

Playgrounds : DT : Year 1

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|---|---|---|--|
| Lesson 1 | To explore the components, materials and features of playground equipment. | Children to explore and discuss various different playground equipment and the materials used to make it. They will choose two different pieces of equipment to draw, label and describe. | <ul style="list-style-type: none"> Can children identify different pieces of playground equipment? Can children make careful observations of playground equipment? Can children draw and label different pieces of playground equipment? | <ul style="list-style-type: none"> Slides Worksheet 1A/1B/1C Picture Cards Digital cameras (FSD? activity only) |
| Lesson 2 | To be able to explore different ways of joining and strengthening materials to create pieces of playground equipment. | Children to explore how different playground equipment is made and the safety aspects involved with them. They will experiment with different materials to make different models of playground equipment, checking the strength and sturdiness of them. | <ul style="list-style-type: none"> Can children choose appropriate materials and explore different ways of combining them for a particular purpose? Can children identify and investigate ways of strengthening their models to make them sturdy? Can children discuss how effective their models are? | <ul style="list-style-type: none"> Slides Challenge Cards Challenge Sheets (FSD? activity only) Variety of materials and tools |
| Lesson 3 | To be able to design a piece of playground equipment. | Children will design a piece of playground equipment thinking about the materials they would need to use to build it. | <ul style="list-style-type: none"> Can children draw labelled diagrams of their designs? Can children describe the materials and tools they will need to create their model? Are children clear about the steps they will need to take to create their piece of playground equipment? | <ul style="list-style-type: none"> Slides Worksheet 3A/3B Challenge Sheets (FSD? activity only) A3 paper (FSD? activity only) |
| Lesson 4 | To be able to make a piece of playground equipment according to a design. | Children to follow their designs to make their piece of playground equipment. They should think about how to work safely and carefully within the classroom. | <ul style="list-style-type: none"> Can children follow their designs to create their playground equipment? Can children join materials together appropriately to create sturdy structures? Can children decorate their playground equipment to make them look aesthetically pleasing? | <ul style="list-style-type: none"> Slides Designs from lesson 3 Variety of materials (depending on designs) Tools, e.g. masking tape, scissors, staplers, elastic bands, blu-tack, plasticine, etc. Large sheets of card (FSD? activity only) |
| Lesson 5 | To be able to evaluate a finished product. | Children to share and demonstrate how their piece of playground equipment works. They will then evaluate their own piece of playground equipment using the worksheet provided. | <ul style="list-style-type: none"> Do children know what evaluation is and why it is important? Can children evaluate their own finished products fairly? Can children comment on the finished products of other children and say what they think and feel about them? | <ul style="list-style-type: none"> Slides Finished playground equipment models Worksheet 5A/5B Question Cards (FSD? activity only) |

