

ORANGE HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

Subject	Science: Chemistry concept model and detailed explanation
Year	9
Weighting	30%
Teachers	Ms Huggett, Mr Routh, Mr Kennard, Ms Townsend, Mrs Griffen, Ms Constant and Ms Paul
Head Teacher	Mr Shea
Due Date	Specific day to given by classroom teachers (Term 2 Week 2B)

Assessment Outline

This task will further develop your scientific literacy skills and will build upon on your skills that you developed in Task 1 (breaking down a concept/idea and your use of PEEL to convey your understanding). A model in science, can be described as any of the following, a physical model, a labelled picture or diagram, a mathematical equation or an online simulation.

You will need to research at least ONE Chemistry concept and ONE other concept from any other science discipline. You must submit a model for each concept to show how it can be used to demonstrate your understanding of the concept you have researched. You will also need to submit how you would explain the concept to a student in the year groups between Years 8 to 10 (upper Stage 4 and Stage 5 students in high school). Use the scaffold sheet supplied to help guide your responses. In this task you must:

a) Research and compose a paragraph using PEEL to answer the question, "Why do scientists use models to explain concepts in science?".

- b) Research at least ONE Chemistry concept and ONE other concept from any other science discipline
- c) Explain the science behind each of your chosen concepts (look at the main themes/ideas behind the concept)
- d) Create a model for each concept.
- e) Use the question sheet scaffold to guide your explanation of each concept and their corresponding model. (This guide should be used for each concept)
- f) For each concept/model use the scaffolded questions to create a PEEL style paragraph explaining how to use your model to teach a concept to others.
- g) Submit a bibliography to acknowledge where you collected your information from, as per the bibliography scaffold attached.

 \rightarrow Make your model interesting and descriptive, think about the structure how to make the concept easy to understand, the model should be visually appealing.

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

SC5-16CW Explains how models, theories and laws about matter have been refined as new scientific evidence becomes available

SC5-17CW Discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials

Steps to follow to complete this task

<u>Planning:</u>

- 1. Choose your target audience (year group to explain your models too).
- 2. Research and compose a paragraph using PEEL to answer the question, "Why do scientists use models to explain concepts in science?"
- 3. Choose at least **TWO** concepts (one chemical and one other science-related) to research (more to possibly increase your marks). If you're unsure, please check your chosen concept with your teacher.

Possible Chemistry concepts:

- A. History of the atom
- B. What does an atom look like
- C. Periodic table trends
- D. Chemical reactions
- E. Conservation of mass and energy in a reaction
- F. A concept you're interested in. GET THIS APPROVED BY YOUR TEACHER.
- 4. For each concept break down the main themes/ideas, by using the concept building worksheet supplied by your teacher in Task 1.



- 5. Research your chosen concepts, and write a brief description about each, include images where possible (make sure you reference where you found your images).
- 6. Think about how you would explain your concept using a model and research a varity of model types.
- 7. Use the scaffolded questions on the next page to help guide your thoughts, ideas and research for each concept and model.
- 8. Think about your model design, what would it look like and how would you use it to explain the scientific concept?

Answer the below questions for EACH model (The science behind the model):

Note: The below is a scaffold, to obtain higher marks, you must go above and beyond to demonstrate a deep knowledge of each concept and how the model can be used to explain the science behind the concept that is represents.

1. What concept is your model trying to explain?

2. Describe the features (different parts/sections/areas) of the model.

3. Explain how your model explains the science behind the concept.

4. How does your type of model help your target audience understand the concept?

5. Describe any limitations (weakness in explaining a concept or leading to misinterpretation) that your model has.

Example of a model:



What needs to be handed in to your teacher in Term 2:

- → Overall paragraph on "why do scientists use models to explain concepts in science"
- → Paragraph on each concept using the PEEL structure
- → Scaffold questions answered for each concept.
- → The models you have created.
- ➔ The bibliography

Bibliography Scaffold:

BOOKS				
Author(s)	Date of publication in brackets	Title of book in italics	Name of publisher	
Example:				
Keay, J.	(2000).	The Great Arc.	Harper Collins.	
WEBSITES				
Author	Date published if available	Title of Article	Title of website in italics	From URL
	If no date available write (n.d.)			
Example: Landsberger, J.		Citing Websites.	In Study Guides and Strategies.	http://www.studygs.net/citation.htm.
	(n.d.)			
MAGAZINES				
Author	Date	Title of Article	Name of Magazine	Volume, issue, pages
<u>Example:</u> Tumulty, K	(2006, April).	Should they stay or should they go?	Time	167(15), 3-40.
PERSONAL CONVERSATIONS AND EMAILS				
Person's name	Date	How you know them	Nature of communication	
<u>Example:</u> Mr B. Rock	12/7/16	Geologist and uncle	email	
VIDEOS, DVDS, TV SHOWS ETC				
Producer and writer / director or for youtube the person who uploaded video	Date	Title and type of resource	Country and company producing video / or the URL	
<u>Example:</u> Fothergill, A. (producer), Attenborough, D. (narrator).	(2005)	The Blue Planet – Coral Seas [DVD]	UK, BBC.	

