ORANGE HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

Subject	Science: Water For the World
Year	7
Weighting	30%
Teachers	M. Rose, M. Nicholson, K. Collins, and S. Townsend
Head Teacher	Ms J Huggett
Date Given	Term 1, Week 8
Date Due	Term 2, Week 2

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

1. Students will choose a community to design a water purification device for.
2. Students will be designing and building a working filtration device that can purify water for drinking.
3. Students will complete the scaffold document to demonstrate their understanding of the design process.

Final submission:
- Scaffold (Online or hard copy)
- Video footage of working device (on Google Classroom)

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
WS9 Presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representation

Name _____

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

Empathy/Define (what is the problem and how might it be solved) *8 marks*

The following countries are most likely in this world not to have access to clean drinking water

Eritrea	Ethiopia	Niger
Papua New Guinea	Uganda	Chad
Angola	Somalia	

1. Choose one of these countries or **choose one of your own**. Research one of the following

Place: _____

Total population	
Location	
What is the landscape like?	

2. Visit the website below and list some effects of drinking unclean water

   https://www.who.int/news-room/fact-sheets/detail/drinking-water

   List 3 facts about drinking unclean water

1.

2.

3.

3. List 3 diseases that can be caused by drinking unclean drinking water

1.

2.

3.

4. Why are water sources contaminated?

5. What are some things that happen to people who drink unclean drinking water?

6. Write your user statement

1. Who is the user? (community)	
2. What is the problem?	
3. Why is it important to be solved?	

7. Use your response in question 6 to make a statement

The (1)_____ people need help to solve(2)_____ because

it can (3)_____

Ideate (the first idea is not necessarily the best idea): *10 marks*

Idea 1: _____

Labelled diagram of the device:	**Equipment needed:**

Explain how this device is relevant to your chosen community

Idea 2: _____

Labelled diagram of the device:	**Equipment needed:**

Explain how this device is relevant to your chosen community

OPTIONAL- Idea 3: copy the scaffold above to design a third idea

Prototype: *5 marks*

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

2. Why have you chosen to create this idea?

3. Risk minimisation. Identify 3 hazards you may encounter while making the device. What is that risk and how to overcome that risk

Potential Hazard	**At risk of….**	**Precaution**
1.		
2.		
3.		

Construct your device, collect dirty water samples and video the filtration process

Do not drink your water samples!

Test: ***10 marks***

1. Upload a video onto google classroom of your device working. Ensure it includes footage of;
- the water sample before filtration
- the device in action
- the water sample after filtration

If you need assistance with the videoing, please see your teacher.

2. 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)

3. 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 would you need to test for to determine the water quality of the sample? Explain the effect each of these things could have on a human.

What are you testing for?	How to test for it?	What effect would it have on a person if they drank it?	How to overcome/fix the issue?

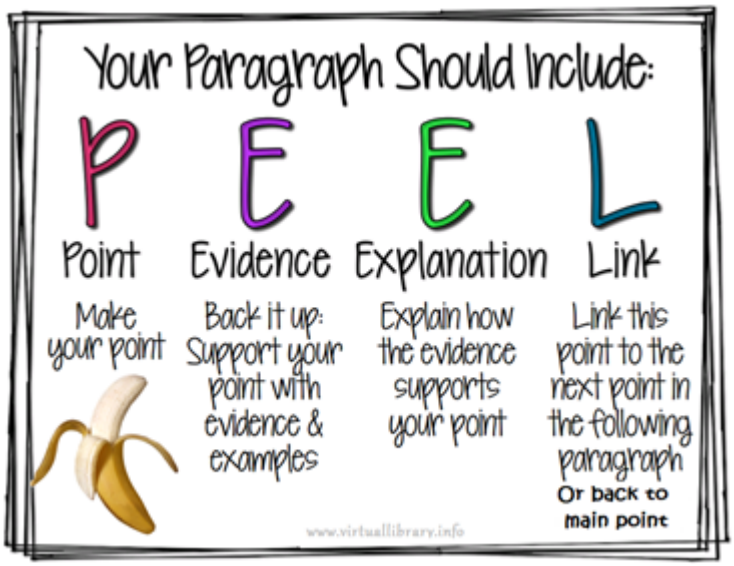
What are you testing for?	How to test for it	What effect would it have on a person if they drank it	How to overcome/fix the issue

Evaluation: *10 marks*

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

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

2. 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:

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

Student Name: Class:

