

# Year 10 Design and Technology

Spend 20 minutes a day learning about and revising  
the topic



# Week 1

Day 1	Explain what is meant by the term 'smart material'. Give 3 examples of smart materials.
Day 2	Who is Harry Beck? Who is Sir Alec Issigonis? What is each person famous for designing?
Day 3	State 3 thermosetting polymers and give an example of a product that would typically be made from each
Day 4	Give 2 reasons for and 2 reasons against using nuclear power.
Day 5	Name the 6R's and define each of them.

# Week 2

Day 1	Explain three different methods that could be used to create a quality control process.
Day 2	Sketch out the key stages of injection moulding, along with a written step by step.
Day 3	What is a nanomaterial? Give an example of one and where it would be used.
Day 4	Why might a company choose to use robots on its production line rather than humans?
Day 5	Give three things that you could consider when trying to select an appropriate material for a particular use.

# Week 3

Day 1	What are the key difference between softwoods and hardwoods? Why is this so?
Day 2	Why can it be harmful to the environment if a company keeps releasing new versions of a product?
Day 3	What is the source material for metals? How are metals extracted from these?
Day 4	What makes a metal ferrous? Name 3 ferrous metals.
Day 5	Name 4 types of paper and link them to their typical uses.



# Week 4

Day 1	Name three examples of finite resources.
Day 2	What is meant by the term 'down time' during batch production?
Day 3	What is planned obsolescence? Give an example to illustrate your answer.
Day 4	What is a standard component? Give 3 examples of standard components.
Day 5	If a business is owned and run by its members it is called a what?



# Week 5

Day 1	Name 4 different types of motion. Link to types of products that use/show these motions.
Day 2	What makes a foil lined juice carton difficult to recycle?
Day 3	Give a property of corrugated cardboard and explain how this makes it a useful material
Day 4	What stock forms do polymers tend to be available in?
Day 5	What does CAM stand for? Give two examples of CAM and explain them.

# Week 6

Day 1	Name 2 natural fibres and give their appearance, properties and uses.
Day 2	Define the term composite material. Give an example of one and two properties of it.
Day 3	What is a depth stop and how it is used?
Day 4	Explain what is meant by market pull and technology push. Give examples of products for both.
Day 5	Cams can change rotary motion to reciprocating. Name and draw four different cams and explain how they work.

# Week 7

Day 1	What is tolerance? Why do we work with a tolerance?
Day 2	Name 2 ways in which energy can be stored.
Day 3	Define what is meant by the term 'alloy'. Give 3 examples of alloys.
Day 4	Choose a any product and sketch it with adjustments so that it could be used by a blind person.
Day 5	Choose any product and complete a life cycle assessment on it.





# Week 8

Day 1	State two different joining methods and explain how they are used/created and what material they are used on
Day 2	What is the company Braun known for making? What is their approach to design?
Day 3	Explain the difference between woven, knitted and non-woven fabrics.
Day 4	What are 'ergonomics'? How might a designer create an ergonomically friendly product.
Day 5	Give 4 H&S rules for working with power and/or machine tools.

# Week 9

Day 1	State two aesthetics reasons that finishes are applied to materials.
Day 2	Sketch out the key stages of vacuum forming, along with a written step by step.
Day 3	Define the term carbon footprint. Choose any product and analyse its carbon footprint.
Day 4	Name 3 ways you could carry out market research.
Day 5	What is a design specification and how is it used by a designer and/or manufacturer?

# Week 10

Day 1	<b>What is the source material for the majority of polymers used by society?</b>
Day 2	Name 3 hardwoods and give an example of a product that would typically be made from each.
Day 3	Explain what is meant by crowdfunding? How can it be used by a designer?
Day 4	There are 5 key forces you need to know; tension, compression, shear, bending and torsion. Draw a diagram that illustrates each one.
Day 5	What is the difference between thermoforming and thermosetting polymers? Draw the molecular structure of each.

# Week11

Day 1	Explain what is meant by the term 'modern material'. Give 3 examples of modern materials.
Day 2	Who is Mary Quant? Who is Vivienne Westwood? What is each person famous for designing? 20
Day 3	What is a pulley and how does it work?
Day 4	What does CAD stand for? Give two examples of CAD and explain them.
Day 5	Explain what is meant by the term 'iterative design process'.

# Week 12

Day 1	What is a push/pull linkage?
Day 2	Choose any product around you and complete a product analysis on it.
Day 3	What are the differences between a bio-plastic and an oil-based plastic?
Day 4	State 3 advantages that manufactured boards have over natural timbers.
Day 5	What is a knock down fitting and how do they work? What are they used for?



# Week 13

Day 1	State 4 non-ferrous metals and give an application for each one.
Day 2	Sketch out the key stages of blow moulding, along with a written step by step.
Day 3	What does it mean to design for the 5th – 95th percentile of people?
Day 4	In what ways could a new product offend groups of people? Give examples in your answer.
Day 5	State 3 advantages that natural timbers have over manufactured boards.



# Week 14

Day 1	What is a jig, template, pattern and mould? Why would they be used during production?
Day 2	What is meant by the term 'design for maintenance'.
Day 3	What is the difference between these scales of production? one-off, batch, mass and continuous.
Day 4	What are 'anthropometrics'? How might a designer use these when creating a product?
Day 5	What is the source material for timber? How is the source material converted into useable materials.

# Week 15

Day 1	Name three examples of non-finite resources.
Day 2	Describe what a bell crank is and how it works.
Day 3	What is the company Alessi known for making? What is their approach to design?
Day 4	State 3 thermoforming polymers and give an example of a product that would typically be made from each.
Day 5	Sketch out the key stages of extrusion, along with a written step by step.



# Week 16

Day 1	What is the process for turning crude oil into a useable polymer?
Day 2	Explain what is meant by the term 'technical textile'. Give 3 examples of technical textiles.
Day 3	In what ways can materials be reinforced? Give two examples.
Day 4	Name 3 softwoods and give an example of a product that would typically be made from each.
Day 5	What does CNC stand for? Give two examples of CNC and explain them.