



JOHN EDMONDSON HIGH SCHOOL

Assessment Notification

Faculty: Industrial Arts

Course: iSTEM

Year: 9 Assessment Task: Project-Based Learning Task

Assessment Weighting: 30% Due: Term 4 Week 5 Date: 15/11/2024

Task Type: Hand in Task In Class Task Practical Task

Outcomes assessed (NESA)
<p>5.1.1 develops ideas and explores solutions to technological and engineering based problems</p> <p>5.3.1 applies a knowledge and understanding of STEM principles and processes</p> <p>5.3.2 identifies and uses a range of technologies in the development of solutions to engineering problems</p> <p>5.5.1 applies a range of communication techniques in the presentation of research and design solutions</p> <p>5.5.2 critically evaluates innovative, enterprising and creative solutions</p> <p>5.6.1 selects and uses appropriate problem solving and decision making techniques in a range of STEM contexts</p> <p>5.6.2 will work individually or in teams to solve problems in technological and engineering contexts</p> <p>5.7.1 demonstrates an appreciation of the role and potential of science, technology, engineering and mathematics in the world in which they live</p> <p>5.8.1 understands the importance of working collaboratively, cooperatively and respectfully in the completion of STEM activities</p>
Task Description/Overview
<p>Your task is to identify a local problem and design a STEM-focussed solution (Question, Design, Explore & Communicate) to one of the problems posted on CANVAS under modules and STEM Inquiry-based Project. Your solution can be in the form of a physical model, a computer model (in the form of CAD or Minecraft or any other suitable program), poster or slideshow. A written report will be required for an in-depth description of your solution in line with the marking criteria below. Teams will be picked to represent the school to showcase their projects to local Council and industry representatives as well as their family on the 28th of November.</p>
Detailed Assessment Task Description
Refer to the attached pages.

Assessment Criteria		
Grade	Description	Mark Range
Outstanding (O)	<p>Works to an outstanding standard both individually and in teams to solve problems in technological and engineering contexts</p> <p>Applies a range of communication techniques to creatively develop ideas and explore solutions to technological and engineering based problems. Visually appealing, creative and functional solution. Demonstrates an outstanding appreciation of a local problem and ways of alleviating that problem.</p>	90-100
High (H)	<p>Works to a high standard both individually and in teams to solve problems in technological and engineering contexts</p> <p>Applies a range of communication techniques to develop ideas and explore solutions to technological and engineering based problems. Creative and functional solution. Demonstrates a high appreciation of a local problem and way of alleviating that problem.</p>	75-89
Sound (S)	<p>Works to a sound standard both individually and in teams to solve problems in technological and engineering contexts.</p> <p>Applies communication techniques to develop ideas and explore solutions to technological and engineering based problems. Functional solution. Demonstrates a sound appreciation of a local problem and a way of alleviating that problem.</p>	60-74
Basic (B)	<p>Works to a basic standard both individually and in teams to solve problems in technological and engineering contexts</p> <p>Applies some basic communication techniques to develop basic ideas and explore solutions to technological and engineering based problems. Creative but no functional solution. Demonstrates a basic appreciation of a local problem and a way of alleviating that problem.</p>	45-60
Limited (L)	<p>Works to a limited standard both individually and in teams to solve problems in technological and engineering contexts.</p> <p>Applies a limited range of communication techniques to develop some ideas and explore solutions to technological and engineering based problems. No functional solution and very little creativity implemented. Demonstrates a limited appreciation of a local problem and very basic ways of alleviating that problem.</p>	0-44

Satisfactory completion of courses

A course has been satisfactorily completed, when the student has:

- Followed the course developed/endorsed by the NSW Educational Standards Authority (NESA)
- Applied himself/herself with diligence and sustained effort to the set tasks and experiences provided in the course.
- Achieved some or all of the course outcomes

