



# ORANGE HIGH SCHOOL

## ASSESSMENT TASK NOTIFICATION

<b>Subject</b>	Science: Design Thinking Report
<b>Year</b>	9
<b>Weighting</b>	25%
<b>Teachers</b>	Mr Warne, Mr Routh, Ms Constant, Mr O'Connor, Mr Shea and Mrs Lyden
<b>Head Teacher</b>	Mr Shea
<b>Week handed out</b>	Monday, Week 8, Term 1
<b>Due Date</b>	Specific day to given by classroom teachers (Term 1 Week 10B)

### Assessment Outline

This can be completed individually or in pairs. You will need to produce a design thinking report on a chosen natural disaster

Part A (Pair or Individual):

In your report you must:

- Identify and outline a person/group of people affected by a natural disaster (Stage 1 – Empathy)
- Explain the science behind the natural disaster and create a user problem statement (Stage 2 – Define)
- Brainstorm a range of solutions to your user problem statement (Stage 3 – Ideate)
- Develop one idea into a prototype (Stage 4 - Prototype)
- Test and seek feedback on your prototype (Stage 5 – Test)

Part B (Individual):

- Self-reflection
- Detailed explanation of the science of the disaster and how your prototype can help reduce the issues identified in your user problem statement. This must be in your own words.
- Evaluation of the project

Use the following scaffold to support your report. You must make your report exciting, you can present it any medium you wish, pending teacher approval.

### Non-completion of Task:

If you know you are going to be away on the day that the task is due, you must make alternative arrangements with your classroom teacher. If you are away on the day of the examination, you must catch up with your classroom teacher on the first day you return to make alternate arrangements to catch up on this task.

**Failure to follow the above procedures may result in a zero award.**

### Outcomes Assessed

**SC5- 7WS** Process and analyse data and information from secondary sources

**SC5- 8WS** Produce plausible explanations and solutions to identified problems

**SC5- 9WS** Present science ideas using appropriate text and representations

**SC5-13ES** Explains how scientific knowledge about global patterns of geological activity and interactions involving global systems can be used to inform decisions related to contemporary issues

## Year 9 Earth and Space Design Thinking Report

Name: \_\_\_\_\_

Choose a disaster below and highlight it to indicate that you are completing your report on it.

- Drought - lithosphere/hydrosphere
- Bushfire - biosphere/atmosphere
- Rising sea levels - biosphere/hydrosphere
- Air pollution - atmosphere/biosphere
- Tsunami - Lithosphere/Hydrosphere
- Volcano - Lithosphere/Atmosphere
- Cyclone/Tropical Storm (Hydrosphere/Lithosphere)

If working in pairs, identify the person you are working with: \_\_\_\_\_

### **PART A (Pair or Individual):**

**Stage 1 Empathy – this stage is about understanding the person/people effected by your chosen natural disaster.**

**You need to create a detailed profile of the person/people who are effected by your chosen natural disaster. The following are questions to get you started to think about the people effected by the natural disaster:**

- Where they live
- How are they effected by the natural disaster
- What are the immediate and long term issues
- Why are their needs not being met
- What do they need to improve their situation

(Please note this section is only worth 5 marks)



### **Stage 3 - Ideate - Create solutions to your problem established in Stage 2**

(Please note this section is worth 10 marks)

Brainstorm as many solutions as possible to your user problem statement. These ideas can be anything, add a bit of detail about each if possible.

<b>Possible solutions</b>	<b>Possible solutions</b>

**You will need to evaluate your solutions and select the most effective. This may be a combination of multiple idea or a modification of a single idea.**

**Choose ONE idea to prototype – Explain why it is the best idea to solve your user statement problem.**

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**Selecting an idea to prototype:**

**You must be able to answer the following questions**

- **Why are we doing this? (vision)**
- **For whom are we doing this? (target audience)**
- **What problem do we solve? (user problem)**
- **How are we doing this? (strategy)**
- **What do we want to achieve? (goal)**

**Product/service Statement**

**In order to (Vision)**

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**Your product/service will assist (Target audience)**

