Gymea Technology High School
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7 Technology A

Task 1: Design Project Stage 1

Due Date: 18 Aug 2025

Distributed: 25 Jul 2025
Weighting: 30%
Task Type: Design Project
Syllabus Outcomes: TE4-1DP; TE4-2DP, TE4-3DP, TE4-8EN
Unit: Engineered Systems

Task Description

Working in pairs, you need to identify, research and plan the production of a Virtual 3D Amusement Park. Use the design constraints below to help guide your research, idea generation and planning for this stage of your project.

Design Constraints:

- A unique amusement park with several rides **(at least 4 different types of rides)**
- A unique theme/concept applied through the park (eg space, desert, jungle)
- A roller coaster (at least 30 m in length) with varying points of height (**at least 3 different points**)
- An example of Kinetic Energy to transfer an object (utilising its own moving energy)
- An example of Potential Energy
- The effect of external push / pulling forces upon an object throughout the amusement park eg: moving platforms
- Prototype:
    - a scale (1:500) cardboard model of the rollercoaster

Glossary of Key Words

Understand the verb associated with the task. The verb will provide an understanding of the detail needed to successfully complete the task.

- **Describe:** Provide characteristics and features
- **Investigate:** Plan, inquire into and draw conclusions about
- **Explain**: Relate cause and effect; make the relationships between things evident; provide why and/or how
- **Justify**: Support an argument or conclusion

Details of Submission

Using the scaffold provided, your group will need to **submit a copy of your Design Folio** to the task on Moodle by the due date.

For Stage 1 you need to complete the following:

1. Identifying & Designing
2. Research & Planning
3. Cardboard Prototype

Teacher Feedback and Student Self-Reflection

- The task will typically be returned to students within **14 days** of the due date. Information on how to improve will be provided through written teacher feedback and the marking criteria. Students can clarify or seek further feedback by speaking with their teacher.
- Upon return of the task, students will also be expected to complete a self-reflection. Students can access this self-reflection form using the link: https://forms.gle/Y9GaD7kxfnrrdHLg6

How does this link to my learning?

This task will allow students to demonstrate and showcase their knowledge, understanding and skills in:

- Engineered Systems, including Newton's Laws of Motion, forces, motion and friction
- Links to the following subject outcomes
    - **TE4-1DP** designs, communicates and evaluates innovative ideas and creative solutions to authentic problems or opportunities
    - **TE4-2DP** plans and manages the production of designed solutions
    - **TE4-3DP** selects and safely applies a broad range of tools, materials and processes in the production of quality projects
    - **TE4-8EN** explains how force, motion and energy are used in engineered systems

Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of the school year and are available off the school website under the Learning menu for each year group.

Marking Criteria

Design Process	Descriptors				
	1	2	3	4	5
Identify & Defining Problem	Limited detail displayed	Basic level of design Principles applied. Considers a few aspects of design	Sound level of design principles applied. Considers some aspects of the problem: criteria of success, design factors and specific target audience analysis.	High level of design principles applied. Considers MOST aspects of the problem in detail: criteria of success, design factors and specific target audience analysis.	Outstanding level of design principles applied. Considers ALL aspects of the problem in comprehensive detail: criteria of success, design factors and specific target audience analysis.
Sketches	Limited range of hand drawn or computer created sketches	Basic level of hand drawn sketching and/or computer generated sketches demonstrated	Some hand drawn sketches of ideas	Detailed hand drawn sketches of ideas with annotations	Extensive hand drawn sketches of ideas with detailed annotations
Justification	Attempts to Identify a reason or irrelevant reason provided	Outlines a reason for chosen idea and/or some reasons are not relevant	Outline relevant reasons for chosen idea.	Describes the selection of chosen idea for the project.	Justifies the selection of chosen idea for the project.
Prototype	Model is incomplete without relevant detail	Model completed to a basic quality with little attention to detail and not to scale	Scale model completed to a sound quality with some attention to detail and attempted to make the model to scale	Scale model completed to a high quality with attention to detail and to scale	Scale model completed to an exceptional quality with excellent attention to detail and to scale

Literacy Criteria

Literacy Outcomes	Elementary achievement You have:	Limited achievement You have:	Satisfactory achievement You have:	High achievement You have:	Outstanding achievement You have:
	0	1	2	3	4
Vocabulary *Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect*	Very limited response. Few content words used.	Only simple words are used.	Some precise and technical words are used.	Sustained use of precise and technical words.	Sustained, consistent and fluent use of precise and technical words.
Punctuation *Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text*	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - *one sentence is punctuated correctly.*	Some correct sentence level punctuation (at least 50%). May attempt other punctuation where it is required.	Mostly correct sentence level punctuation (80%) and at least two correct examples of other punctuation.	Writing contains accurate use of all applicable punctuation.
Sentences & Cohesion *The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.*	No clear evidence of sentences: a list of words OR text fragments.	At least one sentence is used correctly. Some meaning can be construed from the text.	Some correct formation of sentences. Mainly uses simple and compound sentences, but may attempt more complex structures.	Most sentences are correct. Range of sentence types and connectives are evident, but with varied effectiveness.	All sentences are correct, effective and controlled, and include a range of sentence types and connectives (complex sentences and other sophisticated structures)
Paragraphs *Paragraphs are used to effectively structure information and partition events and ideas*	No correct use of paragraphing; may be a block of text or random breaks.	Ideas are separated; paragraphs may contain some unrelated ideas.	At least ONE paragraph is well structured and develops an idea	Writing is organised into paragraphs that assist the reader to digest chunks of the text, but may not be linked or executed effectively.	All components of the paragraphs are evident and paragraphing is consistent and well-developed across the whole text.
Text Structure *Uses features of the appropriate text type*	No evidence of the structural features of the appropriate text type. *No attempt to write in the appropriate text type and/or response is off task.*	Minimal evidence of the structural features - *1 component evident* - of the appropriate text type.	Some evidence of the structural features - *2 components evident* - of the appropriate text type.	Substantial evidence of the structural features - *all components evident but there may be some lapses* - of the appropriate text type.	Coherent and controlled use of **all** the appropriate structural features of the text type.
	Level of response is well below syllabus expectation	Level of response is below syllabus expectation	Level of response is equivalent to syllabus expectation	Level of response is above syllabus expectation	Level of response is well above syllabus expectation

Literacy Total: /4

Grand Total: /24