THE
WESTCLIFFE
FEDERATION

KINNERLEY CE PRIMARY SCHOOL

DESIGN TECHNOLOGY SCHEME OF WORK

DT Y1/2

Eat more fruit and Vegetables

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out the favourite fruits and vegetables in the class and present the data in a pictogram.	Children to discuss and make lists of as many fruits and vegetables as they can. They will pick their favourite and then find out the most popular in class, presenting this data in a pictogram.	• Can children identify and describe familiar fruits and vegetables? • Can children gather data about the most popular fruits and vegetables? • Can children present data in a pictogram?	• Slides • Worksheet 1A/1B/1C/1D/1E/1F • Squares of paper (FSD? activity only) • Display board (FSD? activity only)
Lesson 2	To examine, taste and describe a variety of fruits and vegetables.	Children to look closely at a variety of different fruits and vegetables. They will use their senses to describe the different features of the fruits and vegetables as well as their sense of taste. The children will also discuss safety and hygiene in relation to food.	• Can children identify different parts of fruits and vegetables, such as the skin, flesh and seeds? • Can children explore a range of fruits and vegetables using their different senses? • Can children draw, label and describe a variety of fruits and vegetables?	• Slides • Variety of fruits and vegetables to examine • Word Cards • Worksheet 2A/2B • Picture Cards (FSD? activity only) • Challenge Cards (FSD? activity only)
Lesson 3	To find out how to handle and prepare a variety of fruits and vegetables.	Children to discuss and think about food preparation. They will be practising using different tools safely, and using the appropriate language associated with food preparation.	• Can children identify ways of working safely with sharp objects such as knives and graters? • Can children identify ways of working hygienically with food? • Can children follow health and safety procedures when preparing food?	• Slides • Variety of fruits and vegetables • Knives, graters, chopping boards • Access to kitchen sinks • Worksheet 3A • Challenge Cards (FSD? activity only)
Lesson 4	To be able to design a recipe to include fruit and/or vegetables.	Children to look at variety of different foods and the importance of eating more fruit and vegetables than certain other groups of foods. They will be challenged to design some new recipes only using fruits and vegetables, making sure they are colourful, tasty and healthy.	• Do children understand that fruits and vegetables are an important part of a healthy diet? • Can children design a salad or smoothie for a particular purpose? • Can children identify what ingredients and tools they will need to make their salad or smoothie?	• Slides • Worksheet 4A/4B/4C/4D • Making a Salad sheet • Picture Cards (FSD? activity only)
Lesson 5	To be able to make and evaluate a food product based on a design.	Children to recap and evaluate all they have learnt about fruits and vegetables. They will be recreating their recipe designs making sure they are being safe and hygienic.	• Can children identify and follow rules for food safety and hygiene? • Can children follow a design to make a smoothie or salad? • Can children evaluate their finished products and say what they think and feel about them?	• Slides • Designs from lesson 4 • Variety of fruits and vegetables (dependent on designs) • Knives, chopping boards, graters, aprons, mixing bowls, etc. • Plates, bowls or cups for finished products • Worksheet 5A/5B/5C/5D/5E/5F • Blenders (FSD? activity only)

DT Y1/2 Moving Minibeasts

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to create a sliding mechanism	In this first lesson, children will find out what a sliding mechanism is, and how it can be used to make a simple moving picture. They will then explore the sliding mechanism themselves in their independent activities, making a variety of simple moving pictures with different minibeasts using the resources provided.	• Can children explain how a sliding mechanism works? • Can children make their own moving pictures using a sliding mechanism? • Can children evaluate the sliding mechanisms they have made, and identify areas where they could be improved?	• Slides • Background Scenes 1A/1B • Minibeast Pictures 1A/1B • Strips of different lengths of card • Scissors, glue/tape, rulers • Challenge Pack A/B/C/D (FSD? activity only)
Lesson 2	To be able to use levers and pivots to create a moving mechanism	Children are first shown a moving picture with a lever and pivot mechanism, and asked to explain how they think it works. They will then explore and discuss how it has been made, looking at how to hide the lever at the back of a picture too. Children then use the resources provided to create moving pictures of minibeasts using the lever and pivot mechanism.	• Do children understand the terms 'lever' and 'pivot'? • Can children combine and join materials to make their own lever and pivot mechanisms? • Can children explain how their lever and pivot mechanism works?	• Slides • Background Scenes 2A/2B/2C • Minibeasts 2B • Strips of different lengths of card • Scissors, glue, split-pins, hole, sticky-tack, sharp pencil • Moving Parts Minibeasts (FSD? activity only)
Lesson 3	To be able to create a wheel mechanism	Children are shown a third way in which to make a moving picture by creating a wheel mechanism. They will be encouraged to discuss how it works as a class before having the chance to practise making their own moving minibeast pictures using the wheel mechanism using the resources provided.	• Can children describe what a pivot is? • Can children cut out and join components to create a wheel mechanism? • Can children evaluate their work and identify areas for future development?	• Slides • Minibeast Wheel Mechanism 3A/3B/3C • Scissors, sticky tack, paper fasteners, beads • Butterfly Life Cycle Poster (FSD? activity only) • Butterfly Life Cycle Wheel Mechanism A/B (FSD? activity) • Butterfly Life Cycle Instructions Card (FSD? activity only)
Lesson 4	To design a picture with a moving mechanism	In this lesson children will apply what they have learnt about the three different types of moving mechanisms to design their own moving minibeast picture for an author who is creating a children's book about minibeasts.	• Can children design their own moving picture? • Can children choose a suitable moving mechanism for their design? • Can children explain how the mechanism will make their picture move?	• Slides • Design Sheet 4A/4B/4C • Tom's Sentences (FSD? activity only) • Sentence & Picture Design Sheet (FSD? activity only)
Lesson 5	To make a minibeast-themed moving picture	Children will be encouraged to think carefully about the mechanism they are going to make, the equipment they will need, and their order of work, before beginning to create their moving picture based on their design from the previous lesson.	• Can children follow a design to create a picture with a moving mechanism? • Can children work safely with a variety of tools and materials to create a moving mechanism? • Can children identify ways in which they can improve their finished products?	• Slides • Design Sheets from the previous lesson • Card, scissors, rulers, glue, paper fasteners, tape, sticky-tack, coloured pencils • Minibeast Pictures (optional) • Blank Wheel Mechanisms (optional)
Lesson 6	To evaluate a moving minibeast picture	In this final lesson, children will evaluate their completed moving minibeast picture. After beginning to discuss some evaluative questions with a partner and the class, children will then continue this self-assessment in their independent activities.	• Do children understand what it means to evaluate? • Can children evaluate their own moving picture? • Can children identify ways to improve their moving picture?	• Slides • Completed moving minibeast pictures from previous lesson • Evaluation Worksheet 6A/6B/C • Evaluation Question Cards (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y1/2 Stable Structures