Making Fire Engines : DT : Year 2

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|---|--|--|--|
| Lesson 1 | To explore modern fire engines. | Children will explore modern fire engines and their features, looking at what features are common to all vehicles and which are specific to fire engines. There is also the opportunity to look at a 17th century fire engine to compare how they are similar and different to modern fire engines. | <ul style="list-style-type: none"> Can children name the main features of a fire engine? Can children describe the functions of various parts of a fire engine? Can children label the main features of a fire engine? | Slides Worksheet 1A/1B/1C/1D/1E Label Cards Picture Card 1A/1B (FSD? activity only) |
| Lesson 2 | To investigate wheels, axles and chassis. | Children will explore how wheels, axles and chassis work together to create the base of a fire engine. They will explore different ways of attaching the chassis to the axles. | <ul style="list-style-type: none"> Do children know what wheels, axles and chassis are? Do children know that there are two different ways of attaching wheels to axles? Can children experiment with a range of materials and techniques to combine wheels, axles and chassis? | Slides Challenge Sheet Worksheet 2A/2B Wheels and axles (and/or materials that can be used as such) Card and cardboard boxes |
| Lesson 3 | To be able to investigate ways of creating the body of a fire engine. | Children will investigate different ways of creating the body of a fire engine, using materials such as cardboard boxes, lolly sticks and other craft materials. They will explore how to create features such as ladders and fire hoses, considering which materials and tools are best suited for different tasks. | <ul style="list-style-type: none"> Can children identify different ways of combining materials to create the body of a fire engine? Can children explore ways of making different parts of a fire engine, such as the ladder? Can children make decisions about appropriate materials and tools to use for different tasks? | Slides Challenge Cards 3A/3B Worksheet 3A/3B/3C Variety of materials, e.g. cardboard boxes, card, wheels, lolly sticks, matchsticks, pipe cleaners, dowelling, etc. Variety of tools, e.g. scissors, sticky tape, glue, etc. |
| Lesson 4 | To be able to design a fire engine. | Children will design their own fire engines, based on the learning they have undertaken so far. They will consider which materials and tools they will need, noting their design ideas using notes and diagrams. Children can design a modern or a 17th century fire engine to specific design criteria. | <ul style="list-style-type: none"> Can children design a fire engine to include wheels, axles, chassis and bodies? Can children describe which materials and tools they will need to make their fire engines? Can children discuss their designs and say what they think and feel about them? | Slides Worksheet 4A/4B/4C/4D/4E/4F Picture Card 4A Picture Card 4B (FSD? activity only) |
| Lesson 5 | To be able to make a fire engine based on a design. | Children will follow their designs to create their fire engines, using a range of different materials, tools and techniques. | <ul style="list-style-type: none"> Can children follow a design to create a fire engine? Can children use a variety of materials and tools safely and effectively to create a fire engine? Can children identify ways in which they could improve their products and amend accordingly? | Slides Designs from lesson 4 Variety of materials dependent on designs, e.g. cardboard boxes, cartons, card, lolly sticks, paper, etc. Variety of tools e.g. scissors, masking tape, glue, etc. Materials for decoration, e.g. paint, crayons, scraps of shiny paper, etc. |
| Lesson 6 | To be able to evaluate a finished product. | Children will evaluate their own fire engines, as well as fire engines made by their peers. They will consider what went well, what could be improved upon and what they could do differently if they were to make their fire engines again. | <ul style="list-style-type: none"> Can children evaluate a finished product by identifying what they did well? Can children evaluate a finished product by identifying what could be improved? Can children identify ways in which they could improve their work in the future? | Slides Completed fire engines Worksheet 6A/6B Digital cameras (FSD? activity only) A4 paper (FSD? activity only) Question Cards (FSD? activity only) |

Seasonal Foods : Design & Technology : Year 3

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|---|---|--|--|
| Lesson 1 | To cook using British ingredients available all year round. | Children will learn why certain British foods are seasonal, and consider some pros and cons of foods from other parts of the world being available all year round. They may then either cook, or learn more about the process of wheat production. | <ul style="list-style-type: none"> Do children know what 'seasonal food' is? Do children know why certain foods are available all year round in Britain? Can children use a variety of techniques to bake cakes safely and hygienically? | <ul style="list-style-type: none"> Slides Cooking Safely A/B Fairy Cake Recipe 1A Growing Wheat 1A Flow Diagram 1A <p>PLUS: Ingredients and equipment listed in recipe.</p> |
| Lesson 2 | To know how seasonal fruits in Britain are grown and processed. | Children will learn how and when a variety of fruits are produced in Britain, including how farming methods are used to slow down or speed up the ripening process. They may then either cook, or visit a pick your own fruit farm. | <ul style="list-style-type: none"> Do children understand that some seasonal fruits are suited to the climate and weather conditions in Britain? Do children know how fruit may be processed and/or preserved? Can children follow instructions for a recipe using seasonal fruit or jam? | <ul style="list-style-type: none"> Slides Food Calendar A/B/C/D/E Fruit Tarts Recipe 2A Cooking Safely Writing/Drawing Frames <p>PLUS: Ingredients and equipment listed in recipe.</p> |
| Lesson 3 | To understand why vegetables form an important part of a healthy and varied diet. | Children will learn about a variety of vegetables grown in Britain, when they are in season, and why they are important in a healthy diet. They may then either cook, or create a seasonal food collage. | <ul style="list-style-type: none"> Do children know why vegetables form an important part of a healthy diet? Do children know when some British vegetables are in season? Can children prepare a healthy meal using seasonal vegetables? | <ul style="list-style-type: none"> Slides Cooking Safely Stuffed Peppers Recipe 3A Food Calendar Cooking Skills Cards <p>PLUS: Ingredients and equipment listed in recipe.</p> |
| Lesson 4 | To find out about how seasonally produced meat can form part of a healthy diet. | Children will learn about the nutritional value of meat, eggs and dairy products, as well as discover why some meats are seasonal and some are available all year round. They may then either cook, or try tasting and describing a range of vegetarian foods. | <ul style="list-style-type: none"> Can children name a variety of food products that come from animals? Do children know some reasons why some meat is not in season all-year-round? Can children prepare a healthy, savoury meal using meat (or a vegetarian alternative)? | <ul style="list-style-type: none"> Slides Food Calendar Meatballs Recipe Cooking Safely A/B Cooking Skills Cards Vegetarian Foods 4A <p>PLUS: Ingredients and equipment listed in recipe.</p> |
| Lesson 5 | To know how fish are caught or reared, processed and used in healthy meals. | Children will learn about how, where and when fish is farmed or caught in Britain, consider some issues associated with fishing, and learn about quality assurance marks on the fish we buy. They may then either cook, or create an information text about eating less fish to combat overfishing. | <ul style="list-style-type: none"> Do children know some ways in which fish are caught or reared and processed in Britain? Do children know some of the nutrients in fish? Can children prepare a healthy, savoury meal using fish or vegetarian alternatives? | <ul style="list-style-type: none"> Slides Cooking Safely Food Calendar Challenge Card 5A Recipe Sheet 5A Fish-Free Fridays 5A Writing/Drawing Frames <p>PLUS: Ingredients and equipment listed in recipe.</p> |
| Lesson 6 | To show what you have learned about eating seasonal food as part of a healthy, varied diet. | Children will learn about some unusual foods that are only in season for a brief period each year. They will then reflect on their prior learning, showing what they have understood through a variety of games and writing activities. | <ul style="list-style-type: none"> Do children know some reasons why some foods are only in season for a short time? Can children explain why it is a good thing to eat seasonal food? Can children recall and apply what they have learned about seasonal food in Britain? | <ul style="list-style-type: none"> Slides Food Calendar Worksheet 6A/6B/6C Writing/Drawing Frames Seasonal Food Game |

