Holy Family Catholic School – Faculty of Maths – **Design Technology** Autumn Half-Term 2 Year 10

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions for this lesson	Red Zone
Red Week 9 Lesson 1 Smart materials	Stimuli Functional Aesthetic Properties Applications	Materials in DT	Stimuli Functional Aesthetic Properties Applications	**I can identify** different types of smart materials **I can explain** how smart materials respond to changes in their environment. **I can describe** real-world examples of how smart materials are used in products.	Which of the following best describes a smart material? A) A material that is lightweight and cheap B) A material that changes its properties in response to external stimuli C) A material that is always rigid and strong D) A material that cannot be recycled	Complete the worksheet
Lesson 2 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can complete** practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	Which of the following is the FIRST thing you should do before starting any practical task? A) Begin cutting materials immediately B) Check that tools and equipment are safe and ready to use C) Ask a friend for help D) Put on headphones to listen to music	

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Blue Week 10 Lesson 3 Composite and technical materials	Stimuli Functional Aesthetic Properties Applications	Materials in DT	Stimuli Functional Aesthetic Properties Applications	**I can identify** different types of technical materials and their key properties. **I can explain** how technical materials are engineered to improve performance. **I can describe** examples of products that use technical materials and why they are suitable.	What is a composite material? A) A material made from a single natural source B) A material formed by combining two or more materials to improve properties C) A material that cannot be shaped or moulded D) A material that only exists in liquid form	Complete the worksheet
Lesson 4 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	Why is wearing safety goggles important during practical work? A) To make you look professional B) To protect your eyes from dust, debris, or sharp fragments C) To help you see more clearly D) To avoid wearing a face mask	

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Lesson 5 Systems approach to designing	Systems Flowcharts Open and closed loops Inputs and outputs Feedback	Systems and devices	Systems Flowcharts Open and closed loops Inputs and outputs Feedback	**I can identify** the main parts of a system — input, process, and output. **I can explain** how these parts work together within a design system. **I can apply** the systems approach to analyse or plan a simple product or design solution	Which of the following is NOT part of a basic system? A) Input B) Process C) Output D) Decoration	Complete the worksheet
Red Week 11 Lesson 6 Mechanical devices	Movements Devices Levers Mechanisms Motion	Systems and devices	Movements Devices Levers Mechanisms Motion	I **can identify** different types of mechanical devices such as levers, linkages and cams. **I can explain** how these devices change the magnitude or direction of motion **I can describe** examples of how mechanical devices are used in products and systems.	What is the main purpose of a lever in a mechanical system? A) To store energy B) To change the magnitude or direction of force C) To generate electricity D) To reduce friction	Complete the worksheet
Lesson 7 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	Which of these actions is considered unsafe in a DT workshop? A) Keeping your workspace tidy	

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					B) Using tools only as instructed C) Running across the workshop D) Wearing protective clothing	
Blue week 12 Lesson 8 Papers and boards	Primary sources Categorise Physical and working properties	Materials in DT	Primary sources Categorise Physical and working properties	**I can identify** different types of papers and boards **I can explain** how papers and boards are manufactured **I can describe** how papers and boards are selected for particular products	Which property is most important when selecting paper for packaging? A) Electrical conductivity B) Strength and flexibility C) Ability to melt easily D) Magnetic properties	Complete the worksheet
Lesson 9 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	**What should you do if you notice a damaged tool or piece of equipment?** A) Continue using it carefully B) Report it to the teacher immediately C) Hide it so no one else uses it D) Try to fix it yourself without permission	

Holy Family Catholic School – Faculty of Maths – **Design Technology** Autumn Half-Term 2 Year 10

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Lesson 10 Timbers	Primary sources Categorise Physical and working properties	Materials in DT	Primary sources Categorise Physical and working properties	**I can identify** different types of woods **I can describe** the key properties and working characteristics. **I can explain** why specific woods are chosen for particular products or applications	Which of these is a hardwood? A) Pine B) Oak C) MDF D) Plywood	Complete the worksheet
Red Week 13 Lesson 11 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	**Why is planning your work important for safety?** A) It makes the project look more creative B) It helps avoid mistakes and reduces accidents C) It saves time by skipping safety checks D) It ensures you use more tools	

Holy Family Catholic School – Faculty of Maths – **Design Technology** Autumn Half-Term 2 Year 10

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Lesson 12 Metals and alloys	Primary sources Categorise Physical and working properties	Materials in DT	Primary sources Categorise Physical and working properties	**I can identify** different types of metals and alloys **I can explain** the differences between ferrous, non-ferrous metals, and alloys. **I can describe** how metals and alloys are selected for specific products.	Which metal is non-ferrous? A) Steel B) Copper C) Cast iron D) Wrought iron	Complete the worksheet
Blue Week 14 Lesson 13 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	Which statement best describes a composite material? A) A material made from a single natural source B) A material created by combining two or more materials to improve properties C) A material that cannot be recycled D) A material that only changes shape when heated	

Holy Family Catholic School – Faculty of Maths – **Design Technology** Autumn Half-Term 2 Year 10

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Lesson 14 Polymers	Primary sources Categorise Physical and working properties	Materials in DT	Primary sources Categorise Physical and working properties	**I can identify** different types of polymers. **I can explain** the key properties and characteristics of different polymers. **I can describe** examples of how polymers	Which of the following is a thermoplastic? A) Epoxy resin B) Acrylic C) Bakelite D) Melamine	Complete the worksheet
Lesson 15 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	When using a saw in the workshop, which of the following is the safest practice? A) Hold the material loosely so it moves freely B) Wear safety goggles and secure the material before cutting C) Cut as quickly as possible to save time D) Use the saw without checking for damage	
Red week 15 Lesson 16 Textiles	Primary sources Categorise Physical and working properties	Materials in DT	Primary sources Categorise Physical and working properties	**I can identify** and explain the performance characteristics of natural and synthetic fibres. **I can describe** how environmental and economic factors	Which fibre is synthetic? A) Cotton B) Wool C) Polyester D) Silk	Complete the worksheet

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions for this lesson	Red Zone
				influence textile production. **I can apply** my understanding of technical textiles to explain their uses in modern products.		
Lesson 17 Practical learning	Safety Tools Equipment Accuracy Planning Focus	Applied Design Skills	Safety Tools Equipment Accuracy Planning Focus	**I can** complete practical tasks with accuracy and independence. **I can use** tools, equipment, and materials safely and correctly	Why is measuring twice before cutting important in practical work? A) It wastes time but looks professional B) It ensures accuracy and reduces material waste C) It makes the cut faster D) It avoids the need for planning	