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore the features of stable structures, including toy car garages.	Children will explore and compare existing toy car garage structures. They will look at the materials, features and think about their purpose as they begin to think about their own designs.	• Can children evaluate existing products? • Can children communicate their ideas through talking? • Can children compare existing products?	• Slides • Question Cards 1A/1B/1C • Worksheet 1A • A range of car garages • Picture Cards 1A/1B/1C/1D (FSD…? activity only) • Checklist 1A/1B (FSD…? activity only)
Lesson 2	To design and plan a stable structure.	Children will examine the different parts of toy garage structures and think about their features and purposes. Then they will compare a picture of a product to a plan and begin to think about their own design ideas as they modify existing plans.	• Can children design a functional product? • Can children communicate their ideas through talking and drawing? • Can children think about the purpose of the end product?	• Slides • Worksheet 2A/2B/2C • Design Ideas 2A • Criteria Sheet 2A (FSD…? activity only) • Plans 2A (FSD…? activity only) • Paper mock-up of design (Plenary only)
Lesson 3	To explore a range of materials and make decisions based on the end product.	Children will explore the properties of different materials and think about which ones are suitable for each section of their stable structure. They will think about strength, stability, malleability and other features in this exploration lesson.	• Can children investigate the properties and characteristics of materials? • Can children explore how materials can be made stronger and stiffer? • Can children select appropriate materials based on the purpose of their product?	• Slides • Worksheet 3A/3B/3C • Worksheet 3D (FSD…? activity only) • Teacher Notes 3A (FSD…? activity only) • Workstation Cards 3A (FSD…? activity only)
Lesson 4	To follow a design plan and make a product.	Children will follow their own design plans and use the helpful resources provided to build their own stable structures. They will develop their fine motor skills, concentration and perseverance as they draw, cut and stick with precision.	• Can children follow a design plan? • Can children manipulate materials? • Can children use tools accurately?	• Slides • Plans from lesson 2 • Instruction Cards 4A • Design Plan 4A (FSD…? activity only)
Lesson 5	To evaluate products.	Children will look at different criteria and assess whether their structures are successful. They will think about features including the stability and firmness of their structure as well as features specific to their own design criteria.	• Can children make purposeful functional products? • Can children evaluate their products? • Can children use technical language when talking about their product?	• Slides • Checklist 5A/5B/5C • Statement Cards 5A (FSD…? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y1/2 Puppets

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate a range of puppets and their features.	Children to discuss and explore a range of puppets, their features, what materials are used and what they are used for. They will have the opportunity to choose their favourite puppet, draw and label it.	• Can children describe what puppets are and how they are used? • Can children recognise and describe a variety of different types of puppets? • Can children identify the features of a variety of puppets?	• Slides • Picture Cards • Worksheet 1A/1B/1C/1D • Variety of puppets (FSD? activity only)
Lesson 2	To be able to work with fabric to create a finger puppet.	Children will to explore and discuss a variety of different finger puppets. Using the template provided, they will work with fabric to create, make and decorate a finger puppet.	• Can children use a template to cut out appropriate sizes of fabric? • Can children develop ideas by putting components together? • Can children discuss their finished work and evaluate what went well and what could be improved?	• Slides • Finger Puppet Templates • Challenge Cards (FSD? activity only) • Felt • Felt glue/fabric glue • Items for decoration, e.g. sequins, buttons, ribbon, etc.
Lesson 3	To develop and practise sewing skills.	Children will learn different sewing techniques to use when creating a puppet. They will practise these skills before making their actual puppet.	• Can children use running stitch and/or over stitch to join two pieces of fabric together? • Can children use a needle and thread to attach buttons and other features to material? • Do children know how to work safely with a variety of sharp tools, such as needles and scissors?	• Slides • Felt and other fabrics • Buttons and sequins • Needles and thread • Challenge Cards (FSD? activity only)
Lesson 4	To be able to design a glove puppet.	Children to use the skills they have acquired to design their own glove puppet. They will recap the possible techniques to use and share their ideas to help create their designs.	• Can children design a glove puppet for a particular purpose? • Can children describe what materials and tools they will need to make their puppet? • Can children describe the steps they will need to take to make their puppet?	• Slides • Worksheet 4A/4B/4C • Design Criteria Cards (FSD? activity only)
Lesson 5	To be able to follow a design to make a puppet.	Children to follow their designs to create their glove puppet. They should think about the appropriate materials to use and to work safely and carefully.	• Can children describe the steps they will need to take to create their puppet? • Can children follow their designs to create their puppets? • Can children work safely and sensibly when working with a variety of materials and tools?	• Slides • Designs from lesson 4 • Puppet Template • Felt • Needles • Thread • Felt glue/fabric glue • Variety of other fabrics and objects for decoration (e.g. buttons, sequins, ribbons, wool, etc.)
Lesson 6	To be able to evaluate a finished product.	Children to share and demonstrate their puppets. They will then evaluate their own puppets using the worksheet provided.	• Can children evaluate their own finished products and say what they think and feel about them? • Can children comment on the work of others and offer their opinions? • Can children identify ways in which they could improve their work in the future?	• Slides • Finished puppets • Worksheet 6A/6B • Question Cards (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y1/2 Vehicles

