

Inventors and Innovation

Lesson Ideas

| Pre or Post Visit | Title | Activity | Resources | National Curriculum Links |
|-------------------|-------------------------------------|---|---|--|
| Pre Visit | Standing On The Shoulders of Giants | <p>Learning objective: To discover how and why inventions are important in our lives</p> <p>Working individually, pupils choose an object from around the classroom. They draw a diagram of the item, being as scientific as possible.</p> <p>When labelling the diagram pupils should be encouraged to consider its purpose for invention, i.e. has a specific function, decorative, educational etc.</p> <p>The class can compare the objects they have chosen:</p> <p>What is your invention? Why was it invented? How was it made? Who uses it? Why do people invent things?</p> <p>This discussion can then be fed into a written exercise comparing and contrasting these findings.</p> | <ul style="list-style-type: none"> • A4 worksheet, half plain for diagram and half lined for writing. • Pencils and rules for scientific drawing. | <p>Science</p> <ul style="list-style-type: none"> • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • Reporting on findings from enquiries, including oral and written. • Explanations, displays or presentations of results and conclusions. <p>Design & Technology</p> <ul style="list-style-type: none"> • Investigate and analyse a range of existing products. |



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| Pre Visit | Invention Hunt! | <p>Learning objective: To discover how and why inventions are important to our lives</p> <p>Give pupils a time limit (approximately 3 minutes) to go around the classroom and write a list of all the inventions they can see.</p> <p>Their findings are then fed back to the class as a whole, and a spider diagram made of all the inventions in the class.</p> <p>Then ask pupils to write down all the inventions on their table – plastic coatings, pencils, pencil sharpeners, paper, etc.</p> <p>The idea is to demonstrate how everything, unless it is natural, is an invention.</p> | <ul style="list-style-type: none"> • Rough paper | <p>Design & Technology</p> <ul style="list-style-type: none"> • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • |

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| Pre and Post Visit | What Do We Know About Hampton Court Palace? | <p>Learning objective: To share thoughts and ideas about Hampton Court Palace and the monarchs who have lived there</p> <p>Pre Visit Before your visit, the pupils can show how much they already know about Hampton Court and the stories in its history.</p> <ol style="list-style-type: none"> Working as a class, pupils sit in a circle on the carpet. The teacher acts as scribe. Write 'Hampton Court Palace' in the centre of the sugar paper, and mind map all suggestions given by pupils about the Palace. Working as individuals at tables, give all the pupils a plain piece of paper and one coloured pen, and have them mind map key words relating to what they already know about Hampton Court Palace. They can draw if they would prefer. <p>Explain that they are going to be finding out about inventors who helped shape Hampton Court's history on their visit.</p> <p>Post Visit On the same piece of paper, whether as a class or as individuals, use a different coloured pen to add in all the things you know about Hampton Court.</p> <p>Particularly when working as individuals this exercise should give the children confidence in how much knowledge they have gained from the trip to the Palace.</p> | <ul style="list-style-type: none"> A2 plain sugar paper and a coloured felt tip if working as a class; Plain A4 and coloured pens if working as individuals. | <p>History</p> <ul style="list-style-type: none"> Develop a chronologically secure knowledge and understanding of British history, establishing clear narratives within and across the periods they study. Construct informed responses that involve thoughtful selection and organisation of relevant historical information. <p>English</p> <ul style="list-style-type: none"> Participate in discussions, presentations, performances, role play, improvisations and debates <p>Design and Technology</p> <ul style="list-style-type: none"> Understand how key events and individuals in design and technology have helped shape the world. |

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| | | Extension: Discuss with pupils their top fact and what surprised them the most. | | |
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| Post Visit | So you think you're an Inventor? | <p>Learning objective: To plan, design and evaluate a new invention</p> <p>Having learnt all about inventors and inventions at Hampton Court, pupils are given the chance to become inventors themselves!</p> <p>Ask pupils to write down three problems in modern day life that they think a new invention could resolve. Encourage them to think in groups about what kind of invention they could design.</p> <p>Either in groups or as individuals, ask pupils to draw a diagram of their invention, describing the purpose of the different features. They must think how this invention will help solve the problem they have identified and how easy the invention will be to use. HA/MA/older KS2 classes should be encouraged to create two or three different designs, perhaps after peer comments on their table partner's design.</p> <p>Once they have created their design and chosen the best one, it is time for the children to create their invention using a range of Art and Design resources.</p> <p>NB The making part of this exercise can be forgone if necessary.</p> | <ul style="list-style-type: none"> • Plain and lined paper of Science books. • Pencils and coloured pencils. • A selection of art and design resources as available within the school (ideas include pipe cleaners, lollipop sticks, PVA glue, cardboard, plastic cups, coloured plastic and tin foil). | <p>English</p> <ul style="list-style-type: none"> • Writing down ideas and/or key words, including new vocabulary • Draft and write, in non-narrative material, using simple organisational devices. <p>Design & Technology</p> <ul style="list-style-type: none"> • Understand how key events and individuals in design and technology have helped shape the world. • Generate, develop, model and communicate their ideas through discussion. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. |

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| Post Visit | Tudor Dragons' Den | <p>Learning objective: To pitch a new invention idea</p> <p>NB This exercise would work well as a follow on activity from 'You Are The Inventor' with the children pitching the invention they have created. If time constraints apply, children can work in table groups rather than as individuals.</p> <p>Once they have decided on their invention it is time to prepare a pitch. YouTube has several videos of the Dragons' Den for Children, special episodes that were made for Children in Need.</p> <p>Encourage children to work in pairs/small groups to develop their pitch.</p> <p>Once they have written and practiced their pitch, it is time for the children to sell their idea to the Dragons (these can be made up of other pupils or the teacher and TA).</p> | <ul style="list-style-type: none"> • Plain and lined paper or Science books. • Pencils and coloured pencils. | <p>English</p> <ul style="list-style-type: none"> • Use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas. • Speak audibly and fluently with an increasing command of Standard English. • Participate in discussions, presentations, performances, role play, improvisations and debates. • Gain, maintain and monitor the interest of the listener(s). • Select and use appropriate registers for effective communication. |

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