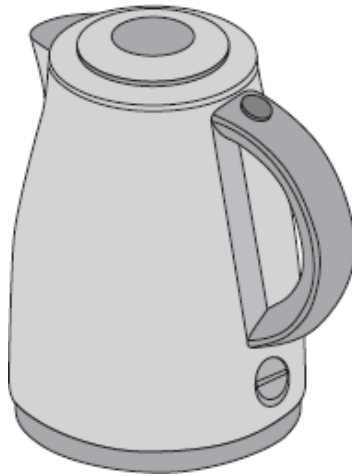


**Q1.**

This question is about product marketing.



For each of the following types of user describe a feature of a kettle that would make it desirable.

(i) Energy conscious

.....  
.....  
.....  
.....

**(2)**

(ii) Style conscious

.....  
.....  
.....  
.....

**(2)**  
**(Total 4 marks)**

**Q2.**

- (i) Explain how retailers selling flat pack products have changed the way people furnish their homes.

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**(4)**

- (ii) What is the impact of these changes on the environment?

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**(4)**

**(Total 8 marks)**

**Q3.**

This question is about how products have changed over time.

A leading retailer of home products sells many *Flat Pack* items.



Explain the meaning of *Flat Pack*.

.....

.....

.....

.....

**(Total 2 marks)**


**Q4.**

This question is about materials and sustainability.

 Cutlery	 Spatula	 Vase	 Greetings card	 Bread
 Oven glove	 Food packaging	 Sketchbook	 Wine goblet	 Jeans

- (i) Choose **two** products from those shown above.  
For **each** product you have chosen, complete the table below.

An example is given for you.

Product	Main material	Source of material	Renewable? ✓ or ✗
 Drink can	<i>Aluminium</i>	<i>Bauxite ore</i>	✗

(6)

 Cutlery	 Spatula	 Vase	 Greetings card	 Bread
 Oven glove	 Food packaging	 Sketchbook	 Wine goblet	 Jeans

- (ii) Choose **one** product from those shown above.  
Name the main material and give **two** of its properties.  
Explain why these properties make the material suitable for the product.

Product .....

Material .....

Property 1 .....

(1)

Explanation .....

.....

(2)

Property 2 .....

(1)

Explanation .....

.....

(2)

(Total 12 marks)

**Q5.**

Portable music players have changed over time.



(i) CD players were very popular in the 1990s.

Explain why CD players might be considered to be bad for the environment.

.....

.....

.....

.....

.....

.....

**(3)**

(ii) MP3 players are very popular today.

Explain why MP3 players might be considered to be environmentally friendly in comparison with CD players.

.....

.....

.....

.....

.....

.....

**(3)**  
**(Total 6 marks)**





**Q6.**

This question is about environmental issues.

It is important to consider sustainability when designing products.

Explain the meaning of each of the symbols shown below.

Give an example of a product which would have the symbol on it.

Symbol	Meaning	Product
		
		
		
		

(Total 8 marks)

**Q7.**

This question is about materials.

Complete the table below.

You should:

- identify a specific material which comes from each of the sources
- tick whether the material is renewable or non-renewable
- name a product made from the material.

An example is given for you.

<b>Source</b>	<b>Specific material</b>	<b>Renewable</b>	<b>Non-renewable</b>	<b>Product</b>
<i>The Earth and rocks</i>	<i>Aluminium</i>		✓	<i>Ladder</i>
Oil				
Plants and trees				
Animals				

(Total 9 marks)



Q8.

Products have a carbon footprint.



(i) Select **one** of the products shown above.

Explain what contributes to its carbon footprint.

Product .....

Explanation.....

.....  
.....  
.....  
.....

(3)

(ii) Describe **two** ways to reduce a product's carbon footprint.

1 .....

.....

(2)

2 .....

.....

(2)

(Total 7 marks)

**Q9.**

This question is about sustainable product design.

Choose **three** words from the list below.

Explain what they mean in relation to environmental issues.

Reuse	Recycle	Reduce
Rethink	Repair	Refuse

(i) Word 1 .....

Explanation .....

.....

.....

.....

(2)

(ii) Word 2 .....

Explanation .....

.....

.....

.....

(2)

(iii) Word 3 .....

Explanation .....

.....

.....

.....

(2)

**(Total 6 marks)**

**M1.**

- (i) Energy conscious:  
Sustainable design – recyclable materials  
Energy efficient – able to boil small amounts / cupful of water at a time  
Window / measure so can see how much water inside  
A rated  
Audible / visual alarm to show when boiled  
Long lasting / durable

One design feature fully explained or two in brief, must be appropriate to user.