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate a variety of vehicles and their uses and features.	Children to explore and discuss a variety of different vehicles, their features and what they are used for. They will choose their favourite vehicle to compare, draw and label.	• Can children identify a variety of different types of vehicles? • Can children identify the main features of a variety of vehicles? • Can children identify the uses for a variety of vehicles?	• Slides • Worksheet 1A/1B/1C • Picture Cards • Domino Cards (FSD? activity only) • Sticky notes (FSD? activity only)
Lesson 2	To investigate wheels, axles and chassis.	Children to understand how different parts of a vehicles help to make them work. They will practise attaching wheels to axles and chassis.	• 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 and decorating the body of a vehicle.	Children to explore and discuss the different ways of creating the vehicle's body. They will use a variety of different boxes and modelling equipment to explore different ways of creating the bodies of vehicles.	• Can children choose materials to use as the body of a vehicle? • Can children identify different ways of combining materials to create the body of a vehicle? • Can children identify different ways of decorating the body of a vehicle including ICT?	• Slides • Worksheet 3A/3B • Variety of materials, e.g. cardboard boxes, cartons, plastic bottles, card, etc. • Variety of tools, e.g. scissors, glue, masking tape, etc. • Access to computers (FSD? activity only)
Lesson 4	To be able to design a vehicle.	Children to design their own vehicle using the techniques previously explored, as well as following the success criteria.	• Can children design a vehicle to include wheels, axles, chassis and bodies? • Can children describe which materials and tools they will need to make their vehicles? • Can children discuss their designs and say what they think and feel about them?	• Slides • Worksheet 4A/4B/4C • Picture Cards (FSD? activity only)
Lesson 5	To be able to make a vehicle based on a design.	Children to follow their designs to create and make their vehicles using a range of craft materials. They will need to make sure they are working safely and carefully.	• Can children follow a design to create a vehicle? • Can children use a variety of materials and tools safely and effectively to create a vehicle? • 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, plastic bottles, paper, etc. • Variety of tools e.g. scissors, masking tape, glue, etc. • Materials for decoration, e.g. paint, crayons, ICT-based designs, etc.
Lesson 6	To be able to evaluate a finished product.	Children will share their vehicles with their friends, making sure that wheels are working and the chassis is strong. They will then evaluate their vehicle using the worksheets provided, explaining how their vehicle could be improved if they were to make it again.	• 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 with DT in the future?	• Slides • Completed vehicles • Worksheet 6A/6B • Digital cameras (FSD? activity only) • A4 paper (FSD? activity only) • Question Cards (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y1/2 Perfect Pizzas

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out what the favourite pizzas in the class are.	Children to discuss their favourite pizza and compile information into a pictogram. They will also consider healthy eating and complete a balanced plate by sorting their favourite pizza ingredients.	• Can the children identify the different parts of a pizza? • Can the children sort foods into different food groups? • Can the children discuss different types of pizzas and begin to categorise them into healthy and unhealthy?	• Slides • Worksheet 1A/1B/1C/1D/1E • Pizza Sheet • Balanced Plate
Lesson 2	To examine, describe and categorise a variety of bread-based products.	Children to explore and discuss what pizza bases are made from and where they would be placed on the balanced diet plate. They will explore a variety of bread-based products and decide which would make a good base for a pizza.	• Can the children name and describe a variety of breads? • Can the children say which breads they like? • Can the children use the features of the bread to decide if it is fit for purpose?	• Slides • Worksheet 2A/2B/2C/2D • Name Cards • A selection of breads • Picture Cards (FSD? activity only) • Clue Cards (FSD? activity only)
Lesson 3	To examine, describe and categorise a variety of pizza toppings.	Children to explore and discuss a variety of pizza toppings. They will look at food categories and balanced diets, and be challenged to sort pizza toppings into groups.	• Can the children name and describe a variety of toppings? • Can the children state their opinions and preferences about different toppings? • Do the children understand eating healthily means having a balanced diet?	• Slides • Worksheet 3A/3B/3C/3D/3E • Topping Card A/B/C • A selection of toppings (FSD? activity only)
Lesson 4	To design a balanced healthy pizza.	Children to design a healthy and balanced pizza, making sure they remember to follow the pizza criteria.	• Do children understand that pizzas can be part of a healthy diet? • Can children design a healthy pizza? • Can children identify what ingredients and tools they will need to make their pizza?	• Slides • Worksheet 4A/4B/4C/4D • Word Bank A/B
Lesson 5	To be able to make and evaluate a food product based on a design.	Children to make their pizza following their designs, being sure to work safely and hygienically. They will evaluate their pizzas once they have been made.	• Can children identify and follow rules for food safety and hygiene? • Can children follow a design to make a pizza? • Can children evaluate their finished products and say what they think and feel about them?	• Slides • Designs or instructions from lesson 4 • Variety of pizza toppings and bases • Aprons, chopping boards, knives, graters, baking trays, oven • Plates for finished product • Worksheet 5A/5B/5C/5D/5E/5F/5G

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y3/4 Storybooks

	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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• Slides • Finished storybooks • Worksheet 6A/6B/6C/6D

