in addition to teacher assessment. Experimental and investigative work from the basis for teaching Science is given whenever is possible. Children are given as many opportunities as possible to carry out investigations and experiments. During each term assessments are carried out.



AJ GROUP OF SCHOOLS

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
School: Al Ain Juniors	Next Revision Date:
Reference No.: AJS-GDC-001	Version No.: 6

RECORD KEEPING

Informal notes on the child's progress in Science are made in teacher's planning files. At the end of Key Stage 1 a grade is given for each child's attainment in Science. At the end of each academic year children in Key

Stage 2 is given a grade for each Attainment Target, which is recorded on their report cards with performance indicators. This allows the pupils progress to be tracked through the school. The children's Science assessments are kept in children's individual files.

Reporting to parents is done termly through parent teachers meeting.

PROGRESSION

Planning in Science is a process, which involves all teachers. This includes:

- The School Development Plan is the foundation for curriculum planning, developed through collaboration between the staff, and approved by the Head Teacher.
- Schemes of work for Science are developed by the HOD (in collaboration with the whole staff).

PLANNING

- By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant program of study.

Science coverage for Year 1:

- Scientific Enquiry
- Life Processes and Living things
- Materials and their properties
- Physical processes

Science topics covered:

- Ourselves and Other Animals
- Sorting and Using Materials
- Changing season

Year 2 Science topics include:

- Health and Growth
- Grouping & Changing Materials
- Plants & Animals in the local environment



AJ GROUP OF SCHOOLS

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
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Y3 Science topics include

- Animals including humans
- Rocks
- Forces and magnets
- Plants
- Light and Shadows

The topics for Year 4 are as follows:

- Digestive System
- Habitats
- Solids and Liquids
- Change of state
- Sound
- -Circuits and Conductors

Science coverage for Year 5:

- Scientific Enquiry
- Life Processes and Living things
- Materials and their properties
- Physical processes

Topics for Year 5

- Living things and their habitats (Life cycles)
- Earth, Sun & Moon
- Materials
- Dissolving
- Forces
- Reversible & Irreversible changes
- Animals including humans (changes to old age)

Topics for Year 6:

- Light
- Electricity
- Circulatory system
- Diet, exercise, drugs & lifestyle
- Classification of living things including Micro-organisms
- Evolution and Inheritance



AJ GROUP OF SCHOOLS

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
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Key Stage 1

- The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about Science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
- Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

- The main focus of Science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.
- ‘Working scientifically’ must **always** be taught through and clearly related to substantive Science content in the program of study.
- Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

- The main focus of Science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking

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School: Al Ain Juniors	Next Revision Date:
Reference No.: AJS-GDC-001	Version No.: 6

their own questions about scientific phenomena; and analyzing functions, relationships and interactions more systematically.

- At Upper Key Stage 2, they should encounter more abstract ideas and begin to recognize how these ideas help them to understand and predict how the world operates. They should also begin to recognize that scientific ideas change and develop over time. They should select the most appropriate ways to answer Science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Pupils should read, spell and pronounce scientific vocabulary correctly.

RESOURCES

- Science resources are stored in cupboards in the laboratory
- An inventory of resources is updated when new resources are ordered.
- The subject leader must be informed of any changes regarding Science resources i.e missing or broken resources and/or when new or replacement resources are required.

YARD STICK Hands on Active Learning-

It is widely accepted worldwide that children learn concepts best by hands on learning.

This entails hands-on experiences with objects, organisms, and systems. Hands-on activities are motivating for students, and they stimulate inquiry and curiosity. Children today need to be equipped with skills such as observation, analysis and critical understanding.

An emphasis on observation and questioning, as a skill, are at the heart of this constructive methodology .We emphasize hands-on or activity-based learning, which ignites in them a passion for ‘learning by doing’.

THE ROLE OF THE SCIENCE HOD

The Science coordinator is to:

- Take lead in policy development and the implementation of the Scheme of Work.
- Support colleagues in their development of work plans, and implementation of the Scheme of Work.



AJ GROUP OF SCHOOLS

Title: SCIENCE POLICY	Issue Date: April/Sept 2016
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Reference No.: AJS-GDC-001	Version No.: 6

- Monitor the resources in Science and advise the Head Teacher of any action needed.
- Take responsibility for the purchase and organization of central resources for Science.
- Keep up to date with developments in Science education and disseminate information to colleagues as appropriate.
- Monitor the teaching and learning of Science throughout the school.

SPECIAL EDUCATION NEEDS

All children are encouraged and supported to develop their full potential in Science. Some children may require extra support in the classroom and opportunities for consolidation and reinforcement. Activities are differentiated to meet the needs of all pupils.

EQUAL OPPORTUNITIES

All children are entitled access to the Science curriculum in line with the schools policy for equal opportunities. Children who show a particular ability and flair for Science and who work quicker through the levels of the National Curriculum are extended through the use of more challenging problems and investigations.