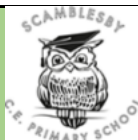




Design Technology – Medium Term Planning

Y5/6 Otter Class



SCAMBLESBY CofE PRIMARY SCHOOL: MEDIUM TERM-PLANNING Y5/6 Design Technology Autumn Year A

Milestone 3 CAMS (3.7) p403

**Master practical
skills**

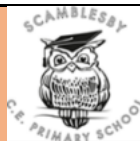
- Convert rotary motion to linear using cams.
- Use innovative combinations of electronics (or computing) and mechanics in product designs.

**Design, make,
evaluate and
improve**

- Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- Make products through stages of prototypes, making continual refinements.
- Ensure products have a high quality finish, using art skills where appropriate.
- Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

Take inspiration from design throughout history		- Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. - Create innovative designs that improve upon existing products. - Evaluate the design of products so as to suggest improvements to the user experience.	
Breadth		Technical knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline
1	To investigate toys with moving cam mechanisms	How do toys move? What mechanisms are inside them to support their movement? SC: To recognise the movement of a mechanism within a toy or model. (Basic) SC: To understand that a cam mechanism will change rotary motion into linear motion. (Advancing) SC: To investigate examples of cam toys and common on how they work. (Deep)	
2	To investigate different types of cham mechanism.	What impact does the shape of the cam have on the movement? SC: To describe how cams work using appropriate vocabulary. (B) SC: To explore how different shaped cams affect the movement of the follower. (A) SC: To make suggestions for how different cams could be used for different toys/purposes. (D)	
3	To investigate ways of strengthening structures for a moving toy.	What materials are you going to require to create your model? How will you ensure your structure will be strengthened? SC: To make suggestions for how they could make a sturdy structure for a moving toy. (B) SC: To experiment with a variety of materials, tools and techniques. (A) SC: To identify ways of strengthening a structure. (D)	
4	To be able to design a moving toy with a cam mechanism.	What is your audience and how will this affect/impact your design? SC: To state the purpose and audience of their design. (B) SC: To design a moving toy with a cam mechanism. (A) SC: To describe how they will create their toy and what materials and tools their will need. (D)	
	To be able to follow a design to create a moving toy with a cam mechanism.	Can you use your plan to create your design? SC: To follow a design to create a moving toy. (B) SC: To work safety with a variety of materials and tools. (A) SC: To identify areas of their toy that could be improved upon. (D)	

	To be able to evaluate a finished moving toy.	Has your design been successful? What would you change? <i>SC: To evaluate their finished product fairly. (B)</i> <i>SC: To suggest ways that they could improve their product if they were to make it again. (A)</i> <i>SC: To recognise ways in which they have been successful. (D)</i>	
Assessment			



SCAMBLESBY CofE PRIMARY SCHOOL: MEDIUM TERM-PLANNING Y5/6 Design Technology Spring Year A

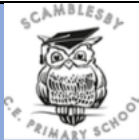
Milestone 3

FOOD THROUGHOUT THE YEAR (3.8) p419

Master practical skills	• Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.
Design, make, evaluate and improve	• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

Take inspiration from design throughout history	- Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. - Create innovative designs that improve upon existing products. - Evaluate the design of products so as to suggest improvements to the user experience.		
Breadth	Cooking and nutrition - understand and apply the principles of a healthy and varied diet. - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. - understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.		
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline
1	To cook using British ingredients available all year round.	Why are only some British foods seasonal? Why do other countries have the food available all year round? SC: To know what 'seasonal food' is. (Basic) SC: To know why certain foods are available all year round in Britain. (Advancing) SC: To use a variety of techniques to bake cakes safely and hygienically. (Deep)	
2	To know how seasonal fruits in Britain are grown and produced.	What variety of fruits are produced in Britain and in what season? How do farmers slow down or speed up the ripening process? SC: To understand that some seasonal fruits are suited to climate and weather conditions in Britain. (B) SC: To know how fruit may be processed and or preserved. (A) SC: To follow instructions for a recipe using seasonal fruit or jam. (D)	
3	To understand why vegetables from an important part of a healthy and varied diet.	What vegetables are grown in Britain and why are they an important food source? SC: To know why vegetables form an important part of a healthy diet. (B) SC: To know when some British vegetables are in season. (A) SC: To prepare a healthy meal using seasonal vegetables. (Real food or collage) (D)	
4	To find out about how seasonally produced meat can form part of a healthy diet.	Why is meat important in a diet? What is its nutritional value? What alternatives can be used for vegetarians/vegans to ensure they get their full nutritional intake? SC: To name a variety of food products that come from animals. (B) SC: To know some reasons why some meat is not in season-all-year-round. (A) SC: To prepare a healthy, savoury meal using meat (or vegetarian alternative) (D)	