Marking Rubric: Scientific Article (Due: Term 2 Week 2B)

Student Name: _____

Class:_____

Course Outcomes		A 5	B 4	C 3	D 2	E 1	0	WS Total
Gattomes	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	
Processing Information SC4- 7WS	Number of concepts	3 1 Chemistry related concept and 1 other science-related concept presented	Х	2 1 Chemistry related concept presented well	Х	1 1 Chemistry related concept presented basically	0	WS7
Process and analyse data from secondary sources	Responses to the supplied questions	5 All 5 questions answered for each concept + Extensive knowledge given + Deep understanding demonstrated + Additional deep knowledge given outside of the question scaffold	4 All 5 questions answered for each concept + Thorough knowledge given + Deep understanding demonstrated	3 Most questions attempted for each concept + Sound knowledge given + Some understanding demonstrated	2 Most questions attempted for at least a concept + Basic knowledge given + Limited understanding demonstrated	1 A question or two attempted OR Very limited understanding demonstrated	0	/8
Explanation of concepts SC4- 8WS Produce plausible solutions to identified problems	Science behind concept 1	5 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	4 Detailed explanation given + Demonstrated a deep understanding of the concept + Detailed description of the science behind the concept.	3 Good explanation given + Demonstrated a good understanding of the concept + Good description of the science behind the concept.	2 Simple explanation given + Demonstrated a sound understanding of the concept + Simple description of the science behind the concept.	I Simple explanation given + Demonstrated a basic understanding of the concept	0	WS8
	Science behind concept 2	5 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	4 Detailed explanation given + Demonstrated a deep understanding of the concept + Detailed description of the science behind the concept.	3 Good explanation given + Demonstrated a good understanding of the concept + Good description of the science behind the concept.	2 Simple explanation given + Demonstrated a sound understanding of the concept + Simple description of the science behind the concept.	1 Simple explanation given + Demonstrated a basic understanding of the concept	0	
	Science behind concept 3	5 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	4 Detailed explanation given + Demonstrated a deep understanding of the concept + Detailed description of the science behind the concept.	3 Good explanation given + Demonstrated a good understanding of the concept + Good description of the science behind the concept.	2 Simple explanation given + Demonstrated a sound understanding of the concept + Simple description of the science behind the concept.	1 Simple explanation given + Demonstrated a basic understanding of the concept	0	/15

Presentation SC5- 9WS	Model	6 Each of the models layouts are visually	5 Each of the models layouts are	4 Looks good and some detail	3-2 Looks good and minimal	1 Model attempted	0	WS9
Present	Design	appealing and appropriate	visually appealing and appropriate		detail present	L		
science ideas using appropriate	(all presented	Looks great and lots of detail present	Looks good and some detail present	Linked satisfactorily and correctly to the responses given				
text and	models)	Model submitted on time	+ Linked satisfactorily and correctly	to the questions	questions			
representation	MARKED WHOLISTI- CALLY	Linked strongly and correctly to the responses given to the questions +	to the responses given to the questions +	All models are linked to science	All models are linked to science			
		All models are linked Stage 5 science or above	All models are linked Stage 5 science or above					
	Literacy/ Use of PEEL + Scientific terminology	5 Strong use of scientific terminology + Detailed use of Point Evidence Explain Link (PEEL) for paragraph structure + Sentence structure correct (punctuation, capital letters etc) + No spelling errors	4 Strong use of scientific terminology + Detailed use of Point Evidence Explain Link (PEEL) for paragraph structure + Good sentence structure correct (punctuation, capital letters etc) + 3 or less spelling errors	3 Good use of scientific terminology + Satisfactory use of Point Evidence Explain Link (PEEL) for paragraph structure + Good sentence structure correct (punctuation, capital letters etc) + 4 - 6 spelling errors	paragraph structure +	1 2 or less scientific terms + Basic sentence structure correct (punctuation, capital letters etc) + More than 10 spelling errors	0	
	Bibliography + Audience	4 Extremely detailed bibliography, follows the scaffold +	X	3 Bibliography, somewhat follows the scaffold +	2 Satisfactory bibliography +	l Bibliography present with only one reference	0	/15
	addressed + Introduction question	Accurately addresses the Year 8 – 10 age group + Detail use of PEEL to explain "Why do scientists use models to explain concepts in science?" in detail		Accurately addresses the Year Attempted explanatio 8 - 10 age group of "Why do scientist + use models to explain Attempted use of PEEL to concepts in science?" models to explain concepts in science?" in some detail				
Result	Grad	e A	В	С	D	E		

Result	Grade	Α	В	С	D	Ε	
	Total	38 - 32	33 - 26	25 - 12	11 - 5	4 - 0	

Comments: