



ORANGE HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

Subject	Science: Water For the World
Year	7
Weighting	50%
Teachers	Miss Huggett, Miss Townsend, Mr Shea, Mrs Boardman, Mr Warne, Miss Wright, Mrs Mansur
Head Teacher	Mr Shea
Date and school week	Term 2, Week 2 –26 th to 30 th April 2021 (exact submission date and method to be negotiated with teacher)
Class Due Date	

Assessment Outline

Context: Part of a Chemistry Unit focusing on separating mixtures.

1. You will be designing and building a working filtration device that can purify water for drinking.
2. This will be a scaffolded project for Year 7.
3. Students will choose a community to design a water purification device for.

Final submission:

Students will hand in their water filtration device (or submit footage of their device working - the student must be clearly seen in the footage via Google classroom), the completed design thinking task scaffold, (completed in class) and an evaluation of their final design.

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

- WS4** Identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge
- WS5** Collaboratively and individually produces a plan to investigate questions and problems
- WS6** Follows a sequence of instructions to safely undertake a range of investigation types, collaboratively and individually
- WS7** Processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions
- WS8** Selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems
- WS9** Presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations
- CW3** Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques.
- EN4-4B** Makes effective language choices to creatively shape meaning with accuracy, clarity and coherence

Marking Rubric: Water Filtration Device (Due Term 2, Week 2B)

Student Name: _____

Class: _____

Course Outcomes		A 5	B 4	C 3	D 2	E 1	0	WS Total
	Sections from assessment task	Has achieved a very high level of competence in the processes and skills and can apply these skills to new situations (EXTENSIVE)	A high level of competence in the processes and skills. In addition, the student is able to apply these skills to most situations (THOROUGH)	An adequate level of competence in the processes and skills (SOUND)	A limited level of competence in the processes and skills (BASIC)	Very limited competence in some of the processes and skills (ELEMENTARY)	Not attempted	
Stage 2: Define SC4-7WS Process and analyse data from secondary sources EN4-4B Makes effective language choices to creatively shape meaning with accuracy, clarity and coherence	Problem statement Question 1.	X	X	3 Clearly articulated problem statement in relation to identified water issues of a particular individual/community All <input type="checkbox"/> Community identified <input type="checkbox"/> Problems with the water in identified community listed. <input type="checkbox"/> Impact device will have on the community identified.	2 Attempt to articulate problem statement in relation to identified water issues of a particular individual/community. ANY 2 <input type="checkbox"/> Community identified <input type="checkbox"/> Problems with the water in identified community listed. <input type="checkbox"/> Impact device will have on the community identified.	1 Individual/community problems listed ANY 1 <input type="checkbox"/> Community identified <input type="checkbox"/> Problems with the water in identified community listed. <input type="checkbox"/> Impact device will have on the community identified.	0	/3 WS7
Stage 3: Ideate SC4-8WS Produce plausible solutions to identifiable problems SC4-CW3 Explains how scientific understanding of, and	Research/ Science behind Question 2.	5 Extensive explanation of the science behind the 3 device designs, including only relevant information. <input type="checkbox"/> Describe the purpose of each material used in the device	4 Detailed explanation of the science behind the device, including only relevant information + Minimum three sources of information used for each device design	3 Good explanation of the science behind the device, including mostly relevant information + Minimum two sources of information used for each device design	2 Simple explanation of the science behind the device, including some relevant information + At least two sources of information provided for any device designs	1 Basic explanation of the science behind the device, including little relevant information + One source of information listed for at least one device design	0	/5 CW3