2 marks

Brief / single word answer, must be appropriate to user.

1 mark

2

- (ii) Style conscious:  
High quality / expensive materials  
Sophisticated features – e.g. water may be lit by led blue (cold) to red (hot) to show when ready  
Long-lasting / durable  
Looks good  
Price suggests exclusivity  
Aesthetics – coloured to match interior design / chrome finish etc.

One design feature fully explained or two in brief, must be appropriate to user.

2 marks

Brief / single word answer, must be appropriate to user.

1 mark

2

[4]

**M2.**

- (i) Explain how retailers selling flat pack products have changed the way people furnish their homes.

Mass produced flat pack furniture which changes in season. E.g. IKEA produce a seasonal catalogue changing colourways and introducing new up to date products which encourages consumers to buy newer versions and update their homes. As mass distributed catalogue direct to homes and large warehouse retail stores situated conveniently at motorway junctions, IKEA is accessible to everyone. Flat pack furniture designed and packaged to fit in the boot of car so easy to take home. The majority of people no longer buy expensive pieces of furniture to hand down through families but instead buy and assemble cheaper mass produced pieces which are replaced when they wear out or go out of fashion.

Design development: shapes, modular, minimalism as a response to manufacturing systems.

Lower retail cost due to manufacturing methods.

A concise and detailed response showing a good understanding of the opposite factors and relating to social change. Response well structured with good use of appropriate design and technology terminology and showing a good grasp of grammar, punctuation and spelling.

3-4 marks

A sound response showing a basic understanding of the opposite factors and relating to social change. Response fairly well structured with some use of design and technology terminology with small number of errors in grammar, punctuation and spelling.

2 marks

A simplistic statement which mentions one point only. Response poorly structured with little or no use of design and technology terminology and with numerous errors in grammar, punctuation and spelling.

1 mark

No relevant argument presented.

0 mark

4

(ii) What is the impact of these changes on the environment?

More resources consumed as furniture is 'throw away' – wears out relatively quickly in comparison with traditional furniture favoured by previous generations. Ends up in landfill as plastics and laminated boards cannot be recycled or reused for other products. Packaging for products – bespoke or handmade furniture is not packaged in the same way as flat pack.

Distribution involves pollution and consumption of fuel to warehouse and from warehouse to home whereas people often purchased more locally made products or furniture was handed down through generations and therefore was more sustainable.

Accept points in favour or points against if correctly justified.

A concise and detailed response showing a good understanding of the opposite factors and relating to how this social change has impacted on the environment. Response well structured with good use of appropriate design and technology terminology and showing a good grasp of grammar, punctuation and spelling.

3-4 marks

A sound response showing a basic understanding of the opposite factors and relating to how this social change has impacted on the environment. Response fairly well structured with some use of design and technology terminology with small number of errors in grammar, punctuation and spelling.

2 marks

A simplistic statement which mentions one point only. Response poorly structured with little or no use of design and technology terminology and with numerous errors in grammar, punctuation and spelling.

1 mark

No relevant argument presented.

0 mark

4

[8]

**M3.**

Products which are packaged flat to use up less space and then assembled when unpacked. E.g. **Ready-to assemble furniture (RTA)**, also known as **knock-down furniture** or **flat pack furniture** is a form of furniture that is purchased in multiple pieces and requires assembly. This form of furniture generally arrives in a box and contains instructions for the buyer to follow in order to assemble it after purchase. Flat pack furniture designed and packaged to fit in the boot of car so easy to take home.

*Sound response which makes reference to two of the opposite ideas in brief or one idea in detail.*

2 marks

*Brief / single word answer with reference to one idea only*

1 mark

[2]

**M4.**

(i) Please refer to table and answers below. One mark for each correct answer.

Product	Main material	Source	Renewable?
	Stainless steel Silver	The Earth and rocks, oil etc	X
	Beech Rubberwood	Plants and Trees	✓
	Clay	The Earth and rocks, oil etc	X
	Card	Plants and trees	✓
	Flour	Plants and trees	✓
	Cotton	Plants and trees	✓
	Polyester wadding	The Earth and rocks, oil etc	X
	PET Plastic	The Earth and rocks, oil etc	X
	Cartridge paper	Plants and trees Timber Wood pulp	✓
	Glass Polycarbonate	The Earth and rocks, oil etc	X
	Cotton Denim	Plants and trees	✓

- (ii) A suitable property relevant to main material.

1 mark

Explanation shows good understanding of the working properties of the material.

2 marks

Explanation is vague and lacking in understanding of the properties of the materials.

1 mark

Property must match product even if material is incorrect.

*Please refer to table below.*

 <p><b>Cutlery</b></p>	 <p><b>Spatula</b></p>	 <p><b>Vase</b></p>	 <p><b>Greetings card</b></p>	 <p><b>Bread</b></p>
<p>Stainless steel: Scratch resistant; corrosion resistant, lustrous, inert – will not react with drink - impervious to water and air;</p> <p>Silver: Lustrous, tarnishes in air</p>	<p><b>Beech:</b> Midtone colour hardwood with a fine texture. Close even grain, doesn't splinter. Available in planks / boards Can be large sections Planed and unplaned Mouldings</p> <p><b>Rubberwood:</b> soft wood, pale colour, relatively strong, used for hard board, particle board, door frames, furniture, fibre board</p>	<p>e.g. stoneware clay Accepts glaze; non porous when glazed and fired</p>	<p>White board: Strong, can be printed on, inexpensive, can be die cut or creased.</p>	<p>Flour: Provide starchy carbohydrates and fibre Good source of energy</p>
 <p><b>Oven Glove</b></p>	 <p><b>Food packaging</b></p>	 <p><b>Sketchbook</b></p>	 <p><b>Wine goblet</b></p>	 <p><b>Jeans</b></p>

<p>Cotton: Lightweight; durable; washable – stains easily removable at low temperature; heat resistant Polyester wadding: Good insulator</p>	<p>PET plastic: Clear – displays product; recyclable; vacuum formed; strong to protect food inside; inert – will not affect food; waterproof; can be incinerated to dispose of.</p>	<p>Cartridge paper: high quality type of heavy paper used for illustration and drawing. Accepts drawing and painting media well.</p>	<p>Glass: Clear; lightweight when blown in thin profile; can be shaped into 3D shapes; inert – will not react with wine; displays wine; easily broken. Recyclable. Polycarbonate: Transparent, shatterproof, lightweight, cast or compression moulded.</p>	<p>Cotton denim: Accepts indigo dye well; hard wearing / durable; available in different weights; can be blended with lycra to make stretch</p>
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2 × 3 marks

6

[12]

**M5.**

- (i) Compact discs are made of non-recyclable plastic and have a limited life span in use as they can be scratched. CD packaging (to protect and market the CD) uses large amounts of plastics and printed card. CD players are still in use but reducing in popularity as they are a permanent media which cannot be renewed or refreshed – the music is pre-recorded to the CD and cannot then be removed or the playlist edited. Music tends to be a collection of tracks from one artist which cannot be edited by the user. Production of CDs uses energy and produces waste. To dispose of would be thrown away which wastes plastics which are non-renewable; will end up in a land fill.

*A concise and detailed response relating to environmental impact showing a good understanding of two or more points fully expanded.*

3 marks

*A clear description relating to environmental impact which mentions more than one issue.*

2 marks

*A simplistic statement which mentions one point only. (1 mark)*

3

- (ii) Music is downloaded from a computer and is the user's choice of tracks; music can originally come from the internet taking away the need to buy CD's and therefore reducing consumption of plastics and card for the CD and its packaging and the energy and resources used in their manufacture. The user can purchase individual tracks rather than albums. Can use rechargeable batteries which is better for the environment as batteries have a much longer life span and so less end up in landfill;

*A concise and detailed response relating to reduced environmental impact showing a good understanding of two or more points fully expanded. (3 marks)*

*A clear description relating to reduced environmental impact which mentions more than one issue.*

2 marks

*A simplistic statement which mentions one point only.*

1 mark

Other suggestions:

MP3 players store music as a data file and not many can be stored at a time and deleted when finished with. No waste materials. Fewer moving / mechanical parts hence product has a potentially longer life cycle.

No transport costs involved in down loading tracks. CD's have to be transported to a point of sale.





3

[6]

M6.

Please refer to table and answers below.

(8×1 mark)

Symbol	Meaning	Product
	Recyclable material	Any acceptable product which can be recycled e.g. sandwich packaging
	Recyclable – high density polystyrene Accept recyclable plastic Resin Identification Code to help recyclers to identify main plastic used.	Milk crates. Bottles, barrels, tanks, pipes, chemical pumps, machine parts (e.g. gear wheels). Houseware (e.g. buckets, bowls)
	Reusable – take to bottle bank	Wine bottle
	Do not throw in everyday bin	Batteries

[8]



M7.

