



STEM Policy

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Signed by Headteacher	
Signed by SLT	
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New York Primary School

STEM Policy

Mission

New York School Mission Statement:

“Come as you are – Leave at your best”

Rationale

Improving and enhancing STEM education is a national priority. Science and technology drive economic growth and a strong education in these topics is essential to meet the demands of the 21st century workplace.

At New York, we aim to promote high achievement in the STEM subjects by providing pupils with engaging tasks that challenge, stimulate and promote curiosity in the subjects. An education in STEM will provide children with an understanding of the world around us and allow our pupils to feel a sense of pride for their heritage. STEM 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 and processes within the subjects.

At New York, we aspire to a learning environment where pupils take ownership of their learning. Our aim is to create a school where children are engaged in, and excited by, their learning and where adults are supported and enabled to provide the highest quality learning experiences for the children. Through STEM subjects, we want our learners to be independent and resilient. We aim to achieve this by providing stimulating learning environments, practical lessons, themed days, PLZ activities, extra-curricular clubs and STEM events.

Aims

Children at New York are encouraged to;

- Develop scientific knowledge and conceptual understanding through the scientific disciplines of biology, chemistry and physics.
- Develop mathematical knowledge and engage pupils in real-life contexts and problem solving.
- Develop skills and knowledge in ICT through the use of iPads, computers, laptops and other equipment.
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and in the future.
- Understand how the STEM subjects link and support one another.

- Enjoy a range of activities taught through the STEM subjects and have the opportunity to work alongside scientists and engineers, asking questions and learning about STEM careers.
- Understand the importance of working in a safe and challenging environment.

Roles and responsibilities

The STEM Subject Leader is responsible for improving the standards of teaching and learning in STEM through:

Monitoring and evaluating STEM:-

- pupil progress and attainment through book scrutinies and data evaluation
- provision of STEM (including Intervention and Support programmes)
- the quality of the Learning Environment;
- the deployment and provision of support staff
- taking the lead in policy development
- auditing, purchasing and organising resources
- keeping up to date with recent STEM developments

The Assessment Coordinator will also support in monitoring standards of pupil progress and attainment through data analysis.

Actions

STEM themed days / activities / events will be planned by the STEM co-ordinator in order to enhance the learning of STEM subjects. During these planned events, children from the Foundation Stage to Year 6 will have the opportunity to work alongside scientists and engineers, engage in practical challenges and take part in whole-school events.

STEM theme days / activities / events will also aim to engage parents, governors and the wider community.

Teachers plan Science, Design Technology and Maths on a long, medium and short term basis. They refer to the statutory and non-statutory key objectives outlined in the National Curriculum. Teachers involve children in the planning process by researching areas of interest expressed by children and by ensuring that children are aware that there is a real purpose behind their learning. Planning includes differentiated opportunities for personalised learning.

There is an annual STEM week in school which culminates in a STEM Fair. During this fair, a range of STEM businesses are invited into school to talk to staff, children, parents and governors about the role of STEM and how their work supports this.

Teaching and Learning

In line with the schools teaching and learning policy, there will be a mix of class teaching, group work and themed STEM events. Teachers will be able to use STEM to teach relevant concepts, linking learning to real-life contexts and teaching about STEM careers.

Practical work will be a strong feature of STEM teaching and children will be encouraged to ask their own scientific questions in order to extend their learning.

Teaching will feature clear explanations, summaries, demonstrations, illustrations, examples, challenges etc.

As well as STEM teaching, there will be STEM provision in extra-curricular activities such as:

- STEM Club
- Young STEM Leads
- Greenpower Goblin car project, aimed at Year 5
- Science for Family workshops
- STEM week
- STEM Fair
- STEM educational visits
- Staff CPD
- Eco-Club
- Doodle Maths
- Times table Rock stars
- NUSTEM loans boxes

These will be run at different times throughout the year, ensuring there is STEM provision provided during every half term.

We recognise that there are children of widely different abilities, in all classes, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways (see inclusion section).

Assessment

Details outlined in Assessment Policy.

We are using FFT Aspire to look at progress and attainment in Maths and Science. Assessment records are passed up to the child's next teacher each year to ensure continuity and progression.

The STEM coordinator and Assessment coordinator work together to analyse data in Maths and Science.

Inclusion

Inclusion at New York is a responsive quality provision for pupils with SEND and is a core value within New York Primary School. The application of the STEM policy reflects that value with teacher and support staff are deployed to provide planned, targeted support to identified pupils, including resources and technologies to aid and enhance their learning.

STEM is for everyone and so is taught in line with the school's equal opportunity policy. We believe that STEM is an important aspect of everyone's life now and in the future. STEM education should account for children's different abilities, gender,

culture and religion so that it celebrates similarities and differences, ensures access and presents positive images.

