

Powerful Hornbillers are  
positively engaged citizens



# Subject Policy - STEM

September 2022

# STEM Policy

**Working together to build a successful future for all**

## Hornbill School's Mission

Our values led, multicultural school promotes a happy, safe & caring environment that is committed to helping all children experience success, whatever their background or abilities. Our children build their learning power as part of a learning community in which they all become resilient & self-assured whilst achieving the highest standards on all they set out to do. The health, safety and wellbeing of every child is our paramount concern.

## Building Learning Power

Hornbillers are caring, courteous citizens of Hornbill School who are powerful learners because of their: **curiosity**, **creativity** and **courage** and their **reflective**, **resilient** and **energetic** ability to **communicate** and **explore**.

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## **1. Principle**

Pupils learn through a STEM curriculum that will:

- develop excitement and curiosity in Science, Design Technology (DT) and Computing
- develop knowledge and understanding through purposeful practical investigations/projects- - enable children to problem solve
- support children in applying their learning from other subjects
- empower them to make considered links to real life contexts

**In Science:**

- support their progressive use and application of the five enquiry types: pattern spotting, observing over time, classifying and grouping, comparative and fair testing and researching using secondary sources.
- ensure their accurate use of scientific vocabulary
- enable reasoned explanation about ideas and concepts

**In Computing:**

- develop a clear progression of skills in computer science, information technology and digital literacy
- -use a consistent approach to computing

**In Design Technology:**

- develop the Research, design, make, evaluate cycle in DT
- Understand the importance of healthy lifestyles through cooking

**2. Aims**

The National Curriculum for England secures entitlement for all pupils to specific areas of learning and gives them the opportunity to develop the knowledge, understanding, skills and attitudes that are necessary for their self-fulfilment and development as responsible citizens.

**3. Teaching and Learning**

STEM has three main subjects that it covers, Science, DT and Computing, it will be taught in the following ways:

**All lessons will clearly include the Learning Powers, used as common learning language across the school.**

**Science** has a clear learning progression, in year groups and broken down in terms. The expectation is that these are taught throughout the year, both discretely and linked to theme where possible. Working Scientifically should be taught in most lessons where appropriate.

Science should be a balance of practical and recorded learning. Children should be recording independently where possible this should make pupils think, be above their current attainment, deepen their understanding of previous content and prepare the ground for new understanding

**Science** should be taught in the STEM (From Year 2 upwards) classroom, teachers will be expected to sign up at the start of the new academic year. Year groups will have a minimum of one hour per week Science, building in Upper Key Stage Two to two hours per week.

**Computing** will be taught using 'Purple Mash' to ensure that all computing skills are taught effectively with a clear progression from Y1-6. Staff will then develop and extend these units using other online resources. Hornbill School will follow the Purple Mash Scheme of work based on the National Curriculum. All children and staff will have own log in for Purple Mash and will save work in individual folders.

**Design Technology** will be taught across two units in every year group, using a range and progression of skills:

*A design, make and evaluate project* that will use problem solving skills to produce a carefully made outcome and *a cookery unit* where children focus on key skills of food prep and healthy eating (where possible).

When children have been taught the required DT skills, they will then apply their learning within their termly theme. Staff will follow the skills progression document. Children will record the research, design, make and evaluate stages in their theme books. Children should be recording independently where possible this should make pupils think, be above their current attainment, deepen their understanding of previous content and prepare the ground for new understanding

Long Term Plans will outline Science coverage, Purple Mash Units and DT units. Medium Term Plans will be clearly structured using the learning objectives and recorded on teachers planning.

All lesson will start with clear sharing of the expected success criteria.

#### **4.Pupil Experiences**

- Lessons will clearly include the Learning Powers, used as common learning language across the school
- Develop excitement and curiosity in Science through the use of key questions and websites like explorify in Science.
- Opportunities for practical experiments in science
- Science units of learning linked to themes and relating to real life scenarios
- Having a clear purpose for DT projects
- Practical problem solving
- Regular use of tools and equipment
- Children working independently using and applying skills taught
- Opportunities to problem solve and develop their own ideas,
- Purple Mash units used to teach skills
- Children then apply their skills linked to theme.

#### **5.Equal Opportunities**

- SEN - through the use of clear success criteria, teachers will be able to target specific small steps in learning for all pupils.
- Use of images on PPTs and limited text to support EAL and SEN learners.
- Differentiated templates to support recording in Science.

## 6.Ensuring Access to the National Curriculum and to Assessment

All staff are able to access the National Curriculum document for Science, Computing and DT and have specific year group Long Term Planning, Medium Termly planning and progression grids. Assessment of STEM will follow the school Hornbill Assessment System.

**7.Monitoring**  
Pupils from Y1 – 6 will record their work in a Science book. This will **only** be used for science learning. Photographic evidence should also be saved in a shared folder named **Science evidence** in year group planning.

Book looks, lesson observations, learning walks and pupil voice collection will be completed as part of the school quality assurance cycle.

## 8.Assessment

- Science assessment will take place during every unit using the whole school Hornbill Assessment System.
- End of unit reflection to be carried out in Y3-6 using double page spread technique in Science.
- Computing assessment will be completed using the whole school Hornbill Assessment System.
- Design Technology will be completed using the whole school Hornbill Assessment System.

## 9.Staffing

The range of adults involved in supporting the language and curriculum learning of pupils for whom English is an additional language in Hornbill School is wide and includes: Class teachers and LSAs.

## 10.Safeguarding Pupils

In Year 5 Science, learning links closely to the SRE programme of study, children will learn about gestation and how the human body changes. All facts will be strictly scientific, and other questions will be referenced in the school SRE learning policy.

Digital literacy including online safety will be taught across the school as the first Purple Mash unit for **every** year group. This will ensure that all children are given the same message in class. Children and parents are also expected to sign an online safety agreement with the school at the start of term 1.

## 11.Health and Safety

In Science, children are provided with safety clothing and goggles (if required). Teachers and LSAs will outline possible health and safety points at the start of every practical science lesson.

DT, the correct use of tools and equipment will be taught and supported by teachers and LSAs.

All pupils will start the academic year with a reminder of the need to for online safety using the specific Purple Mash Units. Pupils will have clear guidance on what to do should they have any concerns over their safety in school (Refer to school Safeguarding policy). In addition, parent FLP will take place on a yearly basis on keeping children safe on line.

Policy updated: **October 2022**

Next Policy update will be: **October 2023**