

## Y4 Eureka! Learning Sequence

**Synopsis:** Children investigate famous inventions and inventors that have impacted Britain over the course of history. They explore characterisation and dialogue and create their own narrative, interweaving character, setting and plot.

In **Science**, children learn about electricity and how to construct electrical circuits.

In **History**, children investigate famous inventions and inventors that have impacted Britain.

In **Art**, children use a range of media to create portraits.

In **D&T**, children use electrical circuits to create their own invention.

In **Computing**, children create an algorithm and program to solve problems.

**Curriculum areas:** English, Science, History, Art, D&T and Computing

**Length of theme:** 6 weeks

### English

*Write a narrative interweaving character and dialogue.*

#### English Objectives

##### Comprehension

- Infer characters' feelings, thoughts and motives and justify using evidence
- Make reasoned predictions of what might happen clearly derived from details both stated and implied

##### Grammar & Punctuation

- Punctuate direct speech with inverted commas and other punctuation (for example, a comma after the reporting clause)

##### Language & Vocabulary

- Begin to interweave character setting, plot and dialogue

##### Text Structure & Features

- Build on KS1 wide range of stories
- Retell stories orally

#### English Learning Sequence

- Read excerpts from a book about imaginary inventions. Note the main plot/themes of the story and the main characters
- Ask questions which require children to make inferences about characters feelings, thoughts and motives, justifying their answers from the text
- Predict what might happen next at various points in the story
- Choose one or more characters and discuss what we know about them – appearance, personality, behaviour etc. Draw on previously-taught skills to describe them in detail eg expanded noun phrases, effective verbs & adverbs, figurative language
- Discuss the kinds of things each character might say and how they might say it eg cried, whimpered, sobbed, bellowed, boasted. Focus on drawing out ambitious vocabulary and selecting the best verb for the job

- Recognise themes eg good over evil, magical devices
- Be exposed to books that are structured in different ways
- Link ideas across paragraphs using adverbials of time, place and number or by varying tense

## Plan, Draft, Edit & Evaluate

- Discuss and record ideas
- Draw on examples of writing when planning own work
- Compose and practise sentences orally using an increasingly wide range of vocabulary and sentence structure
- Suggest changes to grammar and vocabulary
- Proofread work for spelling/punctuation errors
- Assess others' and own writing, suggesting improvements

In addition to the above, teachers should apply general spelling rules and guidance, as listed in [English Appendix 1](#) and ensure concepts and skills outlined in [English Appendix 2](#) are also addressed.

- Show Not Tell – how can we reflect character by describing what they say/do?
- Role-play dialogue between chosen characters to record on speech bubbles
- Use speech bubbles to move onto inverted commas and the conventions of speech. Focus on synonyms of said and adding adverbials
- Discuss how dialogue conveys character and helps to move story forward
- Share examples of dialogue from stories and discuss how it is interwoven
- Decide which part of the story children are going to write and/or what they would change eg character traits of each main character
- Plan their own narrative based on real story, both orally and in note-writing. Share with peer
- Draft, edit and improve writing to produce final piece

## Science

*Learn about electricity and how to construct electrical circuits.*

### Science Objectives

#### Working Scientifically

- **Generate and answer scientific questions using evidence**
- **Select most appropriate types of scientific enquiry**
- **Gather, classify, record and present data in a wide variety of ways**
- **Report on findings orally and in writing using scientific language to answer questions**
- **Make systematic observations**
- **Use results to draw simple conclusions, make predictions and raise further questions**
- **Explain similarities, differences, changes related to scientific processes and ideas**
- **Suggest, set up and carry out simple practical enquiries**
- **Understand comparative and fair tests**

### Science Learning Sequence

- Discuss which appliances children think use electricity and carry out a hunt around school/home, recording findings
- Before teaching, ask children to do a Quick Draw (2 mins): how do you think electricity works? Draw out responses.
- Generate questions that children have about electricity and suggest ways they could find the answers
- Refer to Sir Joseph Swan who invented the lightbulb – what was the impact of this invention?
- Set children challenge: they have to make a bulb light up
- Give children a box of all the components they need to make a circuit and allow them to experiment
- Provide diagrams of simple circuits along with a key – how can they use this to help?