<p>discoveries about, the properties of elements, compounds, and mixtures relate to their uses in everyday life</p>		<ul style="list-style-type: none"> <input type="checkbox"/> Identify expected components that will be removed by each material of device <input type="checkbox"/> Identify what will remain in the filtrate (water) after being filtered through device. <li style="text-align: center;">+ Minimum three sources of information used for each device design. <input type="checkbox"/> 3 sources of information 						
<p>Ideation: Product ideas Question 2.</p>		<p style="text-align: center;">5</p> <p>All required materials for each device provided + All designs are relevant to the selected individual/community + Each diagram is clearly constructed and labelled</p> <ul style="list-style-type: none"> <input type="checkbox"/> Drawing is scientific – 2D with a ruler and pencil. <input type="checkbox"/> Drawing is labelled. <input type="checkbox"/> All materials required listed 	<p style="text-align: center;">4</p> <p>Most required materials for each device provided + Most designs are relevant to the selected individual/community + Each diagram is clearly constructed and most components are labelled</p>	<p style="text-align: center;">3</p> <p>Some required materials for each device provided + At least one design is creative and original + One design is relevant to the selected individual/community + Diagram for each device present with some labels</p>	<p style="text-align: center;">2</p> <p>TA few required materials for at least two devices provided + Designs are modified from existing devices + Diagram for at least one device contains some labels</p>	<p style="text-align: center;">1</p> <p>A few required materials for one device + Design may be very similar to pre-existing devices + Diagram for device is present (may not be labelled)</p>	<p style="text-align: center;">0</p>	

		<p>was or was not successful at filtering the water sample + Three or more detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink</p> <ul style="list-style-type: none"> <input type="checkbox"/> Determines success of design. Provides 2 reasons to support this. <input type="checkbox"/> Describes the science behind the device. <input type="checkbox"/> Identifies 3 tests that could be used to test the safety of water. 	<p>not successful at filtering the water sample + Three detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink</p>	<p>not successful at filtering the water sample. + Two detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink.</p>	<p>One basic reasons on why the device was or was not successful at filtering the water sample + One detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink</p>	<p>Limited relevance on why the device was or was not successful at filtering the water sample + Limited explanation on suitable tests that could be conducted to ensure the water is safe to drink</p>		
Evaluation Question 6	<p>10-9 Extensive description of three problems encountered during investigation and their solutions</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify three problems <input type="checkbox"/> Describe how the problems were overcome. <p>+ Detailed impact with 2 highly appropriate examples</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describes impact on community. <input type="checkbox"/> Uses Peel format 	<p>8-7 Detailed description of three problems encountered during investigation and their solutions + Detailed impact with 2 appropriate examples +</p>	<p>6-5 Good description of two - three problems encountered during investigation and their solutions + Relevant impact with 2 examples</p>	<p>4-3 Simple description of one- two problems encountered during investigation and a solution to at least one provided + Impact stated with an example</p>	<p>2-1 Basic description of one problem encountered during investigation with no solution provided + Impact stated with an example</p>	0		

		<input type="checkbox"/> Uses two named examples to support the impact.						
	<p>Language use</p> <p>Entire document.</p>	<p>2</p> <p>Extensive use of scientific terminology throughout investigation</p> <p><input type="checkbox"/> (20 or more tier 2, 10 or more tier 3 words)</p> <p>+</p> <p>Grammatically correct, with correct punctuation and spelling</p> <p><input type="checkbox"/> (minimal errors 1-2)</p>	x	<p>1</p> <p>Good use of scientific terminology (at least 10 tier 2 and 5 tier 3 words used) when communicating problem and defining problem statement</p> <p>+</p> <p>Mostly Grammatically correct, with mostly correct punctuation and spelling (minimal errors 6-7)</p>	x	<p>x</p> <p>Limited use of scientific terminology (a small amount tier 2 and 3 words used) when communicating problem and defining problem statement</p> <p>+</p> <p>Limited grammar correct, with some correct punctuation and spelling (many errors)</p>		

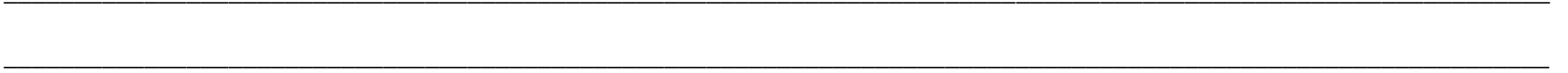
Working scientifically break down:

WS7 Total	/3		WS8 Total	/10		WS9 Total	/18
CW3 Total	/5		WS6 Total	/4			

Overall Result:

Grade Result	A 40-35	B 34-28	C 27-12	D 12-6	E 5-0	Total	/40
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Feedback:



Task 1: Filtration Device Project (Due Week 2 Term 2)

In this task, you will go through the design-thinking model to research, understand, create and test a working water filtration device designed by you.

Follow the scaffold to begin your journey.

Define (what is the problem and how might it be solved)

Question 1. Using the sentence to create a problem statement (must linked to a chosen community):

The _____ (the people affected by the issue) need to
_____ (what is the issue)
because _____ (how could it help the people)

Ideate (the first idea is not necessarily the best idea):

Question 2.

Idea 1: _____

Labelled diagram of the device:	Equipment needed:	The science of my device:
List of websites used: 1. 2. 3.		
How is this design relevant to the chosen community? Explain.		

Idea 2: _____

Labelled diagram of the device:	Equipment needed:	The science of my device:
List of websites used: 1. 2. 3.		
How is this design relevant to the chosen community? Explain.		

Prototype:

Question 3 .

A). Which idea from the ideate section are you going to construct?

B). Why have you chosen to create this idea?

C). How could you modify your chosen idea to make it better (more efficient)?

4. Complete the below safety table about your device.

Potential risk	How would you reduce the chance of this risk occurring?
1.	
2.	
3.	

Construct your device now from the equipment you collected.

Do not drink your water samples!

Test:

Question 5.

A). Place a picture or insert a video below of your device and describe the water before and after the filtration process.

Photo/Video	
Water before	Water afte

B). Explain reasons (at least 2) why the filtration process completed by your device **did** or **did not** work. (Refer to the science behind your device)

C). The water coming out of your filter needs to be tested to determine if it is safe to drink. **Do not drink your water samples.** What things (at least 3) would you need to test for to determine if the water is safe to drink? Explain the effect each of these things could have on a human.

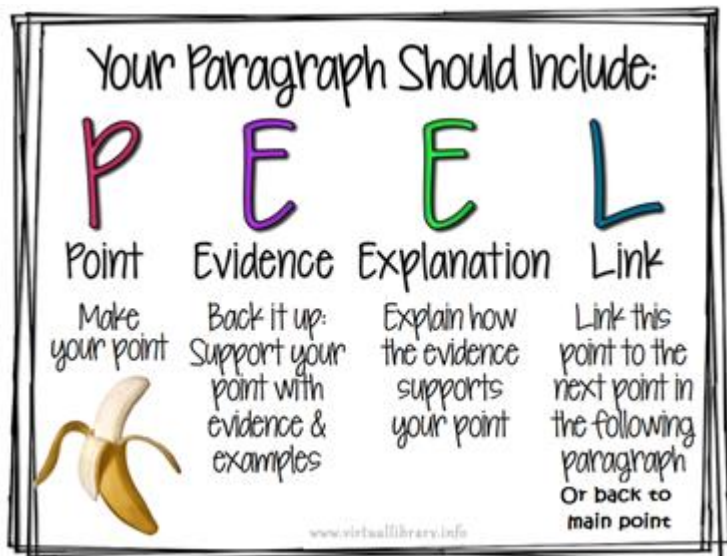
Evaluation:

Question 6

A). In the construction or creation of your model you may have had some problems occur. Identify the problems / potential problems you had (or may of had) and how you reduced or solved the issue.

Possible problems	How did I reduce or solve this problem?
1.	
2.	
3.	

B). What kind of impact could your device have on the communities where water quality is poor? What are some things that people and communities can achieve once given access to clean water?



Impact that your device would have on the community:
