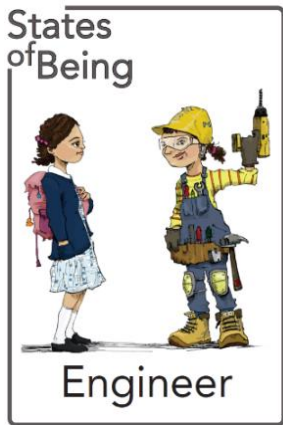


## Being a Champion Engineer: an approach to Design and Technology at Filton Avenue Primary



### Intent

#### **What is the point of Being an Engineer?**

Being an Engineer is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

#### **The aims of being an Engineer are:**

- To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- To build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- To critique, evaluate and test their ideas and products and the work of others
- To understand and apply the principles of nutrition and learn how to cook

#### **Where does it come from?**

Being an Engineer is integrated into our curriculum through Curious-city. An enquiry-led, local learning approach to the National Curriculum 2014. This approach recognises that the cognitive maturity of learners affects what and how they learn. It also encourages teachers to think of how they encourage learners to be an Engineer instead of simply teaching them Design and Technology.

Within a Curious-city curriculum, there is no 'skills or knowledge' debate. It is seamless blend of both, and through every enquiry, learners are challenged to work independently to prove their understanding of Being an Engineer.

## **Implementation**

### **What does being a lead Engineer entail?**

- Provide encouragement and ideas to staff across the school. Know when Engineer enquiries are happening and speak with the relevant year groups.
- Ensure visits and experiences are carried out and provide support regarding this.
- Monitor content, progression and enquiries and be mindful of coverage 'v' skill acquisition.
- Support with the development of skills and knowledge progressions.
- Lead staff training sessions.
- Drive the development of being an Engineer, sharing best practice.
- Evaluate being an Engineer and complete a Deep Dive analysis.
- Ensure enquiry planning and floor books (or alternative evidence) are sufficient to effectively represent the state of being you lead.
- Lead a group of children to be "Champions" for the subject and use this group to gather different voices across the school.
- With the State of Being Champions, create an annual newsletter for your state of being, which is sent to families and shared on our website and other social media channels. This should celebrate learning, create aspiration and centre children in current affairs for that state of being.
- Working closely with these Champions, have a strong focus on developing pupil voice, ensuring our pupils know their thoughts are valued and providing evidence of the positive impact of our curriculum.
- Lead being an Engineer in line with the school improvement plan and curriculum action plan so that you are sensitive to, and understand how, whole school improvement has to be considered strategically in order to have the best effect and not overwhelm staff.

### **What is 'covered'?**

Essentially, a Curious-city curriculum uses the National Curriculum 2014 areas as a basic foundation of entitlement. However Curious-city is much more than that. It is localised, real-life and challenges learners to apply their learning in unique ways without the support of adults to prove what they have learnt. Local companies, charities, organisations, individuals and objects are used as foci to enhance and instill a sense of curiosity, pride and stewardship.


## **Impact**

### **How is Being an Engineer monitored and assessed?**

Every term, *Being Champions* meet as a team (the Enquiry hub) to discuss and share what they are seeing and hearing and, working as a team, help to review the school's curriculum and contribute to the Enquiry action plan.

Twice a year, Being Champions work with the Enquiry leads to review floor books and enquiry books to ensure coverage and progress across the school for their state of being.


As there is no requirement to formally report attainment of Design and Technology, Being an Engineer is assessed through monitoring how a learner responds to enquiries and whether they show a particular enthusiasm and disposition towards it, or, if they constantly needed support in order to access it. This information is recorded on the Enquiry crib sheets which are kept and used for report writing towards the end of the year. These are then passed on to the next teacher to use to support future learning.

		National Curriculum 2014 coverage and progression within Curious-city™ enquiries																	
KS1		Y1					Y2												
Design and Technology		What is my hat made of?	Where is my school?	How do we move around?	Who helps who?	What changes around me?	What am I?	What do artists do?	What grows near me?	How could we play in different ways?	What might I do in the future?	What could my classroom be made of?	How do we live a healthy life?	How can we help?	What did Brunel do for Great Britain?	How are schools the same?	How do plants grow near me?	What is home?	How will we get around in the future?
Design	design purposeful, functional, appealing products for themselves and other users based on design criteria																		
Make	generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology																		
Evaluate	select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]																		
Technical knowledge	select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics																		
Technical knowledge	explore and evaluate a range of existing products																		
Technical knowledge	evaluate their ideas and products against design criteria																		
Technical knowledge	build structures, exploring how they can be made stronger, stiffer and more stable																		
Technical knowledge	explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products																		
Cooking and nutrition	use the basic principles of a healthy and varied diet to prepare dishes																		
Cooking and nutrition	understand where food comes from																		

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Light Blue indicates objectives are enhancing

Dark Blue indicates objective as lead state of being

		National Curriculum 2014 coverage and progression within Curious-city™ enquiries																									
KS2		Y3		Y4		Y5		Y6																			
Design and technology		Where does the electricity come from?	How can we find out about people in the past?	What is underneath our feet?	Why did people travel in the past?	How can you fix a broken object?	What is the difference between surviving and being healthy?	Why are more people becoming vegetarians?	Why do we live here?	What is creativity?	What should you flush down the loo?	Who has stood here but are no longer there?	How can we switch off?	Where does our water come from?	What does the Earth look like from the Solar System?	How can you show what you believe in?	How can science help the homeless?	How can science help the world?	How can you help to save our planet?	How do forces actually do?	How do forces actually do?	Who were the greatest engineers?	James and Edwin - how are they connected?	Where does our food really come from?	How do we all live together?	Why are shadows important?	How big is your footprint?
Design	use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups																										
Make	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design																										
Make	select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately																										
Make	select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities																										
Evaluate	investigate and analyse a range of existing products																										
Evaluate	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work																										
Evaluate	understand how key events and individuals in design and technology have helped shape the world																										
Technical knowledge	apply their understanding of how to strengthen, stiffen and reinforce more complex structures																										
Technical knowledge	understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]																										
Technical knowledge	understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]																										
Technical knowledge	apply their understanding of computing to program, monitor and control their products																										
Cooking and nutrition	understand and apply the principles of a healthy and varied diet																										
Cooking and nutrition	prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques																										
Cooking and nutrition	understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed																										

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