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**To solve the problem of (User Problem)**

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**By giving them (Strategy/Product/Service)**

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**We will know our product works when we see (Goal)**

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## **Stage 4 - Prototype**

(Please note this section is worth 10 marks)

**Take the idea that is most feasible to develop further into a prototype.**

**A Prototype can be:**

- A series of labelled drawings
- A computer-generated model (2D or 3D)
- A Story or short written piece
- A newspaper or advertisement that showcases your idea
- Awareness campaign / poster
- Could be anything – check with your teacher if unsure on your idea

**Any prototype that you create you will have to explain how your idea will function and meet the needs of your chosen user, as discussed in your user problem statement.**

### Stage 5 – Test

(Please note this section is worth 5 marks)

**Show your prototype to others and ask them to critically evaluate your solution based off your problem statement.**

<b>Student name</b>	<b>Name two things that are good about my idea</b>	<b>Name two things that could be further developed in my prototype</b>

**Based on the above feedback:**

1. Did your prototype work as a solution for your user problem statement. Explain.

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2. How could your prototype be improved. Explain

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**PART B (Individual):**

**Self-reflection**

(Please note this section is worth 15 marks)

- a) Reflect on how well you and your partner worked (if you had one). Did you do your best? Explain. Are there things you could do better next time, in this type of task? Explain. Do you feel you have a good scientific understanding of the disaster and your user statement problem? Explain.

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- b) Give an in-depth analysis of the science behind your prototype and how it is a solution to your user problem statement, link in the science behind your natural disaster. This must be in your own words.

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- c) Evaluation of the project

1. Reflect on how well your prototype worked as a solution for your user problem statement.

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2. Reflect on ways that you could improve your prototype to better achieve your user problem statement.

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Course Outcomes		A 5	B 4	C 3	D 2	E 1	0	WS Total
	<b>Sections from assessment task</b>	Has achieved a very high level of competence in the processes and skills and can apply these skills to new situations. <b>(EXTENSIVE)</b>	A high level of competence in the processes and skills. In addition, the student is able to apply these skills to most situations. <b>(THOROUGH)</b>	An adequate level of competence in the processes and skills. <b>(SOUND)</b>	A limited level of competence in the processes and skills. <b>(BASIC)</b>	Very limited competence in some of the processes and skills. <b>(ELEMENTARY)</b>	Not attempted	
<b>Stage 1 Empathy SC4- 7WS</b> Process and analyse data from secondary sources	<b>Empathy Profile</b>	5  Deep and thoughtful understanding of the requirements of an individual in response to their chosen natural disaster	4  Detailed understanding of the requirements of an individual in response to their chosen natural disaster	3  Good understanding of the requirements of an individual in response to their chosen natural disaster	2  Simple understanding of the requirements of an individual in response to a natural disaster	1  Some understanding of the requirements of an individual		<b>WS7</b>
<b>Stage 2 Define SC4- 7WS</b> Process and analyse data from secondary sources	<b>Research</b>	10 – 9  Extensive use of visuals to enhance meaning. Including only relevant pictures, tables, graphs etc + Very detailed explanation of impacts of chosen natural disaster on humans	8 – 7  Thorough use of visuals to enhance meaning. Including mostly relevant pictures, tables, graph + Detailed explanation of impacts of chosen natural disaster on humans	6 – 5  Good use of visuals to enhance meaning. Including mostly relevant pictures, tables, graphs etc + Description of impacts of chosen natural disaster on humans	3 – 4  Some use of visuals to enhance meaning. A relevant picture, table or graph + Some mention of impacts of chosen natural disaster on humans	1 – 2  Basic use of visuals to enhance meaning. A relevant picture, table or graph OR Basic outline of impacts of chosen natural disaster on humans	0	<b>/17</b>
	<b>User need statement</b>	X	X	2  Clearly articulated user requirements and problems in relation to their researched natural disaster	X	1  User requirements or problems listed	0	
<b>Stage 3 Ideate SC4- 8WS</b> Produce plausible solutions to identified problems	<b>Ideation product statement</b>	10 – 9  Extensive list of creative ideas + Generated ideas both problem-recognising and problem-solving as identified in the user need statement + Refined ideas carefully selected and applied to context of natural disaster	8 – 7  Detailed list of creative ideas + Generated ideas both problem-recognising and problem-solving as identified in the user need statement + Refined ideas selected and applied to context of natural disaster	6 – 5  Good list of creative ideas + Generated ideas problem-recognising OR problem-solving as identified in the user need statement + Selected idea has been refined or modified	4 – 3  List of creative ideas + Ideas are linked to user need statement + Selected idea has been refined or modified	2 – 1  list of ideas + Ideas are linked to chosen natural disaster	0	<b>WS8</b>
<b>Stage 4 Prototype SC4- 8WS</b> Produce plausible solutions to identified problems	<b>Prototype</b>	10 – 9  Exemplary explanation given + Demonstrated a deep understanding of the concept + Excellent description of the science behind the concept. + Explanation of how the concept can be beneficial to humans in the future	8 – 7  Detailed explanation given + Demonstrated a deep understanding of the concept + Detailed description of the science behind the concept. OR Explanation of how the concept can be beneficial to humans in the future	6 – 5  Good explanation given + Demonstrated a good understanding of the concept + Good description of the science behind the concept. OR Good description of how the concept can be beneficial to humans in the future	4 – 3  Simple explanation given + Demonstrated a sound understanding of the concept + Simple description of the science behind the concept OR Simple description of the science behind the concept or benefit to humans	2 – 1  Simple explanation given + Demonstrated a basic understanding of the concept	0	<b>/20</b>

