

# EXAMINATION PREPARATION

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On behalf of The World Association of Technology Teachers

# W.A.T.T.



World Association of Technology Teachers

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## PRODUCT DESIGN REVISION - 1

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1. A number of materials are listed in the table below. Select four and complete the row. The first row has been completed for you. A number of materials are listed below the table.

TYPE OF MATERIAL		MATERIAL NAME - 1	MATERIAL NAME - 2	MATERIAL NAME - 3	MATERIALS NAME - 4
WOOD		MAHOGANY	OAK	BEECH	PINE
METAL					
PLASTIC					
PAPER/CARD					

ALUMINIUM

NEWSPRINT

POLYSTYRENE

STEEL

POLYETHYLENE

COPPER

BRASS

DUPLEX BOARD

PERSPEX

ACRYLIC

CORRUGATED BOARD

FOIL LINED BOARD

2. Select one of the materials.

MATERIAL NAME: \_\_\_\_\_

3. Describe a manufactured product made from this material.

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## PROPERTIES OF MATERIALS

**STRENGTH** - The ability of a material to stand up to forces being applied without it bending, breaking, shattering or deforming in any way.

**TENSILE STRENGTH**: The ability of a material to stretch without breaking or snapping.

**ELASTICITY**: The ability of a material to absorb force and flex in different directions, returning to its original position.

**MALLEABILITY**: The ability of a material to be reshaped in all directions without cracking.

**PLASTICITY**: The ability of a material to be change in shape permanently. EG. Casting molten metal

**TOUGHNESS**: A characteristic of a material that does not break or shatter when receiving a blow or under a sudden shock.

**DUCTILITY**: The ability of a material to change shape (deform) usually by stretching along its length.

**HARDNESS**: The ability of a material to resist scratching, wear and tear and indentation.

**CONDUCTIVITY**: The ability of a material to conduct electricity.

4. What makes this material the most suitable for the manufacture of the product you selected in question 3? You may wish to consider the physical properties of the material.

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4. Most materials degrade over time. What does degrade mean?

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5. Considering the material you selected - how would you protect it against degrading over time? You may wish to name and describe a finish that can be applied to its surface.

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6. Materials are supplied in a range of shapes, sections and sizes. A number of materials are listed below. Draw a line from each material to the description of the way this type of material is supplied.

METAL

GRANULE  
SHEET  
POWDER  
ROD

WOOD

ROUGH SAWN  
PLAINED ALL ROUND  
MOULDING

PAPER

INGOT  
SHEET  
SECTION  
FLAT STRIP

PLASTIC

G/M<sup>2</sup>  
COLOUR  
WEIGHT  
A3