



Unlocking the Potential of Every Child

Science Guide

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Rationale

A high-quality science education to provide the foundations for understanding the world through the various sub science topics. Science has changed our lives and it is vital for the world's future and prosperity. All children should be taught the essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, children should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. Children should be stimulated to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. Children at Safa British School will be encouraged to work as scientists to explore through hands on activities to create a sense of awe and wonder about the world they live in. As a school we will aim to encourage rich questioning which stimulates thinking and makes children want to find out the answers to these 'real life' problems. In order for children to achieve well, they must not only acquire the necessary knowledge but also understand its value, enjoy the experience of working scientifically and sustain their interest in learning it.

Our Vision

- To develop a love of science; to enthuse children and make learning fun.
- To build on children's curiosity and sense of awe in the natural world.
- To ensure children experience all five scientific enquiries: observation, testing, research, classifying and identifying and pattern seeking by becoming scientists in the classroom.
- To make learning purposeful, to make cross curricular links and for children to experience 'real life' concepts. (Maths, English, technology in particular)
- To increase children's scientific vocabulary and the language of science.
- To ensure children use a range of equipment accurately and safely through hands on investigations and observations.
- To develop learning outside the four walls of the classroom; to increase children's confidence and natural curiosity of the world around them.
- To give children varied opportunities, through active participation. All children are exploring and following their own lines of enquiry. At times investigations are child led.
- To make sense of the world they live in and understand the processes and reasons why things happen. To understand and make a difference to the world e.g. how to look after the environment, how to stay fit and healthy.
- To develop a range of skills through the working scientifically strand of the curriculum: measuring, analysing, presenting and reasoning.
- To develop children's aspirations of potential careers in science through talking about the work of scientists and how they can make a difference to others.

Introduction

This guide outlines the teaching, assessment, organisation and management of science taught at Safa British School. The school's policy for science is based on the primary curriculum which was statutory from September 2014. The implementation of this policy is the responsibility of all teaching staff.

Teaching and Learning

Science is taught in each year group based on the 2014 National Curriculum objectives. Science lessons at Safa are taught using the inquiry approach. Each topic is introduced as a research question. This question is also given as homework to the children

to research independently over the period of topic. Their findings are encouraged to be presented using various technological apps. The objective of the inquiry approach is to ensure children become critical thinkers by developing a deeper understanding of concepts through research and excitement. Learning at Safa is inclusive for all learners, where differentiated activities or teacher/TA support is planned to ensure all children make progress.

Recording Work

Work does not always have to be recorded in books. There is a 50:50 allowance of recordings on Seesaw and in physical copy books. Where work is recorded in books, children should aim to develop their working scientific skills, by the systematic way they answer questions and through the way they respond to the next step comments set for them by their teachers.

Flip Learning

Flip learning is used at Safa to accommodate all types of learners, from children who grasp concepts quickly to children who require more time to access the learning objectives. Videos of the actual lessons are sent home before the lesson for children to watch and access as often as required before the lesson. On the day of the lesson, children go straight to the activities and which gives more opportunity for child led research and opportunities to delve deeper into the current topic. Additionally flipped learning will give children opportunities to reason, explain and demonstrate their learning in their own way. Children will have a range of group and individual tasks, where solving problems and collaboration are involved to foster the love for the subject. All lessons become purposeful and inject a sense of excitement and anticipation as to what the children may be learning next. The Flipped approach provides children with opportunities to pose questions and have time to find the answers to these questions for themselves- deciding what line of enquiry they need to take.

Planning

- Science in the Foundation Stage is linked to a real life concept of the Sustainable Development goals as an integral part of all topics covered during the year. We relate the scientific aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs), which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water. Additionally a baseline and end of topic assessment is administered to measure progress and attainment.

- The National Curriculum has been mapped to link to the Sustainable Development Goals providing more of a real life concept. Additionally cross curricular links have been made to Social Science to make it relevant and relatable to the children and in line with the UAE National Agenda.

- Working scientifically' is embedded throughout the areas of learning in Key stage 1 and 2; this focuses on the key aspects of scientific enquiry which enable pupils to investigate and answer scientific questions. Our lesson plans include SBS adapted images for all five areas of Working Scientifically to help highlight to the children what area of working scientifically they are working on for each lesson. This will help deepen understanding and encourage more independent learning and understanding of the world around them.



- Lessons are planned to ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progressions into the science scheme of work, so that the children are increasingly challenged as they move up through the school.
- Developing Experts is used to supplement children's learning in Science. It is a robust scheme that help the teachers with additional content and resources. It gives the children the opportunity to lead their own learning working at their own pace.
- Lesson plans are submitted weekly into the appropriate planning week on the Staff Drive. SMART Notebooks should be detailed and stimulating for pupils while resources should be made prepared in advance. In addition to the SMART Notebooks a video of the lesson is also made for the flip lesson to be sent home the week before the lesson.

Monitoring and Review

It is the responsibility of the science coordinator to monitor the standards of children's work and the quality of teaching in science. The science coordinator is also responsible for supporting colleagues in the teaching of science, by being informed about current developments in the subject and providing a strategic lead and direction for the subject in the school. The Science coordinator also provides PD for innovation to enhance teaching and learning of the subject.