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y3/4 British Inventors

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate the invention of the telephone.	Children are introduced to Alexander Graham Bell and his invention of the telephone. The children will discuss the invention and how it may have affected people's lives at the time and after recent developments e.g. the invention of the smartphone. The children use their evaluating skills when testing different string telephones or they have the opportunity to design a phone of the future.	• Can children reflect on how the invention of the telephone changed the way people lived? • Can children identify ways in which the telephone has changed to meet people's needs? • Are children able to evaluate a product's performance.	• Slides • Worksheet 1A/1B/1C • String telephones • String Telephone Instruction Sheet • Photo Card 1A (FSD? activity only) • Worksheet 1D (FSD? activity only)
Lesson 2	To investigate the invention of the World Wide Web.	Children are asked to reflect on their use of the World Wide Web. They explore the differences between the internet and the WWW. They think about all the activities they do in their day-to-day lives which use these inventions after being introduced to the inventor Tim Berners-Lee. Children will take the time to explore and discuss the impact that this invention had on people's lives.	• Can children distinguish between the World Wide Web and the internet? • Can children reflect on how an invention has changed their lives? • Can children reflect on how an invention has changed the world?	• Slides • Activity Cards 2A • Worksheet 2A/2B • Challenge Cards 2A (FSD? activity only)
Lesson 3	To explore how the invention of reinforced concrete works.	Children will investigate the word 'reinforce'. They are introduced to W B Wilkinson's invention of reinforced concrete. They look at different ways that reinforced concrete has been used to build record-breaking buildings and go on to investigate the different ways to reinforce modroc or paper.	• Can children define the word reinforced? • Can children describe what reinforced concrete is? • Are children able to suggest ways to reinforce a material?	• Slides • Modroc • Cocktail sticks • Teacher Notes 3A • Worksheet 3A/3B • Challenge Cards 3A/3B (FSD? activity only) • Newspaper (FSD? activity only) • Tape (FSD? activity only)
Lesson 4	To investigate the invention of the mackintosh.	Children look into the invention of waterproof fabric and following invention of the mackintosh. They look into the desirable properties that the fabric needed to have in order to be made into a waterproof coat. They then attempt to waterproof a piece of paper in order to make an origami boat, thinking about the properties that the paper needs to retain e.g. flexibility, foldable etc.	• Can children pick out features of a material that make it suitable for a purpose? • Are children able to think of design criteria to suit a purpose? • Can children evaluate the success of a product based on a set of design criteria?	• Slides • Mackintosh coat (if possible) • Instruction Sheet 4A • Worksheet 4A/4B/4C • Worksheet 4D (FSD? activity only) • Teacher Notes (FSD? activity only)
Lesson 5	To reflect on the impacts that inventions have had on our lives.	Children reflect on the inventions that they have investigated so far and are introduced to a few more inventors and their creations. The children are challenged to think about which inventions have changed people's lives the most. They discuss the inventions and how things changed when they were created and how they could change things as they are developed in the future.	• Can children name a British inventor and their creation? • Can children reflect on how inventions have changed the world? • Can children design a new creation intended to solve an everyday problem?	• Slides • Worksheet 5A/5B • Invention Cards 5A • Challenge Cards 5A (FSD? activity only) • Worksheet 5C (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y3/4 Light-Up Signs

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate and analyse illuminated signs.	Children will consider the purposes of illuminated signs, and identify a number of ways in which signs may be illuminated. They may then either: make simple circuits with one or more bulbs, considering how some of the components might be hidden in the construction of signs; or explore your local area (e.g. town centre), identifying and drawing illuminated signs.	• Can children suggest reasons why it is helpful to illuminate signs? • Can children identify distinguishing features of a variety of illuminated signs? • Can children investigate ways in which very simple circuits for illuminated signage might be constructed?	• Slides • Circus Sign 1A/1B/1C sheets • Electrical components (see Teacher's Notes) • Teacher's Notes • Light-Up Signs Checklist 1 (FSD…? activity only)
Lesson 2	To understand how LEDs may be used instead of traditional incandescent bulbs in series circuits.	Children will look at electronic products with LEDs, then learn how LEDs may be used in simple series circuits (along with a resistor). They may then either make their own simple circuits using LEDs and other inexpensive components, or work in groups to design and make an illuminated sign for a given purpose.	• Can children suggest some problems with using traditional, incandescent bulbs in products? • Can children suggest some aesthetic and practical reasons for using LEDs instead? • Can children construct a circuit with an LED?	• Slides • Worksheet 2A/2B • Electrical components (see Teacher's Notes) • Teacher's Notes **FSD…? activity only:** • Inexpensive strings of battery-powered LED lights • Challenge Card 2 • Art/DT materials and scrap materials (see card)
Lesson 3	To develop ideas for a decorative illuminated sign.	Children will consider ways in which electrical components in a simple circuit can be partially 'hidden' inside products to make them more attractive, then go on to develop designs for their own decorative, light box-style sign. They may either draw their designs or use CAD software.	• Can children identify potential audiences and purposes for a product design? • Can children suggest practical considerations about how to fit essential components in/on a product? • Can children consider tools and techniques they may need to use when constructing a product of their own design?	• Slides • Worksheets 3A/3B/3C • Cuboid Cards 1-4 • Teacher's Notes **FSD…? activity only:** • CAD software/website, e.g. tinkercad.com • Challenge Card 3
Lesson 4	To select and use tools, equipment, materials and components to make the enclosure of a decorative illuminated sign.	Children will consider a number of questions about the pros and cons of using different materials in the construction of a decorative light box sign. They may then either construct a light box sign using 'new' DT materials, or using scrap/found materials such as cardboard packaging.	• Can children identify ways in which their existing designs could be adapted for the materials available? • Can children select appropriate tools and materials for construction of their design? • Can children identify ways in which they can work safely while constructing their design?	• Slides • Worksheets 4A/4B/4C • Teacher's Notes • Lightbox construction tools and materials (refer to Teacher's Notes) • Scrap Art/DT materials (FSD…? activity only)
Lesson 5	To construct a working circuit with one or more lights, and fit it in a decorative illuminated sign.	Children will consider ways in which they can make more permanent circuits to fit and fix inside their finished decorative illuminated light box signs. Alternatively, they may design, make and test switches made using scrap materials, drawing pins, paper clips etc.	• Can children recall how to create a simple series circuit with a light? • Can children select and use appropriate tools, materials and components to construct a circuit? • Can children decide on an appropriate way to fit electrical components inside their designs?	• Slides • Electrical circuit components (see Teacher's Notes) • Teacher's Notes • Evaluation sheet • Art/DT materials (FSD…? activity only) • Challenge Card 5 (FSD…? activity only)
Lesson 6	To investigate ways in which computers can be used to program and control lights in a product.	Children will consider ways in which lights in electronic products may be programmed and controlled, then 'debug' simple 'code block' programs to make an LED 'blink'. They may then either program an actual LED, or program virtual fairy lights in a Scratch programming project.	• Can children identify products which contain microcontrollers which control lights? • Can children make algorithms with simple sets of instructions which describe how a flashing LED is controlled? • Can children write or edit programs to control an LED?	• Slides • Worksheet 6A/6B/6C (plus blank, customisable versions) • Teacher's Notes • Programmable microcomputers/microcontrollers e.g. Raspberry Pis and electronic components (see Teacher's Notes) • Challenge Card 6 (FSD…? activity only)