Storybooks : DT : Year 4

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|---|---|---|---|
| Lesson 1 | To investigate and evaluate products with lever and linkage systems. | Children will examine a variety of books with moving mechanisms and discuss their design and construction using some technical vocabulary. They will then more closely examine some moving mechanisms, sketching and labelling them. | <ul style="list-style-type: none"> Can children recognise products that contain lever and linkage systems? Can children explain why a particular mechanism has been used for a particular purpose? Can children use technical vocabulary to describe lever and linkage systems? | <ul style="list-style-type: none"> Slides Selection of books with moving parts Worksheet 1A/1B/1C/1D |
| Lesson 2 | To experiment with a range of techniques to create moving mechanisms. | Children will learn how to make some moving mechanisms using card or paper. They will then work independently or in groups to construct their own mechanisms. | <ul style="list-style-type: none"> Can children cut and shape materials with some precision to make their mechanisms work? Can children join and combine materials and components in a variety of ways? Can children mark out and measure accurately? | <ul style="list-style-type: none"> Slides Worksheet 2A Paper and card Scissors and craft knives Joining materials e.g. paper clips, split-pins, masking tape, sticky tape, glue etc. |
| Lesson 3 | To explore and experiment with a range of different fonts and graphic techniques. | Children will consider the importance, and effects, of good graphic design and font selection for storybooks. They may then either practise sketching, shading and writing techniques, or use computer software to explore how fonts can be selected and altered so they are appropriate for a purpose. | <ul style="list-style-type: none"> Are children aware that different fonts and graphic techniques need to be suited to their purpose? Can children experiment to create a range of different fonts and graphic techniques? Can children explain which designs they like best/ least and why? | <ul style="list-style-type: none"> Slides Font sheets A3/A6 paper Felt-tips/coloured pencils Scissors and glue Access to computers (FSD? activity only) |
| Lesson 4 | To be able to plan and design a storybook. | Working either individually or in groups, children will draw and annotate designs for a storybook with some moving mechanisms. | <ul style="list-style-type: none"> Can children create a design for a particular purpose? Can children choose suitable mechanisms to create moving parts in their storybook? Can children choose appropriate fonts and graphic techniques to use in their design? | <ul style="list-style-type: none"> Slides Worksheet 4A |
| Lesson 5 | To be able to make a storybook with moving mechanisms using a design. | Referring to a previously completed design, children will make storybooks with some moving mechanisms. | <ul style="list-style-type: none"> Can children follow a design to create a storybook? Can children create moving mechanisms that works well? Can children create pages that are neat, accurate and creative? | <ul style="list-style-type: none"> Slides Designs from Lesson 4 Paper, card, scissors, glue, paper clips, split-pins, craft knives, rulers, staplers, etc. |
| Lesson 6 | To be able to evaluate a finished product. | Children will share, discuss and evaluate previously completed storybooks with moving mechanisms. | <ul style="list-style-type: none"> Can children evaluate other people's finished products fairly and constructively? Can children evaluate their own finished product fairly and constructively? Can children explain what they would do differently if they were to make their product again? | <ul style="list-style-type: none"> Slides Finished storybooks Worksheet 6A/6B/6C/6D |