Monitoring of the subject involves lesson observations, book scrutinies, learning walks, pupil conferencing, monitoring of science displays in class and around the school. It also involves monitoring the class and school data to identify strengths and weaknesses and to ensure staff are aware of the children who are falling behind. Interventions are also monitored to see what impact these are having on the children's attainment and progress.

Health and Safety

Children will be taught to use scientific equipment safely during practical activities. Class teachers and teaching assistants will check equipment before use to ensure it is safe to use. All damages will be reported to the science lead and the defective equipment will be removed and replaced accordingly. A simple risk assessment will be carried out for all practical activities and any perceived hazards will be actioned appropriately. Safe practice must be promoted at all times.

Resources

In our labs we have a well-stocked resource store which is used for teaching science and other STEAM related activity in the school. The library contains science topic books to support children's individual research. Teachers also make full use of interactive, digital and online resources to support teaching and learning.

Assessment and recording

Assessment in Key Stage one and two is done using the rising star scheme. There is a baseline and end of topic assessment which measures progress and attainment for all topics. The date is recorded using an online excel tool where the science coordinator and teachers of the year group can access and monitors their class progress.

Additionally, informal judgments as teachers observe children during lessons that involve investigations and experiments is also part of the assessment as Safa British School. On completion of a piece of work, the teacher marks the work before the next lesson. Marking should be clear, mostly positive and purposeful. Next steps can be given as verbal feedback or written. The children are given time to read, consider and respond to feedbacks. The children are used to responding to the teachers marking.

Ongoing formative assessment is recorded on the school's assessment software "learning ladders" as a 'Class Track' judgment. This judgment enables teachers to plan and adapt future lessons as well as map curriculum attainment for the subject/year group/class.

During lessons, we provide opportunities for a range of assessment strategies to be used. This includes assessing prior knowledge, quality questioning, peer assessment and self-assessment.

There are three connected levels of assessment:

<u>Long Term</u>	<u>Medium Term</u>	<u>Short Term</u>
<ul style="list-style-type: none"> • Baseline assessments (Sep) • End of Year assessment (June) • GL Progress Tests FS2 to Year 6 (May) • Teacher Assessment through Learning Ladders • EYFS Profile 	<ul style="list-style-type: none"> • Rising Star scheme assessments end of each topic (Year 1 to Year 6) • IEPs • Book scrutinies across each year group • Pupil Progress meetings • Parent consultations and sharing of targets 	<ul style="list-style-type: none"> • Informal assessments on a daily basis used to support planning • Written feedback on children's work • Pupils' self-reflection of lesson objectives and units of work • Pupils' 'Steps to Success' tables in their books • Homework

Gap analysis is used to identify areas of concern from GL Progress Tests which is used to influence planning throughout the year.

Tracking the progress of children using 'tracking grids' identifies children who may need intervention. This is used to inform Pupil Progress documents which are used when teachers meet the Primary Leadership Team to discuss the progress and attainment of children. Targets are set using children's individual target sheets at the beginning of the year and updated on an ongoing basis in. These are discussed with pupils and the target sheet seen by parents at parent/teacher meetings. Pupils may be reminded of these targets (displayed in class, on cards at tables, in books) and support given as appropriate to ensure progress and achievement.

Home Learning

Home Learning is given as research questions at the beginning of a new topic for the children to work on independently. This is assigned through the seesaw platform. Flip videos for every subsequent lesson are sent home for pupils in Key Stage 1 and 2 through seesaw.

Parents are informed about home learning through Seesaw and Learning Ladders, therefore providing parents the opportunity to be involved in their child's learning through the tasks set.

Role of the Subject Leader

- To be enthusiastic about science and demonstrate good practises.
- Track progress and attainment through the school and hold staff accountable for progress of all children.
- Monitor displays and science learning opportunities throughout the school.
- Conduct book scrutinies and ensure books show progression, support and opportunities for children to master and apply their learning.
- Ensure the quality of teaching and learning in the school is of a good or better standard.
- Maintain resources and order new resources as required.
- Support staff with providing science CPD and updates, encourage staff by sharing good ideas and organising in service and external training where required.
- Be aware of national and local developments through reading relevant materials and attending courses and hub meetings.
- Liaise with science coordinators from other schools to compare and share good practice.
- Ensure science policy is reviewed and updated regularly.
- Ensure teachers are providing safe practice through their lessons and seek advice where needed.

Inclusion of SEND students

At Safa British school we strive to *unlock the potential of **all** students* regardless of individual differences. We uphold the mission of the Dubai Disabilities Strategy, to create a fully inclusive society by 2020. We are committed to H.H. Sheikh Mohammed bin Rashid Al Maktoum's 2021 vision, enabling the UAE to become an inclusive, barrier free and rights-based society. Hence, we endeavor to protect and ensures the success of all groups of students at SBS.

In line with the Dubai Framework for Inclusive Education (2017), we believe in:

- The equal right to education in a 'common learning environment'
- Proactively removing barriers
- The value of diversity
- Recognising each child's unique capability
- Modifying teaching and curricular approaches to ensure all children have an equal opportunity to progress
- The rejection of ability labelling and discrimination

When considering the application of school guide, as within all of our teaching practice, we recognise children as individuals with unique needs and abilities. This

policy acts as guidance, not a 'one size fits all' specification. As teachers, we must assess each incident individually and use professional judgement to choose the most appropriate strategy.