THE RIVERS SECONDARY COLLEGE
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Assessment Task Notification

RICHMOND RIVER HIGH CAMPUS

Task Number	1	**Task Name**	Analytical Skills Report
Course	11 Chemistry	**Faculty**	Science
Teacher	Mrs Hodgman	**Head Teacher**	Mr Yates
Issue date	19th February 2023	**Due date**	Thursday 14th March 2023 by 12:10 pm
Focus (Topic)	Properties and Structure of Matter	**Task Weighting**	30%

Outcomes

CH11-3 conducts investigations to collect valid and reliable primary and secondary data and information
CH11-5 analyses and evaluates primary and secondary data and information
CH11-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes
CH11-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose
CH11-8 explores the properties and trends in the physical, structural and chemical aspects of matter

Task description

Inquiry question: Are there patterns in the properties of elements?
You are to research trends in the properties of elements in the periodic table. You need to describe these trends across periods and down groups. You will then need to analyse this data presented in a graphical form and explain the trends in terms of atomic structure.
In order to produce quality work, you will need to:

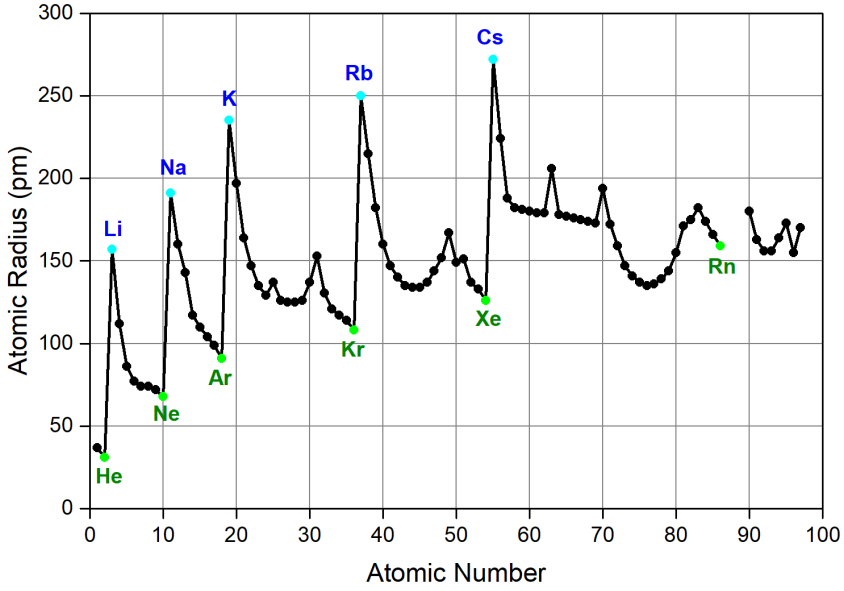
1. **Analyse and describe** the graphs given, showing trends in the physical and chemical properties of elements in groups and periods in periodic table in the following areas:
    - Atomic radii
    - First ionisation energy
    - Electronegativity
    - Reactivity with water
2. **Research** the reasons behind the trends.
3. **Explain** the above trends in terms of electron configuration (how does the changing electron configuration affect the property).
4. **Explain** the relationship between first ionisation energy and electronegativity
5. Use the data provided for 3 elements to predict its location (X, Y & Z) on the periodic table. Provide a reason for your decision.

Have your teacher check a draft before completing your final copy (by Tuesday 12th March 2024 3:15 pm)

