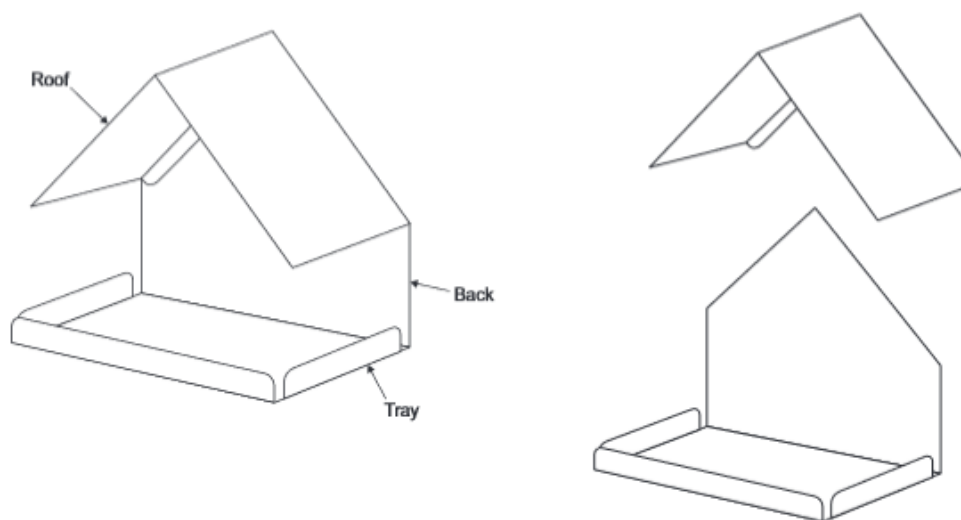


## Materials Questions



1. The garden bird feeder is to be made from two sheets of metal. The roof is made from one sheet and the back and tray are made from the second sheet of metal. Name a suitable metal for the bird feeder and explain why you have chosen this metal. (3)



**Beech spoon**



**Melamine spoon**



**Stainless steel ladle**

2. Explain why beech has been used to make the wooden spoon (2)  
 3. Explain why melamine has been used to make the plastic spoon (2)  
 4. Explain why stainless steel has been used to make the metal ladle. (2)  
 5. Complete the table below (12)

Material	Property	Use
Shape memory alloys (SMA) Nitinol	Return to original shape when heat is applied to it	Spectacle frames
Thermochromatic plastic		
Carbon Fibre		
Polymorph		
Motion Control Gel 'Smart Grease'		

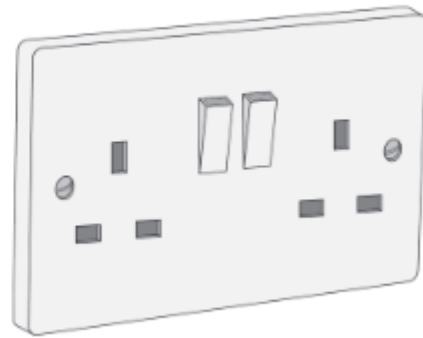
6. Complete the table (5)

Plastic	Thermoplastic	Thermosetting
Acrylic	Y	
Urea formaldehyde		
Polyvinyl Chloride		
Polypropylene		
Polyethylene terephthalate		
Melamine formaldehyde		

**Margarine tub**



**Electrical socket**



7. Name the category of plastic that has been used to manufacture the margarine tub (1)
8. Explain why this category of plastic has been chosen (2)
9. Name the category of plastic that has been used to manufacture the electrical socket (1)
10. Explain why this category has been chosen (2)

**Wooden chair**





11. Name one suitable material, give one reason and give the original source of the material (3)


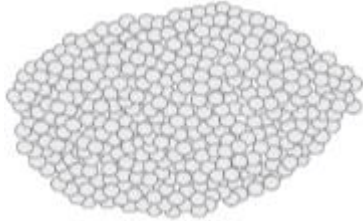


**Metal chair**

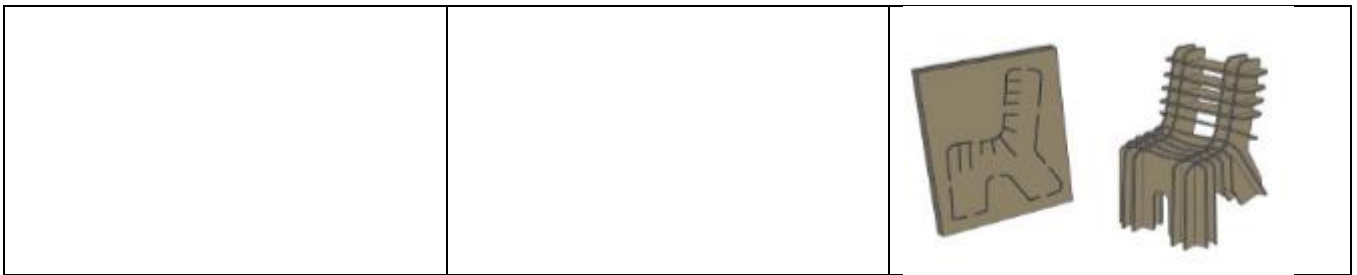


12. Name one suitable material, give one reason and give the original source of the material (3)
13. Give two reasons why copper wire is used to connect electrical components (2)
14. Name the material used to cover copper wire and explain why this material is suitable (2)
15. Complete the table (2)

Manufactured board	Name
	
	

16. Give three advantages of using MDF instead of solid natural timber (6)
17. Complete the table. Give two modelling properties (10)

Material	Modelling properties	Image
	Easy to cut with scissors Easy to fold into a 3D object	
Polymorph		
Construction kits		
Balsa		



18. Explain why the designer has used Acrylonitrile Butadiene Styrene plastic in the manufacturer of the toothbrush (4)
19. Explain what us meant by the term smart material (2)
20. Complete the table (3)

Product	Material
	Shape memory alloys (SMA) 'Nitinol'
A babys feeding spoon that changes colour if the food is too hot	
	Motion control gel 'Smart grease'

21. Explain what is meant by the term nanomaterial (2)
22. Give an example of the use if a nanomaterial and explain its advantages (3)
23. Name a composite material used for the body of a formula 1 racing car and explain why this material has been used (2)

**Kitchen stool**



24. Name one suitable material, one reason and the original source of the material (3)

**Toy digger**



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25. Name one suitable material, one reason and the original source of the material (3)

26. Complete the table (5)

Material	Use	Thermoplastic	Thermosetting
Acrylic	Car indicator lens		
Polyethylene terephthalate	Fizzy Drink Bottle		
Melamine formaldehyde	Kitchen worktop		
Low density polyethylene	Plastic carrier bag		
Urea formaldehyde	Electric Socket		

27. Discuss the advantages and disadvantages of using manufactured boards rather than solid wood, to make furniture (8)

**Metal table**



28. Name one suitable material, a reason and the original source of the material (3)

### Wooden table



29. Name one suitable material, a reason and the original source of the material (3)



30. The car has bodywork made from glass reinforced plastic. GRP is an example of a composite material. Explain the advantages of using composite materials. (4)