Programming Pioneers : Design & Technology : Year 5

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|--|---|---|--|
| Lesson 1 | To explain how computers and computer programs are used in a variety of products. | Children will learn that many more complex electrical products are controlled using embedded computer systems, often with microcontrollers with specially written programs on them. They will begin to explain, in human language, the algorithms that monitor and control these systems. | <ul style="list-style-type: none"> Can children communicate and develop their ideas by discussing, annotating diagrams and writing instructions? Can children begin to explain how embedded systems monitor and control products? Can some children explain how computer scientists have helped shape the world? | <ul style="list-style-type: none"> Slides Teacher's Notes A Brief History of Computer Science 1 Worksheet 1A/1B/1C |
| Lesson 2 | To develop ideas for a product with an embedded computer system that controls it. | Children will learn about the work of computer hardware and software engineers, and about some famous computer engineering partnerships. They will go on to design and program a computer-controlled pelican crossing using Scratch 2 coding software. | <ul style="list-style-type: none"> Can children develop prototypes of a computer-controlled electrical system? Can children incorporate one or more different electrical components in their system? Can children improve their prototype designs by 'debugging' their software and/or hardware? | <ul style="list-style-type: none"> Slides Teacher's Notes Worksheet 2A/2B/2C Challenge Card 2 (FSD...? activity only) Scratch project: 'pelican crossing.sb2' & 'pelican crossing solution.sb2' (FSD...? activity only) |
| Lesson 3 | To develop, model and communicate ideas for an embedded system which monitors and controls a door, a room or both. | Children will consider how a range of electronic components in products might work. They will discover how pioneering computer scientists made computers easier to use over time. After that they will start to design a product such as an automatic light or an alarm/door entry buzzer that could be installed in a room. | <ul style="list-style-type: none"> Can children develop a design brief for a product? Can children develop their ideas for their product through discussion and annotated sketches? Can children incorporate electrical systems in their product design? | <ul style="list-style-type: none"> Slides Teacher's Notes Worksheet 3A/3B/3C Cardboard boxes e.g. shoe boxes Design an Embedded Room System (FSD...? activity only) |
| Lesson 4 | To develop ideas for a product and start to write programs to monitor and control them. | Children will learn more about why and how microcontrollers are used to control electronic products, then attempt to 'debug' a simple program written by some children to control a switch and an LED. They may then either program electronic components for their own room system designs from the previous lesson, or consider how a novelty electronic toy might be programmed. | <ul style="list-style-type: none"> Can children suggest ways in which a given product idea might be developed and improved? Can children debug a defective algorithm for a given product idea? Can children develop and debug their own computer-controlled product ideas? | <ul style="list-style-type: none"> Slides Worksheet 4A/4B/4C Raspberry Pis, electronic components etc. (see Teacher's Notes) Connecting Components cards Teacher's Notes Worksheet 4D (FSD...? activity only) |
| Lesson 5 | To model and communicate ideas, using either prototype models or computer-aided design. | Children will consider why we make prototype models, and how using models to explain ideas can be interesting and inspiring. They may then either make shoebox model rooms to show how their previously designed electronic systems might work, or use 3-D CAD software to create 3-D models. | <ul style="list-style-type: none"> Can children suggest ways in which models can better communicate ideas than written/verbal descriptions alone? Can children make prototype models to communicate their ideas? Can children control their prototypes using electronic components and computers? | <ul style="list-style-type: none"> Slides Worksheet 5A/5B/5C Either: cardboard boxes e.g. shoeboxes and Art/DT materials e.g. card, glue, art straws; Or: www.tinkercad.com or equivalent simple CAD software Teacher's Notes |
| Lesson 6 | To evaluate your design for a computer-controlled system and consider the views of others to improve your work. | Children will reflect on their learning during previous lessons in this scheme of work, then evaluate their own product designs and design process. They will also consider ways in which the ideas of others helped them, and how they were able to help others, too. | <ul style="list-style-type: none"> Can children explain ways in which they debugged and improved their programs for controlling products? Can children explain how they learned from others and improved their own designs? Can children identify ways in which their DT and programming skills have developed, and ways in which they could further develop their learning? | <ul style="list-style-type: none"> Slides Worksheet 6A/6B/6C Worksheet 6D (FSD...? activity only) |