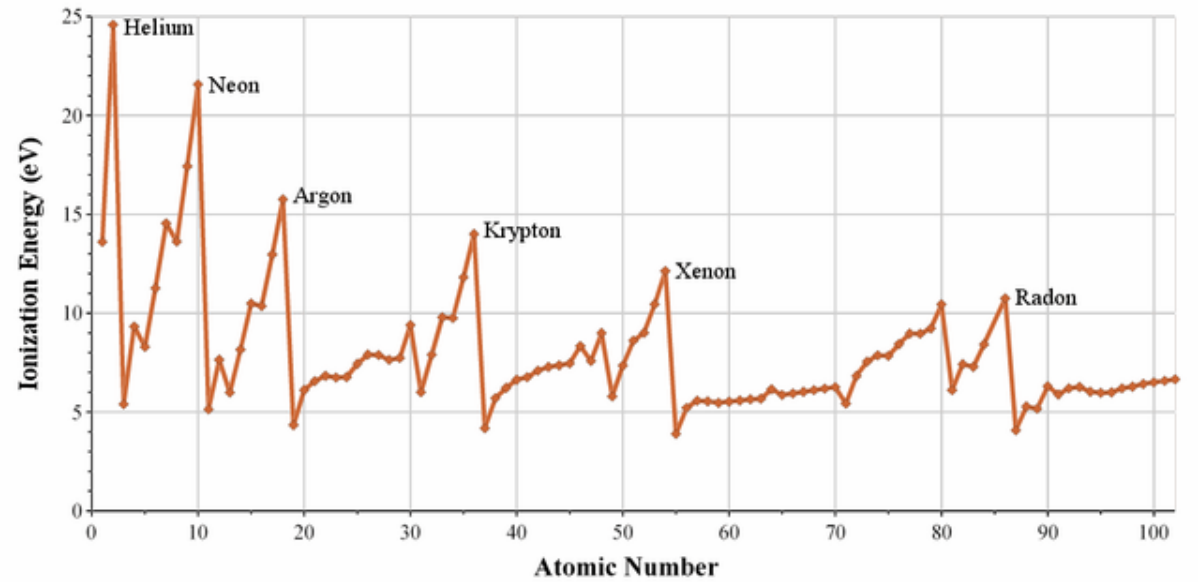
Task Submission

For assessment, you are required to give to your teacher a report that includes answers to questions 1 -5 and a reference list using an approved referencing format. Your written report can be submitted either on Google Classroom via the assessment link or a printed copy can be handed to your teacher by Friday 14th March 2024 by 12:10 am.

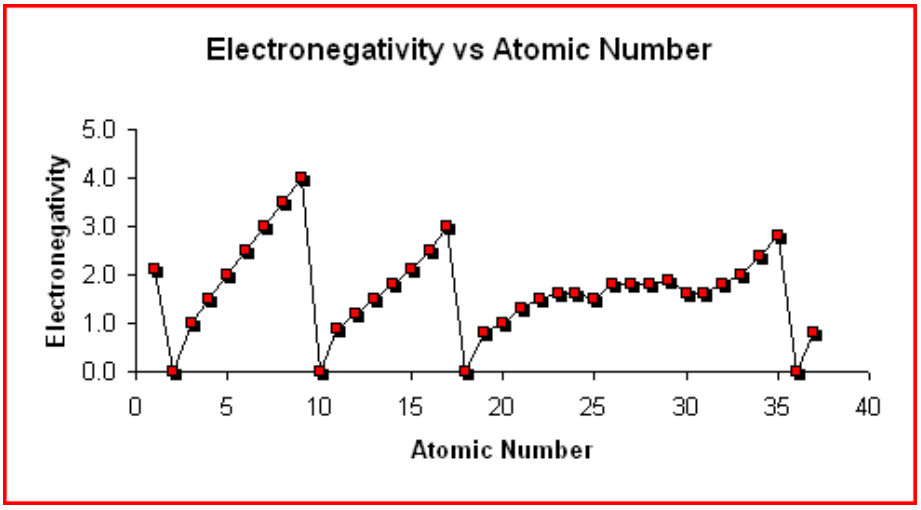
Data to Analyse - Trends in the Periodic Table (Q1-4)



https://wisc.pb.unizin.org/chem109fall2021ver02/chapter/periodic-variation-in-atomic-radius/



