

YISHUN SECONDARY SCHOOL

Subject & Code: Design & Technology

Level & Stream: Secondary 2 G1 / G2 / G3 (Common Curriculum Subject)

<b>The Curriculum and Approaches to Learning</b>		<b>Key Programmes / Competitions</b>
<p>In line with the requirements of the Design and Technology (D&amp;T) Lower Sec 2017 Syllabus, the teaching of D&amp;T at YSS focuses on educating students as persons through the development of cognitive skills and abilities unique in the field of design.</p> <p>D&amp;T education aims to nurture in the students a way of thinking and doing, dispositions that are inherent in design practices:</p> <ul style="list-style-type: none"> <li>- Embracing uncertainties and complexities</li> <li>- Be cognizant of and resolve real-world, ill-defined problems</li> <li>- Relentless drive to seek out how things work</li> <li>- Use of doodling and sketching, and 3D manipulation of resistant materials as a language for visualisation, communication and presentation</li> </ul>		<p><b>Competition</b></p> <ul style="list-style-type: none"> <li>- Internal school competition</li> </ul>
<b>Term</b>	<b>Learning Experiences (chapter, activity)</b>	<b>Learning Outcomes &amp; Assessment</b>
1	<p><b>Learning through mini project (steady hand electronic project)</b></p> <p>Students will go through a teacher-guided mini project, where the design specifications and the dimensions of the metal, wood, plastic materials will be given:</p> <ul style="list-style-type: none"> <li>- be aware of safety rules, processes, procedures in the workshop, and properties of metal material</li> <li>- learn about different types of electronic components, circuit symbols and its applications</li> <li>- plan and monitor own progress using a flow chart</li> <li>- design and make a steady hand electronic project using tools and machines (hand-eye coordination, learn to follow verbal and written instructions)</li> <li>- use shape borrowing ideation technique to generate random shapes</li> <li>- critique design ideas and selection of idea suitable for the intent</li> <li>- use soldering tools to connect electronic components</li> </ul>	<p><b>Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>- Empathy &amp; Safety consciousness</li> <li>- Free-hand sketching skills [2D sketches, conversion from 2D to 3D drawings, idea generation skills]</li> <li>- Knowledge and understanding of metal (aluminum), wood (jelutong), plastic (acrylic) materials, and electronic components, circuit symbols and its applications</li> <li>- 3D manipulation [handling aluminum, jelutong, acrylic materials]</li> <li>- Evaluation of completed prototype against design specifications</li> <li>- Testing of prototype</li> <li>- Reflection of learning process and areas for improvement</li> </ul> <p><b>Weighted Assessment 1</b></p> <ul style="list-style-type: none"> <li>- Skill-based project (steady hand electronic toy)</li> </ul>
2	<p><b>Learning through mini project (stationery holder)</b></p> <p>Students will go through a teacher-guided mini projects, where a theme, the design brief and some design specifications will be given:</p>	<p><b>Learning Outcomes</b></p> <ul style="list-style-type: none"> <li>- Empathy &amp; Safety consciousness</li> <li>- Basic research skills</li> <li>- Free-hand sketching skills [2D sketches, conversion from 2D</li> </ul>

	<ul style="list-style-type: none"> <li>- be aware of safety rules, processes, procedures in the workshop, and properties of plastic and wood materials</li> <li>- plan and monitor own progress using a flow chart</li> <li>- conduct basic research (find out the dimensions of different stationery items) and use this information in the design of the stationery holder</li> <li>- design and make a stationery holder using tools and machines (hand-eye coordination, learn to follow verbal and written instructions)</li> <li>- use SCAMPER technique to generate ideas</li> <li>- present the final idea through rendering</li> </ul>	<ul style="list-style-type: none"> <li>to 3D drawings (oblique, isometric), colour rendering, idea generation skills]</li> <li>- Knowledge and understanding of wood and plastic materials</li> <li>- 3D manipulation [quick mock-ups and on handling wood and plastic materials]</li> </ul> <p><b><u>Weighted Assessment 2</u></b></p> <ul style="list-style-type: none"> <li>- Theory test (Design considerations; Design Situation; Design Brief; Design Specifications; Research methods; Ideation techniques; Electronics)</li> </ul>
3	<p><b><u>Learning through mini project (stationery holder)</u></b></p> <p>Students will go through a teacher-guided mini projects, where a theme, the design brief and some design specifications will be given:</p> <ul style="list-style-type: none"> <li>- be aware of safety rules, processes, procedures in the workshop, and properties of plastic and wood materials</li> <li>- design and make a stationery holder using tools and machines (hand-eye coordination, learn to follow verbal and written instructions)</li> <li>- modify the idea (if needed) and use a mock-up to test out the idea</li> <li>- determine dimensions of the holder and its parts</li> <li>- critique design ideas and selection of idea suitable for the intent</li> </ul>	<p><b><u>Learning Outcomes</u></b></p> <ul style="list-style-type: none"> <li>- Empathy &amp; Safety consciousness</li> <li>- Knowledge and understanding of wood and plastic materials</li> <li>- 3D manipulation [quick mock-ups and on handling wood and plastic materials]</li> <li>- Testing of mock-up</li> <li>- Evaluation of mock-up</li> </ul> <p><b><u>Weighted Assessment 3</u></b></p> <ul style="list-style-type: none"> <li>- Task (Design)</li> </ul>
4	<p><b><u>Learning through mini project (stationery holder)</u></b></p> <p>Students will go through a teacher-guided mini projects, where a theme, the design brief and some design specifications will be given:</p> <ul style="list-style-type: none"> <li>- test the prototype on the workability of stationery holder and structural stability</li> <li>- critique the prototype on the suitability for the intent</li> </ul>	<p><b><u>Learning Outcomes</u></b></p> <ul style="list-style-type: none"> <li>- Evaluation of completed prototype against design specifications</li> <li>- Testing of prototype</li> <li>- Reflection of learning process and areas for improvement</li> </ul> <p><b><u>Semestral Assessment</u></b></p> <ul style="list-style-type: none"> <li>- Coursework journal</li> <li>- Skill-based project (stationery holder)</li> </ul>