<b>Stage 5 Test</b> <b>SC5- 9WS</b> Present science ideas using appropriate text and representation	<b>Test – Peer Feedback</b>	5 Provides extensive reflective analysis to outline enhancements to created/ designed prototype based on peer feedback	4 Provides detailed reflective analysis to outline enhancements to created/ designed prototype based on peer feedback	3 Provides analysis to outline enhancements to created/ designed prototype based on peer feedback	2 Provides summaries feedback and lists some enhancements to prototype based on peer feedback	1 Lists some enhancements to prototype	0	<b>WS9</b>  /5
<b>Part B SC5-13ES</b> Explains how scientific knowledge about global patterns of geological activity and interactions involving global systems can be used to inform decisions related to contemporary issues	(Individual Reflection and evaluation)	15 – 13 Extensive information in the report + Detail use of scientific terminology throughout report + Detailed self-evaluation, very detailed reflection, detailed explanation + Detailed analysis of the prototype combined with scientific knowledge of the disaster and linked to the user problem statement + Detailed reflection of strengths and weaknesses of the prototype and a high-level explanation of these points	12 – 10 Detailed information in the report + Good use of scientific terminology throughout report + Self-evaluation, fairly detailed reflection, good explanation + Good analysis of the prototype combined with scientific knowledge of the disaster and linked to the user problem statement + Attempted reflection of strengths and weaknesses of the prototype and an explanation of these points	9 – 6 Good information in the report + Satisfactory use of scientific terminology throughout report + Self-evaluation and reflection, attempted + Good analysis of the prototype and some satisfactory scientific knowledge of the disaster + Attempted reflection of strengths and weaknesses of the prototype	5 – 3 Basic use of scientific terminology throughout report + Self-evaluation and reflection, attempted + Basic analysis of the prototype + Basic reflection of the prototype	2 – 1 Limited use of scientific terminology throughout report + Minimum attempt of self-evaluation and reflection + Limited analysis of the prototype + Simple reflection of the prototype	0	<b>ES 13</b>  /15

<b>Result</b>	<b>Grade Total</b>	<b>A</b> <b>55 - 50</b>	<b>B</b> <b>49 - 41</b>	<b>C</b> <b>40 - 15</b>	<b>D</b> <b>14 - 5</b>	<b>E</b> <b>4 – 0</b>	
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