Source	Specific material	Renewable	Non-renewable	Product
<i>The Earth and rocks</i>	<i>Aluminium</i>		✓	<i>ladder</i>
Oil	Any named plastics or synthetic materials; printing inks and varnishes used in packaging industries. Plastics used in packaging (almost anything with a POLY in front!)		✓	Any appropriate product which matches the named material
Plants and trees	Any named papers and boards, timber and manufactured boards, nuts, grains, seeds, fruit and vegetables, rice etc. any appropriate named food ingredients; textiles, natural plastics.	✓		
Animals	Any named natural textiles, meat, bone / horn or dairy food ingredients. Tortoise shell, mother of pearl, coral used in decorative items such as jewellery and jewellery boxes, bone glue used in cabinet making (also hide glue, fish glue, hoof glue etc) Rabbit skin glue used in book binding Casein glue is made from milk and is one of our last remaining natural glues used industrially. Laminating ply is a common use as it can be set with heat.	✓		

*Please refer to table and answers above. One mark for each correct answer.*

[9]

**M8.**

(i)

<p style="text-align: center;"><b>Games console</b></p> <p>Plastics from oil, energy used for extraction and primary processing into material stock form, secondary processing into product. Transportation – product miles. Packaging for transport to retail outlet. Printing – instruction manual. Energy used during use, might be left on for internet updates. Disposal after use. Become obsolete when new models are launched.</p>	<p style="text-align: center;"><b>Cotton dress</b></p> <p>Production of chemical fertilisers used in cotton growing. Energy used for primary processing of cotton into fabric and dyeing process, transport of fabrics / garments across world as made in eastern countries. Printing – swing tickets / labels. Energy used in laundry – washing and ironing.</p>	<p style="text-align: center;"><b>Hair straighteners</b></p> <p>Plastics from oil, energy used for extraction and primary processing into material stock form, secondary processing into product. Transportation – product miles. Packaging for transport to retail outlet. Printing – instruction manual. Energy used during use – heat uses lots of energy. Disposal after use. Non renewable / recyclable ceramics.</p>
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<p style="text-align: center;"><b>Dishwasher</b></p> <p>Plastics from oil, metal, energy used for extraction and primary processing into material stock form, secondary processing into product. Transportation – product miles. Packaging for transport to retail outlet. Printing – instruction manual. Energy used during use. Disposal after use.</p>	<p style="text-align: center;"><b>Dinner plates</b></p> <p>Energy used for extraction of raw material and primary processing into material stock form, secondary processing into product. Transportation – product miles. Packaging for transport to retail outlet. Energy used during use – washing in dishwasher / by hand (hot water). Disposal after use / recycling / washing for reuse.</p>	<p style="text-align: center;"><b>Soft drink</b></p> <p>Metal – energy used for extraction and primary processing into material stock form, secondary processing into can. Printing – label. Transportation – product miles. Packaging for transport to retail outlet. Disposal / recycling of can after use.</p>
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A concise and detailed response showing a good understanding of factors relating to a product's carbon footprint.

**3 marks**

A sound response showing a basic understanding of factors relating to a product's carbon footprint.

**2 marks**

A simplistic statement which mentions one point only.

**1 mark**

- (ii) E.g. Turn television off rather than leaving on standby. Buy products that are manufactured in the UK to reduce global transport. Wash clothes at cooler temperatures, don't leave straighteners switched on. Reuse plastic carrier

bags, recycle products after use to minimise use of non-renewable materials and reduce landfill sites.

Sound response which makes reference to two of the ideas above in brief or one idea in detail.

2 marks

Brief / single word answer with reference to one idea only.

1 mark

2 x 2 marks

[7]

**M9.**

Reuse	Use the packaging again e.g. plastic carrier bag, wash out glass bottle and refill, get the maximum use out of a product before disposing of it.
Recycle	Process the materials from used products to be used to make new products. Put recyclable used products in recycling bins, materials will need to be separated; some are too difficult to separate and therefore cannot be recycled. Council collection processes.
Reduce	Reduce the amount of raw materials used by reducing our consumption of products, recycling and reusing existing products and materials.
Rethink	Rethink the design of products to minimise use of non renewable resources, use of energy in manufacture and use and therefore their carbon footprint.
Repair	Repair and maintain products rather than replace to minimise use of non renewable resources, energy in manufacture and therefore reduce a product's carbon footprint.
Refuse	Refuse plastic carrier bags / unnecessary packaging when offered or have the choice to reduce use of non renewable materials.

Sound response which makes reference to two of the ideas above in brief or one idea in detail.

2 marks

Brief / single word answer with reference to one idea only.

1 mark

3 x 2 marks

[6]