Burgers : DT : Year 6

| | Learning Objective | Overview | Assessment Questions | Resources |
|-----------------|--|--|---|---|
| Lesson 1 | To explore different types of burgers and their nutrition facts. | Children to explore and discuss different burgers, restaurants and their preferences. They will analyse different nutrition facts and find out how to check the nutrition fact labels. | <ul style="list-style-type: none"> Can children explain why nutrition facts are important to read? Do children know that making better food choices can make us healthier? Can children read tables and interpret the information to answer questions? | <ul style="list-style-type: none"> Slides Burger Nutrition Facts Worksheet 1A/1B/1C Burger Fact Cards (for FSD? activity only) White A3 paper and colouring tools (for FSD? activity only) |
| Lesson 2 | To explore how to make burger patties. | Children to explore different burger patties including different methods for cooking them. They will then create and taste three different burger patties before tasting and evaluating the recipes. | <ul style="list-style-type: none"> Can children follow a recipe to prepare and cook patties? Can children measure and mix ingredients correctly? Can children explain the cooking skills required when preparing burger patties? | <ul style="list-style-type: none"> Slides Evaluation Card 2A/2B/2C Patty Recipes Ingredients List Cooking Safely Poster Cooking Techniques Challenge Cards (for FSD? activity only) |
| Lesson 3 | To explore sauces and side dishes for burgers. | Children to explore and discuss the additional ingredients that may be found in burgers, such as vegetables and sauces, as well as accompanying side dishes. They will make and taste three different burger sauces. | <ul style="list-style-type: none"> Can children make a simple sauce to go with a burger? Do children recognise sauces can be matched to different burger patties? Can children decide on sides to match a particular burger flavour? | <ul style="list-style-type: none"> Slides Recipe Sheets Challenge Chart Writing Frame A and B Ingredients List Cooking Safely Poster Burger Ingredients Chart (for FSD? activity) Menu Template (for FSD? activity) |
| Lesson 4 | To explore burger buns and their suitability. | Children to explore and discuss a range of burger buns and their suitability. They will taste and analyse different bread buns, thinking about their flavour, texture, appearance, shape and suitability for holding a burger together. | <ul style="list-style-type: none"> Can children make informed decisions about the type of ingredients to use? Can children record information from tests they carried out? Can children investigate different products and evaluate them? | <ul style="list-style-type: none"> Slides Bread rolls Bread Chart and Bread Challenge Questions Dough recipe for teachers (for FSD? activity only) Bread Challenge Cards (for FSD? activity only) Herbs and Spices Chart (for FSD? activity only) Table and Question Sheet (for FSD? activity only) Cooking Safely Poster |
| Lesson 5 | To be able to plan and design a burger to make. | Children to use the skills and knowledge they have acquired to plan and design their own burger. | <ul style="list-style-type: none"> Can children write a recipe for a burger? Can children choose appropriate ingredients to make burgers? Can children list the equipment and method needed to cook burgers? | <ul style="list-style-type: none"> Slides Worksheet 5A/5B Prompt Cards Patty Recipes Challenge Cards (for FSD? activity only) Poster Template (for FSD? activity only) |
| Lesson 6 | To be able to make a burger and evaluate the process. | Children to use their previous designs to create their burgers. They will need to collect their ingredients and equipment carefully and consider food safety and hygiene when making their burgers. Once completed they can get into groups to taste their burgers and evaluate the process. | <ul style="list-style-type: none"> Can children follow a plan to make a burger? Can children use cooking utensils and equipment correctly? Can children evaluate a cooking session and their own skills? | <ul style="list-style-type: none"> Slides Worksheet 6A/6B/6C Vegetarian, beef and turkey patty recipes Burger ingredients list for teachers Cooking Burgers Challenge (for FSD? activity only) Burger Recipe Cards (for FSD? activity only) |