Report - Marking Criteria

	DEVELOPING	CONSOLIDATING	ACHIEVING
Investigating the problem	A problem, issue, need or other opportunity for the development of a solution was identified. 1-5 marks	The parameters of the problem, issue, need or other opportunity for the development of a solution were defined. The aims of the project were articulated. Criteria for evaluating the solution were suggested. 6-8 marks	The problem, issue, need or other opportunity for the development of a solution was critiqued and analysed. An investigable research question was formulated. The aims of the project were clear and realistic. Relevant and appropriate criteria for evaluating the solution were identified. 9-10 marks
Background research	At least three credible and reliable sources of information were identified. 1-5 marks	At least three credible and reliable sources of information were reviewed and summarised. 6-8 marks	At least three credible and reliable sources of information were synthesised into a useful overview of the topic, describing current knowledge of the problem and potential solution. 9-10 marks
Generating ideas	Following brainstorming, multiple ideas were listed. 1-5 marks	Several ideas were compared, contrasted, or otherwise evaluated against criteria. Knowledge and skills needed for completing the project were suggested. 6-8 marks	A plausible idea was selected. The decision was justified. Details were proposed. Potential new knowledge and skills needed for completing the project were identified and practised/developed. 9-10 marks
Communicating plans	Product plans, processes and/or procedures were sketched. 1-2 marks	Product plans, processes and/or procedures were developed using appropriate technical terms and techniques for communicating ideas. 3 marks	Product plans, processes and/or procedures were described. Representations of various elements effectively communicate plans for the product. 4-5 marks
Selecting tools and processes	Materials, components, tools, technologies, equipment, software, processes, or techniques for product creation were selected. 1-2 marks	Materials, components, tools, technologies, equipment, software, processes, or techniques for product creation were tested. Evaluation procedures were outlined. 3 marks	Selection of materials, components, tools, technologies, equipment, software, processes, or techniques for product creation was justified. Evaluation procedures were described. 4-5 marks
Generating the solution	The product, or prototype/model, was developed. Not creative/ nor functional. 1-14 marks	The product, or prototype/model, was modified or improved as necessary. Functional 15-24 marks	The product, or prototype/model, was finalised. Creative and functional 25-30 marks

Evaluating	<p>The product was evaluated according to the aims and criteria articulated at the beginning of the project.</p> <p>1-5 marks</p>	<p>The product was evaluated according to the aims and criteria articulated at the beginning of the project. Some of the relevant aspects of appropriateness (aesthetic, cultural, economic, environmental, ethical, functional and social) of the product were evaluated.</p> <p>6-8 marks</p>	<p>The product was evaluated according to the aims and criteria articulated at the beginning of the project. The relevant aspects of appropriateness of the product were critically evaluated. The applications, potential further modifications and alternative uses of the final product were described.</p> <p>9-10 marks</p>
Communicating	<p>The student communicated some of the details regarding the product and its development.</p> <p>1-5 marks</p>	<p>The student communicated the details of the product, its development and evaluation using appropriate representations.</p> <p>6-8 marks</p>	<p>The student communicated the details of the product, its development and evaluation using appropriate representations. Communication is clear, concise and coherent. Consistent referencing styles were used. Detailed acknowledgment of assistance is given, indicating the type and degree of assistance with each aspect of the project.</p> <p>9-10 marks</p>
Collaborating	<p>The students in the group are developing skills and dispositions for collaborative work. Brief outline of member roles.</p> <p>1-5 marks</p>	<p>With support, the students in the group have communicated effectively, worked collaboratively, made decisions collectively, negotiated and resolved conflict with each other and with other groups and demonstrated leadership. Lists the roles that each member played in the group.</p> <p>6-8 marks</p>	<p>The students in the group have communicated effectively, worked collaboratively, made decisions collectively, negotiated and resolved conflict with each other and with other groups, and demonstrated leadership. Describe the roles that each member played in the group.</p> <p>9-10 marks</p>
TOTAL			/ 100