5	To know fish are caught or reared, processed and used in healthy meals.	Where and why is fish farmed? What is quality assurance marks? <i>SC: To know some ways in which fish are caught or reared and processed in Britain. (B)</i> <i>SC: To know some of the nutrients in fish. (A)</i> <i>SC: To prepare a healthy, savoury meal using fish or vegetarian alternative. (D)</i>	
6	To show what you have learned about eating seasonal food as part of a healthy, varied diet.	What unusual foods are only in season for brief periods of time? What have you learnt about foods throughout the year? <i>SC: To know some reasons why some foods are only in season for a short time. (B)</i> <i>SC: To explain why it is a good thing to eat seasonal food. (A)</i> <i>SC: To recall and apply what they have learned about seasonal food in Britain. (D)</i>	
Assessment			



SCAMBLESBY CofE PRIMARY SCHOOL: MEDIUM TERM-PLANNING Y5/6 Design Technology Summer Year A

Milestone 3

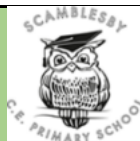
FRAME STRUCTURES (3.5) p369 (paper straws)

FRAME STRUCTURES (3.5) p369

- Convert rotary motion to linear using cams.
- Use innovative combinations of electronics (or computing) and mechanics in product designs.

Design, make, evaluate and improve		• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.	
Take inspiration from design throughout history		• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience.	
Breadth		Design • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Make • select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately. • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Evaluate • investigate and analyse a range of existing products. • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • understand how key events and individuals in design and technology have helped shape the world	
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline

1	To investigate free standing structures and evaluate their structure.	What type of materials are used to create the frames? How are the frames constructed to withstand weight? <i>SC: To identify the type of materials used for the frames. (Basic)</i> <i>SC: To discuss the importance of the joins and how these give support.(Advancing)</i> <i>SC: To investigate different frame structures and explore their structural shape and design in detail. (Deep)</i>	
2	To create a design and identify materials required.	What will your design look like? What material will you use? Why? <i>SC: To create a design idea. (B)</i> <i>SC: To develop ideas through annotated diagrams (A)</i> <i>SC: To develop a step by step guide of the make process. (D)</i>	
3	To select from and use materials and components to make planned design.	How will you start your design? <i>SC: To explore materials and make informed decisions. (B)</i> <i>SC: To make careful measurements (A)</i> <i>SC: To consider ways of strengthening product and making amendments. (D)</i>	
4	To evaluate designs stability and structure.	Was your design successful? Was it structurally sound? <i>SC: To talk about their designs and how their structure has been developed. (B)</i> <i>SC: To (A)</i> <i>SC: To evaluate their product and make improvements following peer assessment. (D)</i>	
5			
Assessment			



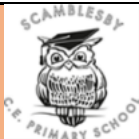
SCAMBLESBY CofE PRIMARY SCHOOL: MEDIUM TERM-PLANNING Y5/6 Design Technology Autumn Year B

Milestone 3

ELECTRONIC MOTORS (3.3) p. 337

Master practical skills	• Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.		
Design, make, evaluate and improve	• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.		
Take inspiration from design throughout history	• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience.		
Breadth	Design • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Make • select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately. • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Evaluate • investigate and analyse a range of existing products. • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • understand how key events and individuals in design and technology have helped shape the world		
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline
1	To look a range of existing electronic motor toy cars and investigate how they move	How does the toy cars move? What is inside it that enables it to move? SC: To identify the moving parts within the car. (Basic) SC: To create a detailed diagram of their chosen car. (Advancing) SC: To (Deep)	

2	To investigate ways of using electrical motors to create rotating parts.	How does pulleys and belts create movement? SC: To understand how pulley and belt systems can be used to transform movement. (B) SC: To describe how an electrical circuit with a motor can be used to create rotating parts. (A) SC: To manipulate their pulleys to create different movements. (D)	
3	To create prototype models to investigate stable frameworks.	How will you ensure stability in your design? SC: To describe ways of strengthening and reinforcing structures. (B) SC: To suggest ways in which ideas for frameworks could be developed to ideas for their own car. (A) SC: To use a variety of materials and components accurately. (D)	
4	To be able to design a car with rotating parts.	What materials, resources will you need? SC: To make a decision about what kind of ride they will make. (B) SC: To design an appropriate electrical circuit for their car. (A) SC: To describe the process they will need to go through to successfully complete their product. (D)	
5	To be able to make a car following a design.	Can you use your design to create your product? SC: To follow a design to create a car with rotating parts. (B) SC: To work accurately and safety with a variety of tools, materials and electrical components. (A) SC: To identify ways of improving their electrical car to create a finished product of a high quality. (D)	
6	To be able to evaluate a finished product.	What was successful about your design? SC: To evaluate a finished product fairly. (B) SC: To suggest ways they could improve their product if they were to make it again. (A) SC: To recognise ways in which they have been successful. (D)	
Assessment			

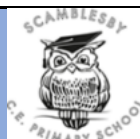


SCAMBLESBY C of E PRIMARY SCHOOL:
MEDIUM TERM-PLANNING Y5/6 Design Technology
Spring Year A