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DT Y3/4 Seasonal Stockings

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore and analyse existing products	In this first lesson, children will find out where the tradition of the Christmas stocking is thought to have come from. Before looking at any examples, children will be encouraged to think about what we would expect a Christmas stocking to look like. They will learn about the importance of functionality and visual appeal, and will discuss which they think is the most important for this type of product. In their independent activities, children will analyse a variety of stockings in more detail.	• Can children discuss and assess the functionality of a variety of Christmas stockings? • Can children discuss and assess the visual appeal of a variety of different Christmas stockings? • Can children compare and contrast different Christmas stockings?	• Slides • Worksheet 1A/1B • Christmas Stocking Cards • Compare and Contrast Sheet (FSD? activity only)
Lesson 2	To explore different ways to join fabric using sewing skills	Children will learn how to join two pieces of fabric together. They will look at examples of different stitches, and learn how to secure their first and last stitch with a hidden knot. In their independent activities, children will explore which stitch they think will be the most suitable for a Christmas stocking. Alternatively, they will be encouraged to investigate the statement, "Longer stitches will create a stronger, more secure join than shorter stitches."	• Can children identify different sewing stitches? • Can children thread a needle and secure a knot? • Can children join two pieces of fabric together using a sewing stitch?	• Slides • Sewing Stitch Instruction Sheets A/B/C/D • Small pieces of fabric, thread, needles, pins, scissors • Challenge Cards (FSD? activity only)
Lesson 3	To explore different ways to decorate fabric using sewing skills	Children will discuss the different ways in which sewing skills can be used to make Christmas stockings visually appealing, and compare and contrast different examples. They will explore how embellishments and the skills of embroidery and appliqué can be used to decorate fabric in the independent activity.	• Can children use stitching for decorative purposes? • Can children sew a button/bead/sequin/ribbon onto fabric accurately? • Can children see how to combine these skills to create a design for a product?	• Slides • Decorative Skills Cards • Christmas Picture Cards (FSD? activity only) • Small squares of fabric • Needles, thread, scissors, pins • Buttons, beads, sequins, ribbon, bells, pipe cleaners, smaller scraps of fabric
Lesson 4	To design a Christmas stocking	Children will discuss the importance of design criteria. They will choose a user for their product, and tailor the design criteria to suit this person's likes and dislikes. They will then discuss what joining stitches and decorative techniques they are going to use, before planning and designing their Christmas stocking. In the alternative activity, children will design festive bunting for their classroom.	• Can children use their knowledge of joining stitches when designing their product? • Can children use their knowledge of decorative techniques when designing their product? • Can children identify which parts of the making process they may find challenging?	• Slides • Worksheet 4A/4B/4C • Stocking Design Sheet • Design Ideas Cards • Worksheet 4D (FSD? activity only) • Bunting Design Sheet (FSD? activity only)
Lesson 5	To use sewing skills to make a Christmas stocking	Children will use their knowledge of joining techniques and decorative sewing skills to make their Christmas stockings according to their plans and design criteria. Children will be reminded that, if necessary, they can make changes to their design to improve the overall finished product for the user. They will discuss any safety issues before beginning.	• Can children follow a design to create a successful product? • Can children use appropriate sewing stitches to join and decorate fabric? • Can children work safely and sensibly with a range of materials and tools?	• Slides • Stocking Template • Bunting Template (FSD? activity only) • Bunting Instructions Sheet (FSD? activity only) • Fabric, beads, buttons, ribbon, bells, smaller pieces of fabric, etc. • Thread, needles, pins, scissors
Lesson 6	To evaluate a finished product	In this final lesson, children will understand the importance of evaluating a finished product. In their independent activities, they will evaluate their own completed Christmas stocking by answering and asking questions. In the alternative activity, children will 'spot' the various sewing skills used by others, and discuss how successful they are.	• Do children understand the importance of evaluating a finished product? • Can children identify what has been successful with their design? • Can children identify any improvements that could be made to the design?	• Slides • Evaluation Sheet 6A/6B/6C • Spot the Skill! Card (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y3/4 Making Mini Greenhouses

