ADVENT TERM – CYCLE A Design Technology – Year 4 and Year 3 - Medium Term Planning – Food and Nutrition Design and make packaging for a healthy snack		
LESSON 1	**LESSON 2**	**LESSON 3**
Recap & retrieval Recap Year 3: Key inventions in design and technology have changed the way people live.	**Recall & retrieval** • Decay can be prevented or delayed by preservation methods, such as drying, salting, pickling, canning, pasteurising, refrigerating or freezing the food.	**Recall & retrieval** • Decay can be prevented or delayed by preservation methods, such as drying, salting, pickling, canning, pasteurising, refrigerating or freezing the food. • Plastic is a harmful and wasteful material because it takes thousands of years to break down.
LEARNING INTENTION: To know that decay can be prevented or delayed by preservation methods. **Disciplinary Knowledge Skills:** **Year 3** To begin to explain how and why a significant designer or inventor shaped the world. **Year 4** To explain how and why a significant designer or inventor shaped the world. **Aim:** Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	**LEARNING INTENTION:** To know that food packaging is made to keep food fresh for longer but needs to be environmentally friendly. **Disciplinary Knowledge Skills:** **Year 3** To begin to describe the importance of cutting down on the use of single-use plastics and non-recyclable materials. **Year 4** To describe the importance of cutting down on the use of single-use plastics and non-recyclable materials. **Aim:** Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	**LEARNING INTENTION:** To know that most cardboard packaging is produced from a net. **Disciplinary Knowledge Skills:** **Year 3** Describe design using an accurately labelled sketch and words to test and communicate their ideas. **Year 4** Use annotated sketches and exploded diagrams to test and communicate their ideas. **Aim:** Develop the creative, technical, and practical expertise to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
Key Vocabulary: Decay, deteriorates, pasteurization, microorganisms.	**Key Vocabulary:** Design features, preserve, investigate, packaging	**Key Vocabulary:** Annotated sketches, exploded diagrams, nets, shell frame.
Key Knowledge: **Child:**	**Key Knowledge:** **Child:**	**Key Knowledge:** **Child:**

• Food deteriorates due to the growth of microorganisms. • Decay can be prevented or delayed by preservation methods, such as drying, salting, pickling, canning, pasteurising, refrigerating or freezing the food. • Food packaging plays an important role in keeping foods fresh. • The 'use by' date shows when the food is no longer safe to eat. • The 'best before' date shows the date after which the food will lose some flavour or texture. **Teacher:** • By the 1990s, consumers did not understand how long their products would actually last. • As a result, sell by dates were creating heaps of food waste. • Use by and best before dates are the outcome of work by campaigners who asked for something more accurate than a sell by dates • In 1864, French scientist Louis Pasteur invented the pasteurization process after experimenting with heated wine.	• Food packaging is important for several reasons. • Plastic is a harmful and wasteful material because it takes thousands of years to break down. **Teacher:** • Food packaging protects food, makes food last longer, makes it easier to transport, makes food encourages people to buy it and provides information about the product. • 36% of plastics are used in packaging of which 85% of single use plastics ends up in landfills. • Significant designers and inventors can shape the world. • Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable.	• Food packaging is produced using a net, which is a 2-D piece of material that is folded and secured to make a 3-D shape. • Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. **Teacher:** • They communicate ideas in a visual, detailed way. • Shell and frame structures can be strengthened by gluing several layers of card together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them).
Scaffolding Before and after pictures of decaying food.	**Scaffolding** List of materials and their properties to help identify which packaging is most effective in the preservation of foods.	**Scaffolding** Experiment with putting simple net together such as cubes and cuboids.
Learning Task Display the Decaying foods picture cards one at a time on a whiteboard, and discuss what is happening to the food and why. Show the Keeping food fresh presentation. Ask questions about the presentation to check the children's understanding and address any misconceptions, such as 'What causes food to decay? How do microorganisms get onto food? Who	**Learning Task** Recap the learning from the previous lesson, then show the children the Food packaging presentation. Discuss the presentation and address any misconceptions. Encourage the children to investigate different sorts of food packaging, to identify the ways in which they help to preserve and	**Learning Task** Explain that some food packaging is produced using a net, which is a 2-D piece of material that is folded and secured to make a 3-D shape. Provide the children with different packaging to deconstruct and reconstruct, to see the shape of the net and where the wording and information is printed. To

invented pasteurisation? Why does pasteurisation keep food fresh for longer? Why was the 'use by' date invented?' Ask the children to complete the Keeping food fresh question sheet to consolidate their understanding and use the Keeping food fresh answer sheet to mark their work.	protect food. Give each child a copy of the Food packaging recording sheet to complete, then discuss their findings. At the end of the session, talk about the issues surrounding packaging and recycling. Encourage the children to think about the balance between the need to keep food fresh and the importance of cutting down on the use of single-use plastics and non-recyclable materials.	consolidate their knowledge of nets, provide each child with one of the Packaging nets cut outs printed onto card. Encourage them to visualise the shape of the packaging, decorate the faces with slogans pictures and information, and then build the net, scoring the folds for a neat finish and fixing the tabs securely using glue or tape.
Extension Give a bunch of food images and ask them to draw what they think would happen when it decays.	**Extension** Children to research alternative materials that could be used and having similar properties to plastic but more environmentally friendly.	**Extension** Ask children to evaluate the packaging nets by using the Packaging nets evaluation sheet