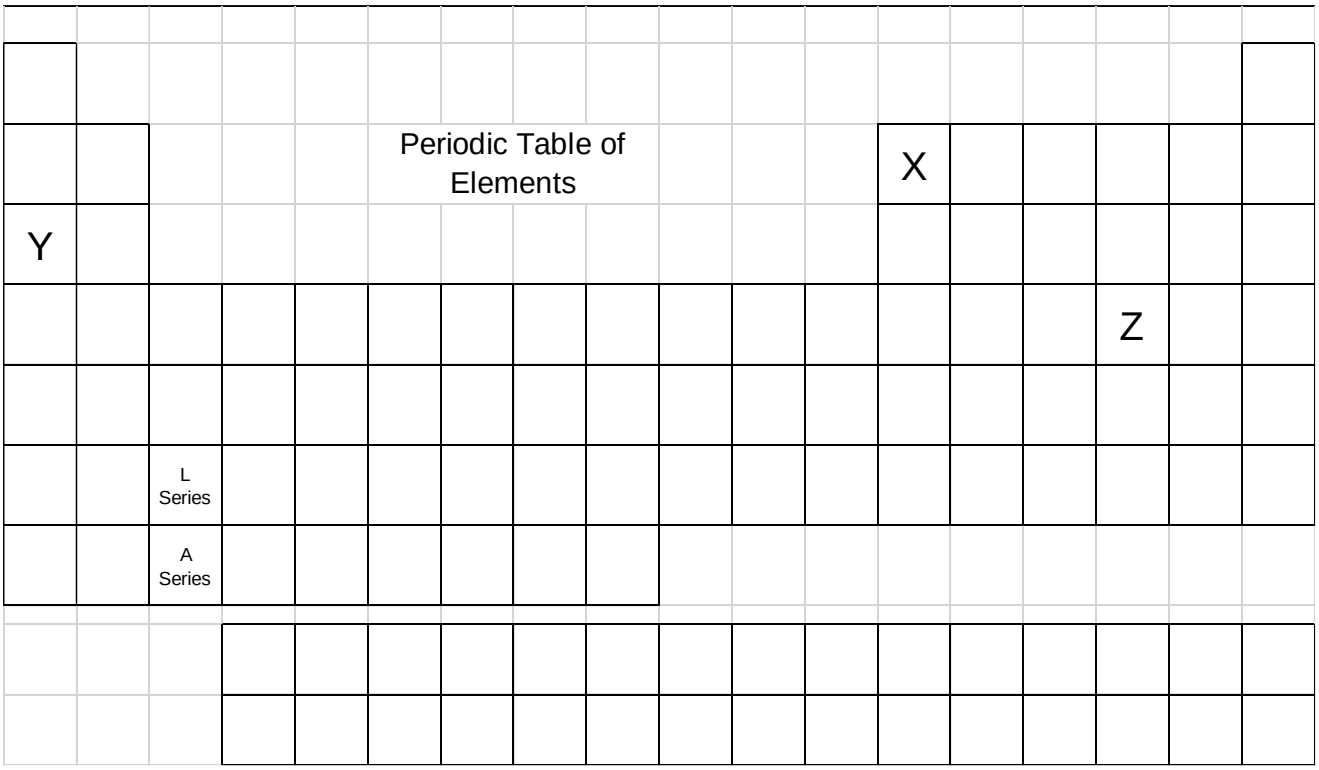
https://www.ck12.org/c/chemistry/periodic-trends:-ionization-energy/lesson/Periodic-Trends%3A-Ionization-Energy-CHEM/?referrer=concept_details



http://www.geocities.ws/junebug_sophia/elecN.htm

Use the following data to predict the location of each element on the periodic table (Q5):

Data Set	1st Ionisation Energy (kJ/Mol)	2nd Ionisation energy (kJ/Mol)	3rd Ionisation energy (kJ/Mol)	4th Ionisation Energy (kJ/Mol)	Electronegativity	Atomic radius (pm)	Element (X, Y or Z)
1	941	2045	2973.7	4144	2.55	120	
2	800.6	2427.1	3659.7	25025.8	2.04	85	
3	495.8	4562	6910.3	9543	0.93	227	