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore existing greenhouses	In this first lesson, children will find out the purpose of a greenhouse, and how it can help plants to grow. In their independent activity they will show their understanding of this by labelling diagrams, answering questions and writing explanations. In the alternative activity, children will look at and discuss a range of different types of greenhouses.	• Do children know what a greenhouse is used for? • Do children know how a greenhouse helps plants to grow? • Can children analyse and discuss different types of greenhouses?	• Slides • Worksheet 1A/1B/1C • Greenhouse Picture Cards (FSD? activity only)
Lesson 2	To investigate stable structures	Children will explore the factors that make a structure stable, and then apply this knowledge and understanding to greenhouses. In their independent activities, children will investigate the best frame size and shape for a stable structure that also lets in the maximum amount of sunlight. In the FSD? activity, children focus on how they could improve the stability of a structure by using other materials as extra support.	• Do children understand the term 'stable'? • Can they identify factors that make a structure stable? • Can they discuss how to make a structure more/less stable?	• Slides • Instructions Cards • 3D Shape Templates A/B/C/D • Scissors, glue • 3D Shape Template E (FSD? activity only) • Stability Testing Sheet (FSD? activity only) • Ideas Cards (FSD? activity only) • Extra card, dowelling, straws, sellotape, glue, staplers, etc (FSD? activity only)
Lesson 3	To investigate materials for making a mini greenhouse	Children will begin by debating the effectiveness of a mini greenhouse in comparison to a full-size greenhouse. They will then share ideas for which materials they think might be suitable for the frame and the sections within the frame of a mini green house. Children further explore and compare suitable materials in their independent activities.	• Can children identify suitable materials for a mini greenhouse? • Can children explain why these materials are suitable? • Can children discuss ways of joining these two materials together?	• Slides • Worksheet 3A/3B/3C • Worksheet 3D (FSD? activity only) • Variety of materials for possible frames/coverings such as lolly sticks, dowelling, plastic wallets, clingfilm, straws, pipe cleaners, old hula hoops, plastic bottles, CD cases, wooden picture frames with glass removed, chickenwire etc (FSD? activity only)
Lesson 4	To design a mini greenhouse	In this lesson, children are split into groups and given discussion cards which will encourage them to share opinions and generate ideas about the best designs for a mini greenhouse. They will then use what they have discussed to design and plan their mini greenhouse.	• Can children apply their knowledge of stable structures and suitable materials when designing a mini greenhouse? • Can children follow specific design criteria? • Can children identify possible challenging parts of their design/help others to find solutions?	• Slides • Discussion Cards • Worksheet 4A/4B/4C • Paper/mini whiteboards (optional) • Client Request Cards (FSD? activity only) • Worksheet 4D (FSD? activity only)
Lesson 5	To make a mini greenhouse	Children will make their mini greenhouses according to their plans and design criteria. They will be encouraged to be organised and think carefully about each step in the making process. Children will be reminded that, if necessary, they can make changes to their design to improve the overall finished product. They will discuss any safety issues before beginning.	• Can children follow a design to create a successful product? • Can children amend their design to improve a product/ give suggestions to others as solutions to problems? • Can children work safely and sensibly with a range of materials and tools?	• Slides • Equipment such as scissors, sellotape, glue, staplers • Children's worksheets from Lesson 4 • Materials (refer to children's designs from the previous lesson as to what specific materials will be required). • Comment Cards
Lesson 6	To evaluate a finished product	In this final lesson, children will understand the importance of evaluating a finished product, and as a class will generate possible suitable questions. In their independent activities, children will evaluate their own completed mini greenhouse. In the alternative activity, children will discuss, evaluate and assess different aspects of each other's designs as a class.	• Do children understand the importance of evaluating a finished product? • Can children identify what has been successful with their design? • Can children identify any improvements that could be made to the design?	• Slides • Evaluation Question Cards • Worksheet 6A/6B • Pitch It! Prompt Cards • Whiteboards/paper (optional) • Evaluation Question List (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y3/4 Seasonal Foods

	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.	• 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?	• Slides • Cooking Safely A/B • Fairy Cake Recipe 1A • Growing Wheat 1A • Flow Diagram 1A PLUS: Ingredients and equipment listed in recipe.
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.	• 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?	• Slides • Food Calendar A/B/C/D/E • Fruit Tarts Recipe 2A • Cooking Safely • Writing/Drawing Frames PLUS: Ingredients and equipment listed in recipe.
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.	• 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?	• Slides • Cooking Safely • Stuffed Peppers Recipe 3A • Food Calendar • Cooking Skills Cards PLUS: Ingredients and equipment listed in recipe.
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.	• 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)?	• Slides • Food Calendar • Meatballs Recipe • Cooking Safely A/B • Cooking Skills Cards • Vegetarian Foods 4A PLUS: Ingredients and equipment listed in recipe.
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.	• 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?	• Slides • Cooking Safely • Food Calendar • Challenge Card 5A • Recipe Sheet 5A • Fish-Free Fridays 5A • Writing/Drawing Frames PLUS: Ingredients and equipment listed in recipe.
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.	• 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?	• Slides • Food Calendar • Worksheet 6A/6B/6C • Writing/Drawing Frames • Seasonal Food Game

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT 5/6

Building Bridges

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore ways in which pillars and beams are used to span gaps.	Children will learn about how simple bridges are constructed using beams, pillars or piers, then make and test beam bridge designs.	• Can children use technical vocabulary to explain how beam bridges are constructed? • Do children understand the impact better bridge design has had on daily life? • Can children investigate and explore the effectiveness of different beam/pillar designs?	• Slides • Worksheets 1A/1B/1C • Paper, card, scissors, glue, sticky tape, sets of weights, toy cars. • Testing Pillars (FSD? activity only)
Lesson 2	To explore ways in which trusses can be used to strengthen bridges.	Children will learn how trusses are used in bridge design to spread out compression forces. They may then either build and test model truss bridges, or use software to explore how truss bridges may be constructed.	• Can children use technical vocabulary to explain how truss bridges spread the load of objects travelling across them? • Can children apply their knowledge of how to stiffen and strengthen structures? • Can children evaluate their models against established design criteria?	• Slides • Worksheets 2A/2B/2C • Truss Patterns • Art straws and sticky tape; sets of weights; toy cars; K'NEX, Meccano or similar construction kits
Lesson 3	To explore ways in which arches are used to strengthen bridges.	Children will learn how arches are used to spread and redirect compression forces acting on bridges. They will then build and test model arch bridges.	• Can children use technical vocabulary to explain how arch bridges are constructed? • Can children use technical vocabulary to explain how arch bridges work? • Can children build and test models to find a strong bridge design?	• Slides • Worksheets 3A/3B/3C • Card, paper, sets of weights, rulers, plasticine. • Challenge Card (FSD? activity only) • Modelling materials (clay/plasticine/play dough/polystyrene/ sponge) (FSD? activity only)
Lesson 4	To understand how suspension bridges are able to span long distances.	Children will learn about how suspension bridges use tension to support bridge decks spanning large distances. They may then either build and test model suspension bridges, or research and write about iconic suspension bridges.	• Can children explain how tension and compression forces are distributed by suspension bridges? • Can children build a model suspension bridge that will support a given weight? • Can children evaluate the designs of others and consider their views?	• Slides • Worksheets 4A/4B/4C • String, scissors, art straws, card, paper, sticky tape. • Photo Cards (FSD? activity only) • Famous Bridges (FSD? activity only)`
Lesson 5	To develop criteria and design a prototype bridge for a purpose.	Having been presented with a design brief, children must develop criteria for a bridge design that will meet the terms of the brief. They will then either design a bridge according to their criteria, or generate more criteria for a range of given design briefs.	• Can children write design criteria according to a given brief? • Can children design a prototype model according to design criteria? • Can children work collaboratively to produce a prototype according to an agreed design?	• Slides • Worksheets 5A/5B/5C • Art straws, scissors, paper, card, sticky tape, glue. • Challenge Cards (FSD? activity only)
Lesson 6	To analyse and evaluate products according to design criteria.	Following on from the previous lesson, children will consider ways in which they might test their bridge design once constructed. They will then build and test their designs.	• Can children devise tests to analyse a product according to design criteria? • Can children evaluate their product according to design criteria? • Can children consider the views of others and think of ways to improve their work?	• Slides • Worksheets 6A/6B/6C • Bridge Evaluation A/B • Bridge Builder Certificate (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different…?' activity within the lesson plan