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LEARNING INTENTION: To know that a product must be fit for purpose. **Disciplinary Knowledge Skills:** **Year 3** Design a healthy snack or packed lunch and begin to explain why it is healthy. **Year 4** Design a healthy snack or packed lunch and explain why it is healthy. **Aim:**	**LEARNING INTENTION:** To know that you can modify a design after discussing with others. **Disciplinary Knowledge Skills:** **Year 3** Design a healthy snack or packed lunch and begin to explain why it is healthy. Choose materials, showing an understanding of their characteristics. **Year 4** Design a healthy snack or packed lunch and explain why it is healthy.	**LEARNING INTENTION:** To know that testing a product can help evaluate the successes and identify the improvements **Disciplinary Knowledge Skills:** **Year 3** Begin to identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements. (with support) **Year 4** Identify what has worked well and what aspects of their products could be improved, acting on their own

Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	Choose from a range of materials, showing an understanding of their different characteristics. **Aim:** Develop the creative, technical, and practical expertise to perform everyday tasks confidently and to participate successfully in an increasingly technological world.	suggestions and those of others when making improvements. **Aim:** Critique, evaluate and test their ideas and products and the work of others.
Key Vocabulary: Healthy, packaging, taste, practicality.	**Key Vocabulary:** Materials, components, best before, use by, healthy, packaging.	**Key Vocabulary:** Evaluation, design criteria, evidence, supervision.
Key Knowledge: **Child:** • Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. **Teacher:** • Cooking techniques include baking, boiling, frying, grilling and roasting. • A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk.	**Key Knowledge:** **Child:** • Foods need packaging to keep them fresh, safe to eat and free from damage. • Food packaging also provides nutritional information, 'use by' and 'best before' dates, and the materials and recyclability of the packaging. • Different materials and components have a range of properties, making them suitable for different tasks. **Teacher:** • It is important to select the correct material or component for the specific purpose, depending on the design criteria. • Recipe ingredients have different tastes and appearances. • They look and taste better and are cheaper when in season.	**Key Knowledge:** **Child:** • Evaluation also includes suggesting improvements and explaining why they should be made. **Teacher:** • Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made.
Scaffolding Support with using tools. Picture cards for the instructions.	**Scaffolding** Materials for the children to experiment with and have a list of properties to support their understanding of the materials.	**Scaffolding** Picture cards to help the children remember safety rules and how to use certain tools.
Learning Task	**Learning Task**	**Learning Task**

Recap healthy eating from previous projects and explain that freshly made, healthy snacks contain less sugar and fats than convenience snacks like crisps, biscuits and chocolate. Provide the children with the Healthy snack recipes. Encourage them to prepare and make the snacks using the techniques on the Food preparation picture cards, which the children have learned in previous year groups. Adult demonstration and supervision is needed if using an electric blender. After making, encourage the children to try each snack and fill in their Healthy snack evaluation sheet. At the end of the session, discuss the problems with taking these healthy snacks to school. Ask questions, such as 'How would you carry this snack to school? How would you keep the snack cool? How would you stop it leaking in your bag?' and record the suggestions. **Note:** Discuss hygiene rules associated with food preparation, including wearing an apron, washing hands, washing fruit and vegetables to remove soil or chemicals and maintaining a clean workspace. **Check for allergies and gain parental permission before tasting foods.**	Explain to the children that they have been asked to provide a healthy snack, which needs to be packaged to keep it fresh until morning breaktime. Give each child a Packaged healthy snack planning sheet to complete. Share and discuss the design criteria, encouraging the children to recall what they have learned in previous lessons. Encourage the children to use the Healthy snack recipes and their completed Healthy snack evaluation sheet to select an appropriate snack to make and encourage them to make modifications if necessary. Display a range of packaging and packaging materials to provide inspiration for their designs.	Recap the design criteria for a packaged healthy snack and encourage the children to use their planning to make their products. Remind the children of hygiene and safety measures as they prepare food and use equipment. After making their snack, encourage the children to taste a sample before packaging. Take a photo of their finished work. If possible, leave the snacks in their packaging for a few hours to replicate the storage time needed in the design criteria and examine the snacks after this time to see if they are still fresh. **Note:** Discuss hygiene rules associated with food preparation, including wearing an apron, washing hands, washing fruit and vegetables to remove soil or chemicals and maintaining a clean workspace.
Extension List issues with different snack and suggest solutions.	**Extension** At the end of the session, encourage the children to share their designs with a partner and ask each other questions and give advice to help improve the designs.	**Extension** Provide each child with a photograph of their packaged snack. Invite the children to comment on the success of their product and each other's work. Ask questions, such as, 'Did you fulfil the design criteria? Was your snack healthy? Did it taste good? What packaging did you use? Was most of it recyclable? Did your packaging keep the snack fresh? How could you improve your design?' Give each child a Packaged healthy snack evaluation sheet to record their learning.
Assessment Cumulative Quiz. Retrieval Practice.		