

**Product Design and Technology**  
**Teach Yourself Series**  
**Topic 7 of 13: Material and Process Testing**  
**(Units 1 to 4)**

**A:** Level 14, 474 Flinders Street Melbourne VIC 3000  
**T:** 1300 134518 **W:** [tssm.com.au](http://tssm.com.au) **E:** [info@tssm.com.au](mailto:info@tssm.com.au)

# Contents

Material and Process Testing .....	3
As it appears in Unit 1-4 .....	3
Information.....	4
Review Questions.....	4
Solutions to Review Questions .....	4

SAMPLE

## Material and Process Testing

### As it appears in Unit 1-4

UNIT	Description
1	<u>Key Skills Outcome 1</u> <ul style="list-style-type: none"> <li>relevant material and process research methods such as tests, trials, comparisons and production process samples</li> </ul>
2	<ul style="list-style-type: none"> <li>Nil</li> </ul>
3	<u>Key Knowledge Outcome 3</u> <ul style="list-style-type: none"> <li>methods of exploring, researching and testing the characteristics and properties of materials to determine their suitability, and processes applicable to the development of the design</li> </ul> <u>Key Skill Outcome 1</u> <ul style="list-style-type: none"> <li>research, test and use experimentation techniques and/or trial processes to ascertain appropriateness of characteristics and properties of materials for the product design</li> </ul>
4	<u>Key Skills Outcome 2</u> <ul style="list-style-type: none"> <li>a range of processes and techniques involving different degrees of difficulty associated with the manufacture of a specific product</li> </ul>

Victorian Curriculum and Assessment Authority. (2017) *Victorian Certificate of Education Product Design and Technology study design*, pp. 14, 24, 28, Melbourne, Victorian Curriculum and Assessment Authority.

*'In Units 1 and 2, students incorporate one or more materials from Category 1 or 2 in their product design.*

*In Units 3 and 4, students use materials predominantly from Category 1, but may incorporate Category 2 materials in their product design. Category 3 materials are used to fasten, decorate, protect and finish Category 1 and 2 materials...Students may base their products on one of the following design specialisation areas, but are not restricted to these areas'.*

<b>Category 1</b>	
Wood/timber	Hardwoods, Softwoods, Manufactured/composite boards
Metal	Ferrous metals, Non-ferrous metals, Alloys, Coated metals
Textiles/yarns/fibres/fabrics	Natural, Blended, Synthetic
Polymers (plastics)	Thermoplastic polymers, Thermosetting polymers, Composites
<b>Category 2</b>	
Ceramics	Stoneware, Porcelain, Bone, china, Terracotta, Raku, Cement
Glass	Soda lime, Lead glass (crystal), Float/laminated/toughened, Borosilicate
<b>Category 3</b>	
Chemical fasteners (e.g. adhesives) Dyes/paints Surface treatments/protective coatings Finishes (oil based, water based, organic)	

Victorian Curriculum and Assessment Authority. (2017) *Victorian Certificate of Education Product Design and Technology study design*, pp. 12, Melbourne, Victorian Curriculum and Assessment Authority.

## ***Information***

Material and process testing is extremely important to the development of a product. Designers use valuable information from the tests to determine the most appropriate materials and processes to produce the product. Material and process tests are a form of critical thinking; it gives evidence to make accurate decisions on possible options. Material and process testing is usually conducted during the research stage of the product design process but not exclusive too. Tests that you as the designer might carry out could include:

Materials	Strength, durability, absorption, formability and elasticity
Processes	Joints, fixings, CNC, 3D printing, stitching, button holing, dyeing, pleating, laser cutting

SAMPLE