- **Confidently use range of equipment to measure accurately**

**Scientific Knowledge**

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit identifying and naming its basic parts
- Identify whether or not a lamp will light in a simple series circuit
- Recognise that a switch opens and closes a circuit
- Recognise some common conductors and insulators

- Children decide how they are going to set up test and how to record findings
- Record findings and explain results orally and in writing using correct scientific language eg conduct, cell, switch etc

## History

*Investigate famous inventions/inventors in British history.*

**History Objectives**

- **Understand how knowledge of the past is constructed from a range of sources**
- **Select and organise relevant information from a wider range of sources to answer historical questions**
- **Order key dates on a timeline to demonstrate chronology of British and world history**
- **Extend chronological understanding by exploring a theme over time**
- **Examine in depth an aspect of local history from a period beyond 1066**

**History Learning Sequence**

- Share images or artefacts of a variety of inventions eg phone, and order them from oldest to newest, giving reasons for choice
- Discuss similarities and differences and how each has evolved over time
- Place on a timeline and add dates, based on previous knowledge
- Clue cards about who invented what for children to match to each invention
- Assign a different invention to each group to prove: Which is the greatest invention of all time?
- Use a range of stories and sources to find out more about each invention and its impact on life in Britain
- Prepare to present findings in a range of different ways to the class, and decide together which is the greatest invention of all time
- Where appropriate, interview local people / family members about how a variety of products has changed within their lifetime
- If appropriate, set up a class museum to display the evolution of a product over time eg telephone, computers

## Art

*Develop sketching techniques to create portraits.*

**Art Objectives**

- Create sketchbooks to record and revisit observations
- In drawing, use a range of pencils and techniques to show effect, movement, perspective and reflection
- In print, use layers of two or more colours
- In painting, use watercolours to produce washes for backgrounds
- Use a range of artistic vocabulary to discuss and evaluate work
- Apply art and design techniques with creativity, experimentation and increasing awareness
- Draw on work of other artists for inspiration and begin to emulate their style
- Know about great artists, architects and designers and how their art/design reflected and shaped our history and contributed to the culture of our nation

**Art Learning Sequence**

- Look at a range of portraits over the course of history, comparing techniques and looking for similarities and differences
- In sketchbooks, practise drawing features of face: paper orientation, scale, outline, adding detail (considering proportion/position) then shading
- Use mirrors to examine own face and practise sketching accurately to reflect features
- Provide children with a template of half a face (either own or an inventor) and children complete, applying sketching skills
- Research and critique 'real' portrait artists eg Andy Warhol
- Try to emulate their chosen artist's style using the correct medium/technique: painting, printing, sketching
- Display final works in a class portrait gallery

**D&T**

*Use electrical circuits to create an invention.*

**D&T Objectives**

- Use understanding of electrical systems
- Take risks to become innovative and resourceful
- Communicate, generate and develop ideas using a range of strategies
- Use research to inform design and develop design criteria
- Select from and use a wider range of tools, equipment, materials and components accurately to make prototypes
- Evaluate and own and others' work, suggesting improvements and consider the views of others to improve their work
- Investigate a range of existing products in a range of relevant contexts

**D&T Learning Sequence**

- Challenge children to create a security system using given design criteria, in order to protect the art gallery
- Share design criteria with children: their design must incorporate light and sound which can be manipulated eg flashing lights
- Encourage children to be resourceful and innovative
- Provide children with components for electrical circuits (including lamps and buzzers) along with a range of other materials easily found in school
- Generate and communicate designs in a range of ways
- Use design to create product prototype that works, evaluating and amending throughout

**Computing**

*Create an algorithm and program to solve a problem.*

**Computing Objectives**

- Use logical reasoning to understand how algorithms work
- Detect and correct errors in algorithms and programs
- Start to use sequence, selection and repetition in programs
- Write and debug programs that accomplish specific goals, including simulating physical systems
- Begin to solve problems by decomposing them into smaller parts  
Work with variables and various forms of input/output

**Computing Learning Sequence**

- Design a game with the focus of linking the scoring to conditional statements
- Create and test coding, ensuring onscreen object is able to carry out a specific task
- Debug coding by testing and evaluating it with peers to ensure intended outcomes are achieved
- Change purpose of the game (eg game becomes a chasing game) and use loops, conditional statements and repeats to edit the code
- Explore what happens when changing values and using variables and record these findings