The practical nature of STEM boosts self-esteem and confidence for those pupils who may sometimes find it difficult to access other lessons.

Outdoor learning

At New York Primary School we believe that the outdoor learning environment is an integral part of pupil learning and development. It can provide relevant, engaging experiences that support learning in all areas of the curriculum. Within STEM outdoor learning opportunities are planned and provided including Woodland Wednesdays, forest school work, gardenin, family science sessions and outdoor cooking which promotes contextual learning and develops enquiry-based skills, communication, imagination and cooperation. Such positive opportunities promote active learning for all.

Technology

Technology at New York is increasingly important and an integral part of any curriculum. Computers and technology will be used in a variety of ways to deliver engaging and interactive lessons and tasks relating to the STEM subjects. Technology that supports STEM, such as Purple Mash, Crumble and TTRS.

Children use ICT in STEM when appropriate:

- They use it to support their work in science by learning how to find, select and analyse information on the Internet.
- Children use ICT to record, present and interpret data and to review, modify and evaluate their work, improving their presentation.
- Scientific websites are available for children to use on notebooks, iPads and computers.
- Visualisers are used in classrooms to demonstrate concepts and enhance learning.

Cross-curricular links

Through our links with STEM (Science Technology Engineering and Maths) children are able to see explicit links between their mathematical skills and their scientific thinking. Children have opportunities to apply data handling and measuring skills when carrying out scientific investigations. Whole class discussion of data highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on Newton meters, measuring cylinders, weighing scales and a variety of other instruments. STEM work allows pupils to see the importance of mathematics and science in real-life contexts.

When taught well, STEM is also able to boost Literacy standards. Through real-life experiences, children are able to write with purpose; recounts, instruction texts and non-fiction reports, for example.

With support from companies and businesses, we are able to promote future careers and allows children to experience STEM in the real world. Some of the companies

that we have made links with are:

- NU STEM (as a Sustaining School)
- Amber Collective
- Great North Museums
- Freudenberg
- Brush Up at Newcastle University
- CLC
- Greenpower Goblin
- Centre for Life
- NHS
- Tyne Met College
- John Spence High School

This enriched curriculum promotes the importance of Literacy skills and means that children have real-life experiences to write about through recounts, instructional writing, letters etc.

British Values

At New York Primary School we support and adhere to the latest guidance from the DfE which requires schools to actively promote fundamental British values and to ensure that pupils are encouraged to regard people of all faiths, races and cultures with respect and tolerance.

STEM teaches our pupils to be proud of their British Values. Work with companies such as Amber Collective and Greenpower Goblin car look at the local area's history, such as shipbuilding, car manufacturing and mining. Children are able to appreciate their heritage and feel proud of their past.

Safeguarding

This STEM policy is part of a flexible and relevant curriculum that engages pupils' interest and promotes safeguarding: the curriculum incorporates: teaching pupils how to star safe, how to protect themselves from physical harm and how to take responsibility for their own and other's safety.

A copy of 'Is it safe??' by the ASE is kept with the STEM coordinator. The STEM coordinator ensures that risk assessments are in place for projects and lessons when deemed necessary.

Equal opportunities

At New York Primary School we are committed to promoting the principles and practices of equality and justice throughout school. We ensure that all children receive their entitlement to a broad, balanced and relevant curriculum, which is differentiated, to meet identified individual needs through flexible and varied provision. We promote harmony, prepare pupils for living in a diverse and increasingly independent society and aim to prevent and address all forms of discrimination in compliance with Equal Opportunities legislation and meet Ofsted criteria.

STEM teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world.

STEM allows pupils to understand the heritage and culture to which they belong, by showing links to the STEM opportunities around them, regardless of their gender, race or religion.

STEM subjects link well to health education and this will support children in making healthy choices and understand the long-term risks of things such as bad diets, smoking and lack of exercise.

(UPDATED Jan 2019)

At New York we have carefully considered and analysed the impact of this policy on equality and the possible implications for all pupils. Under the Equality Act 2010 we have a duty not to discriminate against people on the basis of their age, disability, gender, gender identity, pregnancy or maternity, race, religion or belief and sexual orientation. As part of our commitment to meet the Public Sector Equality Duty (PSED) requirement we have due regard of the need to eliminate discrimination, advance equality of opportunity and foster good relations. This policy has been equality impact assessed and we believe that it is fair, does not prioritise or disadvantage any pupil and it helps to promote equality at this school.

Monitoring and evaluation

The STEM policy of New York Primary School will be reviewed annually to ensure all aspects of the policy meet the latest statutory regulations and that it is sufficiently up-to-date to provide the best possible STEM teaching for pupils. The actions set out within the policy are realistic, achievable and manageable to enable staff to deliver it effectively in relation to other duties and responsibilities.