DT Y5/6 Chinese Inventions

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To understand how the four great inventions of China shaped the world.	Children are introduced to China's four greatest inventions. They investigate the history of the invention of the moveable-type printing press and the ancient process of paper making. They then reflect on how these inventions may have changed the lives of people who used them.	• Can children name some significant inventions? • Are children able to describe the process of making paper? • Can children name a way in which the invention of paper, or the moveable-type press changed the world?	• Slides • Worksheets 1A/1B/1C • Challenge Cards 1A/1B/1C/1D/1E • Equipment stated on Challenge Cards • Different types of paper • Paper-Making Sheet 1A • Equipment listed on Paper Making Sheet 1A
Lesson 2	To understand how the four great inventions of China shaped the world.	Children investigate the next two of China's great inventions: gunpowder and the compass. They are asked again to think about how these inventions would have changed the way things were done after they were invented. They look at the design of simple compasses and think about advantages, disadvantages and improvements for each design.	• Can children name an ancient use of gunpowder or compasses? • Are children able to evaluate a product's advantages and disadvantages? • Are children able to follow a simple method for constructing a product?	• Slides • Challenge Cards 2A/2B • Cork slices, plastic cups, needles, magnets, cotton thread, water • Worksheets 2A/2B • Worksheet 2C (FSD? Activity only) • Feng Shui Card 2A (FSD? Activity only)
Lesson 3	To investigate water-powered machines.	Children will explore the use of water power when building early machines in ancient China. They will think about the uses of these machines as well as the components such as gears and cranks which make the machines move in different ways. They think about the other uses of water to make simple machines such as water clocks and water wheels which inspired Su Song's astronomical clock tower.	• Can children explain what a machine is? • Are children able to describe how a transmission of gears move in comparison to each other? • Are children able to take a simple design and modify it to suit their needs?	• Slides • Challenge Cards 3A/3B • Resources listed on Challenge Card 3A • Worksheet 3A (FSD? activity only) • Construction kits (FSD? activity only) • Gear Template (FSD? activity only) • Split pins (FSD? activity only) • Challenge Card 3C (FSD? activity only)
Lesson 4	To test materials to build a kite.	Children will use their knowledge and understanding of materials and their properties to predict test results and evaluate different materials to be used to make the sail and the frame of a kite by making prototypes. They will need to think carefully about which properties make the materials desirable for these purposes and which properties they might want to avoid when choosing what to build a kite from.	• Can children identify different properties of a selection of materials? • Are children able to select desirable properties of materials to fit a design? • Can children evaluate a prototype's success?	• Slides • Worksheets 4A/4B/4C • Kite Template 4A • String • Sail materials to test • Frame materials to test
Lesson 5	To design a kite based on a set of design criteria.	Children use their learning from the previous lesson to decide upon materials to build a kite from. They will generate design criteria for their kites and be conscientious in meeting these criteria within their design. Alternatively they can design their kite to meet a given design brief.	• Can children write design criteria? • Are children able to follow design criteria when designing a product? • Are children able to use previous prototyping to apply to their design process?	• Slides • Picture Cards 5A • Worksheets 5A/5B/5C • Challenge Card 5A
Lesson 6	To make and evaluate a kite.	Children use their designs to build and evaluate their own kite using the materials they chose. They must think carefully about how to finish their kite to improve the aesthetics and make sure they are still meeting design criteria. When evaluating their design they have the opportunity to share and receive peer feedback and take this on board.	• Can children choose between a variety of tools to make their product? • Can children solve problems when making their product? • Can children evaluate their product based on design criteria?	• Slides • Worksheets 6A/6B • Materials based on children's designs • Materials to decorate e.g. paint, tissue paper, glue etc. • Comment Cards