Marking Guidelines

Section of Task	Marks
<u>Description of trends in the periodic table:</u> **(CH11-5,7,8)**	
Atomic radii trends described across a period (1) and down a group (1), referring to given graph (1)	0-1-2-3
Reason for trend explained (2), including reference to electron configuration (1) (1 mark for identify/describe)	0-1-2-3
First ionisation trends described across a period (1) and down a group (1), referring to given graph (1)	0-1-2-3
Reason for trend explained (2), including reference to electron configuration (1) (1 mark for identify/describe)	0-1-2-3
Electronegativity trends described across a period (1) and down a group (1), referring to given graph (1)	0-1-2-3
Reason for trend explained (2), including reference to electron configuration (1) (1 mark for identify/describe)	0-1-2-3
Reactivity with water trends described across a period (1) and down a group (1), referring to given graph (1)	0-1-2-3
Reason for trend explained (2), including reference to electron configuration (1) (1 mark for identify/describe)	0-1-2-3
<u>Description of trends in the periodic table:</u> **(CH11-5,7,8)**	
Define first ionization energy	0-1
Define electronegativity	0-1
Explain the relationship between first ionisation energy and electronegativity using two elements from the periodic table. (2 Marks for each element)	0-1-2-3-4
<u>Data Analysis</u> **(CH11-6)**	
All three elements are correctly identified	0-1-2-3
Justification of why chosen element corresponds to the given data set using data from the table.	
Element X	0-1-2
Element Y	0-1-2
Element Z	0-1-2
<u>Reference List:</u> **(CH11-3)**	
Five or more reliable sources are referenced (*2 marks for 3 references, 1 mark for 2 or less*)	0-1-2-3
Sources are reference using the correct format (*2 marks a few mistakes, 1 mark web address only*)	0-1-2-3
Total:	/45

Teachers Comment:

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Assessment Task Cover Sheet

This cover sheet is to be completed by the student and securely attached to the front of all submitted assessment tasks (or components of assessment tasks), completed outside class time. It is the student's responsibility to ***complete the details; to sign the declaration; to ensure that a staff member signs the receipt on the bottom of this page, and to detach and retain the receipt*** until completion of the marking process.

Student name: _____ Home campus: _____

Subject: **Chemistry** Teacher's name: **Ms Hinchey**

Task title: **Task 1 Analytical Skills Report**

Number of pages: _____ Date submitted: _____

In signing this declaration you are acknowledging that this submitted work is your own, and that any contribution from other sources such as text books, other published works, literary articles, sources on the internet, past or fellow students' work etc., has been properly acknowledged. Students are referred to advice overleaf, and that contained in the Assessment Guidelines documentation distributed at the commencement of the course.

Declaration

Except where appropriately acknowledged, I verify that this assessment task is my own work, and that it has been written and/or expressed in my own words. I also verify that this work has not been previously submitted by me or any other student in this or any other subject, either this year, or in years past.

_____ _____

Student's signature **Date**

✂……

Assignment Receipt: Retain this receipt as proof of the submission of your task.

Student name:	Subject: **Chemistry**
Description of task: **Task 1 Analytical Skills Report**	
Accepting teacher signature:	Date:

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Record of Assessment Task Notification, Submission, and Feedback

RICHMOND RIVER HIGH CAMPUS

Course: 11 Chemistry 11CHE1 Task Number: 1 Task Name: Analytical Skills Report Due Date: 10/3/2023

Student Name	Notification/Task Received		Task Submitted		Feedback Received		Variation received
	Student Signature	**Date**	***Teacher Signature***	**Date**	***Student Signature***	**Date**	***Student Signature***
ACKRELL, Chillara							
DE VRIES, Sarah							
DONNELLY, Oscar							
GEYER, Page							
GIBSON, Eleanor							
HARLOW, Riley							
HAWKES, Cody							
HIGGINS, Zayne							
JEUKEN, Digby							
KNOTT, Breanna							
LAKE, Cooper							
PARKER, Finn							
PATERSON, Bella							
ROGERS, Zoot							
SHEPHERD, Dylan							
SMART, Kiah							
SMITH-GILL, Tina							
SPARKS, Diamond							
SURAHMAN, Malika							
WILLIAMS, Tyson							