Course Outcomes	A	B	C	D	E		
	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)**		
	8	7-6	5-4	3-2	1	0	MARK
Empathy and Define <u>SC4-4WS</u> Identifies questions and problems	Deep and thoughtful understanding of individuals/communities and their requirements for clean water + Extensive understanding of who the problem affects and how they are affected + Extensively articulated problem statement in relation to identified water issues of a particular individual/community + Extensive use of scientific terminology when communicating problem and defining problem statement	Detailed understanding of individuals/communities and their requirements for clean water + Detailed understanding of who the problem affects and how they are affected + Detailed articulated problem statement in relation to identified water issues of a particular individual/community + Detailed use of scientific terminology when communicating problem and defining problem statement	Good understanding of individuals/communities and their requirements for clean water + Good understanding of who the problem affects and how they are affected + Clearly articulated problem statement in relation to identified water issues of a particular individual/community + Good use of scientific terminology when communicating problem and defining problem statement	Simple understanding of individuals/communities and their requirements for clean water + Displays an understanding of who the problem affects and how they are affected + Some individual/community problems listed + Some use of scientific terminology when communicating problem and defining problem statement	Basic understanding of individuals/communities and their requirements for clean water + Basic understanding of who the problem affects and how they are affected + Individual/community problems listed + Limited use of scientific terminology when communicating problem and defining problem statement	Incomplete /irrelevant	/8
	10-9	8-7	6-5	4-3	2-1	0	MARK
Ideate <u>SC4-5WS</u> Produce a plan to investigate questions and problems	Two extensive device designs produced + All required materials for each device provided + All designs are creative and original + All designs are relevant to the selected individual/community + Each diagram is clearly constructed and labelled	Two detailed device designs produced + Most required materials for each device provided + At least one design is creative and original + Most designs are relevant to the selected individual/community + Each diagram is clearly constructed and most components are labelled	Two good device designs produced + Some required materials for each device provided + Design is creative OR original + One design is relevant to the selected individual/community + Diagram for each device present with some labels	Two-one simple device designs produced + A few required materials for at least two devices provided + Designs are modified from existing devices + Relevance is provided for one design + Diagram for at least one device contains some labels	One basic device design produced + A few required materials for one device + Design may be very similar to pre-existing devices + No relevance is provided + Diagram for device is present (may not be labelled)	Incomplete /irrelevant	/10
	5	4	3	2	1	0	MARK

Prototype <u>SC4-4WS</u> Produce a plan to investigate questions and problems	Extensive justification of chosen device + Demonstrates deep knowledge of separation techniques in device + All chosen materials are appropriate for task + Device could be cheaply and easily constructed in chosen community + List of three potential risks with extensive risk minimisation strategies for each hazard	Detailed justification of chosen device + Demonstrates deep knowledge of separation techniques in device + Most chosen materials are appropriate for task + Device could be cheaply constructed in chosen community + List of three potential risks with detailed risk minimisation strategies for each hazard	Good justification of chosen device + Demonstrates good knowledge of separation techniques in device + Most chosen materials are appropriate for task + Device could be easily constructed in chosen community + List of three potential risks with a logical risk minimisation strategy for each hazard	Simple justification of chosen device + Demonstrates some knowledge of separation techniques in device + A few chosen materials are appropriate for task + Device could be constructed in chosen community without major issues + Simple list of two to three potential risks with at least two appropriate risk minimisation strategies	Simple justification of chosen device + Demonstrates little knowledge of separation techniques in device + A few chosen materials are appropriate for task + Device could be constructed in chosen community, may face difficulty with sourcing or purchasing materials + A single basic risk minimisation strategy with a somewhat relevant information	Incomplete /irrelevant	/5
	10-9	8-7	6-5	4-3	2-1	0	MARK
Test <u>SC4-9WS</u> Presents science ideas using appropriate text types and represent-ations	Extensive explanation of how device worked + Detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink + Extensive explanation of the impacts each hazard may have on humans + Two or more detailed reasons on why the device was or was not successful at filtering the water sample + Water sample is significantly improved after passing through filtration device	Detailed explanation of how device worked + Detailed explanations on suitable tests that could be conducted to ensure the water is safe to drink + Detailed explanation of the impacts each hazard may have on humans + Two detailed reasons on why the device was or was not successful at filtering the water sample + Water sample is significantly improved after passing through filtration device	Good explanation of how device worked + Explanations on suitable tests that could be conducted to ensure the water is safe to drink + Suitable explanation of the impacts that each hazard may have on humans + Two appropriate reasons on why the device was or was not successful at filtering the water sample + Water sample is improved after passing through filtration device	Simple explanation of how device worked + At least one explanations on suitable tests that could be conducted to ensure the water is safe to drink + Some explanation of the impacts that each hazard tested may have on humans + One to two appropriate reasons on why the device was or was not successful at filtering the water sample + Water sample is somewhat improved after passing through filtration device	Basic explanation of how device worked + A test that could be conducted to ensure the water is safe to drink is listed + Little to no explanation on the hazards posed to humans from the water sample given + One somewhat relevant reason on why the device was or was not successful at filtering the water sample + Water sample is slightly improved after passing through filtration device	Incomplete /irrelevant	/10
	10-9	8-7	6-5	4-3	2-1	0	
<u>Evaluate</u> <u>SC4-6WS</u> Follows instructions and undertakes investigation types	Extensive description of three problems encountered during investigation and their solutions + Detailed impact with 2 highly appropriate examples + High level use of PEEL scaffold	Detailed description of three problems encountered during investigation and their solutions + Detailed impact with 2 appropriate examples + Sound level use of PEEL scaffold	Good description of two - three problems encountered during investigation and their solutions + Relevant impact with 2 examples + Attempted to use the PEEL scaffold	Simple description of one-two problems encountered during investigation and a solution to at least one provided + Impact stated with an example	Basic description of one problem encountered during investigation with no solution provided + Impact stated with an example	Incomplete /irrelevant	/10

Outcome:	**WS4: /13**	**WS5: /10**	**WS9: /10**	**WS6: /10**	**TOTAL /43**

Feedback