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y5/6 Fashion and Textiles

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate and analyse items made using textiles: the materials used and how they are made.	Children will discover how some natural and synthetic textiles are produced, and consider their uses in clothing. They may then either examine and describe old clothes (and how they are constructed), or sequence descriptions of cotton cloth manufacture.	• Can children identify the materials used in the manufacture of some items made using textiles? • Can children identify ways in which materials are joined in some items made using textiles? • Do children understand the main stages in the production of cotton cloth?	• Slides • Teacher's Notes • Worksheets 1A/1B/1C • Sewing Stitches Guide • A number of different items of old clothing, magnifying glasses, scissors • Cotton Clothing Sequence Cards (FSD? only) • From Cotton To Cloth Sheet (FSD? only)
Lesson 2	To explore some ways in which textiles are joined and decorated.	Children will start to learn about the work of fashion designers, then discover some ways in which textiles may be joined and decorated. Following this, they may either practise hand sewing stitches or identify machine stitching patterns on a range of garments.	• Can children identify different sewing stitches on items made using textiles? • Can children distinguish between functional and decorative sewing stitches on items made using textiles? • Can children identify potential uses for different sewing stitches?	• Slides • Sewing Skills Sheet • Teacher's Notes • Needles, thread, pins, scrap material, buttons, scissors, dressmaker's chalk/pencils (optional) • Sewing Stitches Card (FSD? activity only) • Which Sewing Stitch? Sheet (FSD? activity only)
Lesson 3	To design an item made using textiles, and draw pattern pieces.	Children will learn how fashion designers use pattern pieces when making products, then either make pattern pieces for a bag, or draw designs for a bag for a specific person or purpose.	• Do children understand that design criteria are used by fashion designers to develop designs? • Can children design an item made using textiles according to design criteria? • Can children draw pattern pieces, adding details such as seam allowances?	• Slides • Teacher's Notes • Worksheets 3A/3B • Large sheets of plain paper • Bag Design Sheet (FSD? activity only)
Lesson 4	To use pattern pieces to measure, mark and cut fabric; to sew design elements according to a design.	Children will learn how design features of pattern pieces are transferred to fabric. They may then either transfer their pattern piece designs to fabric, or produce a small, simple bag using a given pattern piece.	• Can children use pattern pieces to mark fabric for cutting and sewing? • Can children cut fabric according to a pattern? • Can children add design details to a product according to their own design?	• Slides • Teacher's Notes • Pattern pieces from previous lesson • Dressmaker's chalk or pencils, fabric, needles, thread, sharp scissors, ribbon, buttons, sequins etc. • Sunglasses Case Pattern Sheet (FSD? only)
Lesson 5	To join fabric pieces by hand sewing.	Children will learn how to pin and hand-sew fabric pieces together, then either sew pieces they cut out and marked previously, or design and make a simple fabric container.	• Can children thread a needle by themselves? • Can children join fabric pieces using a simple hand-sewing stitch? • Can children tie threads to ensure seams do not unravel?	• Slides • Teacher's Notes • Sewing Tips Handout • Drawstring bag fabric pieces from previous lesson • Needles, thread, sharp scissors, ribbon, buttons, sequins etc. • Coin Purse Sheet (FSD? activity only) • Felt, embroidery thread (FSD? activity only)
Lesson 6	To sew hems on an item made using textiles; to add design details.	Children will learn how to finish a hand-sewn product, then finish sewing and decorating their own bag designs, or decorate old clothes using a variety of techniques.	• Can children use simple stitches to sew hems on an item made using textiles? • Can children evaluate their own work? • Can children add detail to an item made using textiles to improve it?	• Slides • Teacher's Notes • Drawstring bags from previous lessons • Needles, thread, cord, pins, large eyelets and eyelet tool (optional) • Evaluation Cards • Decorating Textiles Sheet (FSD? activity only) • Art materials for decorating fabric (FSD? activity only, see below for details)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y5/6 Programming Pioneers

	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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• Slides • Worksheet 6A/6B/6C • Worksheet 6D (FSD…? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y5/6 Bird House Builders

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate the purpose and appearance of bird houses.	Children will look at a variety of different bird houses and discuss the differences in appearance, their functions and what types of birds they attract. They will answer questions relating to what they learn from the slides and what they see on the video.	• Can children explain what a bird house is and why people construct them? • Do children understand that different birds require different bird house features? • Can children research, observe and record bird behaviours and their needs?	• Slides • Bird House Video • Worksheet 1A/1B/1C • Bird Fact Cards (for FSD? activity only) • Access to the internet (for FSD? activity only)
Lesson 2	To investigate the materials and features of bird houses and how to draw diagrams.	Children will discuss and explore different materials used to build bird houses and any additional features that have been added to them. They will be challenged to draw 3-D diagrams or exploded diagrams of different bird houses and discuss why creating a plan beforehand is important.	• Can children describe the materials and features bird houses have? • Do children understand what exploded and 3-D diagrams are used for? • Can children draw 3-D diagrams and exploded diagrams?	• Slides • Bird House Materials Sheet (enlarged to A3) • Bird House Images • Diagram Challenge 2A/2B/2C • Sketching paper, rulers and sharp pencils. • Exploded Diagram Images (for FSD? activity only)
Lesson 3	To investigate and practise woodwork skills.	Children will explore and explain the various different woodwork equipment needed to build their bird houses. They will then practise these skills to help learn techniques before building their actual bird house.	• Can children explain what tools and equipment are needed to make objects with wood? • Can children follow instructions to practise woodwork skills? • Do children understand the importance of safety precautions when working with wood and tools?	• Slides • Woodwork Skill Cards • Worksheet 3A/3B • Safety Poster • Hand saws, clamps, nails, hammers, hand drills, measuring tape, balsa wood, dowling rods, glue guns and sandpaper. • Observation Cards (for FSD? activity only)
Lesson 4	To be able to design a bird house for a specific bird.	Children to write a detailed plan and design a bird house with a specific bird in mind. They will need to find information for the birds requirements, decide on materials to use and equipment, think how to decorate it and any additional features as well as consider safety precautions.	• Can children design a bird house to suit a specific bird? • Can children draw diagrams of their bird house design? • Do children know what tools, equipment and safety precautions are needed to make a bird house?	• Slides • Design Plan 4A/4B/4C • Sketching paper • Access to the internet • Design Request Cards (for FSD? activity only)
Lesson 5	To be able to make a bird house by following a plan.	Referring to previously created designs, children will make their bird houses. They will need to collect the materials and tools they will need and work safely and carefully when constructing their bird house.	• Can children follow a plan to make a bird house? • Can children make amendments to plans to make construction easier? • Can children choose appropriate materials to make specific features.	• Slides • Bird House Dimension Sheet • Bird House Wood List • Bird House Instruction Sheet (x3) • Safety Poster • Challenge Questions • Equipment List (for teachers) • Alternative Bird House Images (for FSD? activity only) • Craft materials, coke and milk bottles (for FSD? activity only)
Lesson 6	To evaluate, make predictions and promote a completed bird house.	Children will evaluate their own design process and finished product. They may either do this individually using the evaluation sheet provided or in small groups.	• Can children answer evaluation questions on their completed bird house? • Do children understand why evaluating designs and products is important? • Can children use retail ideas to promote their bird house to a prospective buyer?	• Slides • Evaluation Sheet 6A/6B/6C (enlarged to A3) • Observation Sheet • Advert Template (for FSD? activity only) • Video Planning Sheet (for FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

DT Y5/6 Burgers

	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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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.	• 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?	• 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)

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