Milestone 3
ARCH STRUCTURES (3.4) p. 353

Master practical skills	• Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.		
Design, make, evaluate and improve	• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.		
Take inspiration from design throughout history	• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience.		
Breadth	Technical knowledge • apply their understanding of how to strengthen, stiffen and reinforce more complex structures.		
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline
1	To identify arch structures in the world and explain why they are used.	What are some famous arch structures? <i>SC: To use the correct vocabulary. (Basic)</i> <i>SC: To research famous arch structures and describe their point of fixings and strength.(Advancing)</i> <i>SC: To research and evaluate famous arch structures. (Deep)</i>	
2	To create an. arch structures from different materials and test their strength.	What materials are best to use? Can you explore different material strength in groups?	

		SC: To use triangles to create truss bridges that span a given distance and support a load. (B) SC: To build a bridge structure from selected materials that holds a load. (A) SC: To use research to select certain resources to create an arch which can hold a load. (D)	
3	To design and make an arch structure suitable for the brief and specification given.	How will you create your design? Can you create a step-by-step guide? SC: To create a design and annotate. (B) SC: To create a step-by-step design. (A) SC: To create a design highlighting possible weaknesses and solutions. (D)	
4	To carefully measure, cut, saw to ensure the dimensions are correct and use appropriate joining techniques.	What materials have you used? How will you ensure strength in your design? SC: To select appropriate tools and equipment to carry out task. (B) SC: To safely design and create the arch using chosen materials. (A) SC: To follow design and safety use materials and tools to create a strengthened arch. (D)	
5	To evaluate the effectiveness of the product by referring to the specification.	Why ? What SC: To evaluate if the product is able to withstand weight. (B) SC: To test the product and evaluate its effectiveness. (A) SC: To explain why selecting materials is an important part of the design process (D)	
Assessment			



SCAMBLESBY CofE PRIMARY SCHOOL: MEDIUM TERM-PLANNING Y5/6 Design Technology Summer Year A

Milestone 3
BREAD (3.9) p.427

Master practical skills	- Convert rotary motion to linear using cams. - Use innovative combinations of electronics (or computing) and mechanics in product designs.		
Design, make, evaluate and improve	- Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). - Make products through stages of prototypes, making continual refinements. - Ensure products have a high quality finish, using art skills where appropriate. - Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.		
Take inspiration from design throughout history	- Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. - Create innovative designs that improve upon existing products. - Evaluate the design of products so as to suggest improvements to the user experience.		
	Cooking and nutrition - understand and apply the principles of a healthy and varied diet. - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. - understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.		
Vocabulary			
Session	Learning Objective	Learning questions and Success criteria	Lesson outline
1	To investigate and evaluate bread products according to their characteristics.	Why is bread so important? What does bread symbolise in different cultures? <i>SC: To name and identify the origin of a number of bread products. (Basic)</i> <i>SC: To use appropriate vocabulary to describe bread products.. (Advancing)</i> <i>SC: To compare and evaluate a variety of bread products. (Deep)</i>	Children will learn about different types of bread and the cultures and/or regions from which they originate. They will then taste and describe a variety of breads.
2	To learn how bread products are an important part of a balanced	What nutritional value does bread have? How much bread should be consumed?	

	diet and can be eaten in different ways.	<i>SC: To understand the contribution bread can make to a healthy diet. (B)</i> <i>SC: To use a recording sheet to complete a survey. (A)</i> <i>SC: To evaluate their findings. (D)</i>	
3	To find out which different ingredients are needed to make bread and how ingredients can be altered and mixed to created different effects.	<i>What ingredients are used to make bread?</i> <i>SC: To follow instructions. (B)</i> <i>SC: To weigh and measure ingredients. (A)</i> <i>SC: To experiment with different ways of altering a basic bread mixture successfully. (D)</i>	
4	To be able to design a new bread product for a particular person or event.	<i>What ingredients will you use?</i> <i>What audience will you be designing your bread for?</i> <i>SC: To use the results of investigations when developing design ideas. (B)</i> <i>SC: To explain how they will make their product. (A)</i> <i>SC: To explain what purpose they are designing and creating their product for. (D)</i>	
5	To be able to make bread based on a plan and design.	<i>What equipment will you require?</i> <i>What process will you use?</i> <i>SC: To apply what they have learnt when making their product. (B)</i> <i>SC: To follow a design accurately. (A)</i> <i>SC: To work safety, hygienically and accurately. (D)</i>	
6	To be able to evaluate a finished product.	<i>What went well?</i> <i>What would you change?</i> <i>SC: To evaluate a finished product fairly. (B)</i> <i>SC: To describe how they could make further improvements to their product if they were to make it again. (A)</i> <i>SC: To evaluate what they have learnt throughout the course of the moduel. (D)</i>	
Assessment			