Name
TA

Science 9
2021-2022

Learning Guide #4: Elements and The Periodic Table

BIG IDEA: The electron arrangement of atoms impacts their chemical nature.

Fundamental Knowledge (I know)

- ☐ How to distinguish between metals, non-metals, and metalloids
- ☐ How to explain the organization of the periodic table
- ☐ Predict the properties of a family of elements in the periodic table Compare the characteristics and atomic structures of elements
- ☐ Parts of an element (protons, neutrons and electrons)

Curricular Competencies (I can)

	Proficiency Scale Teacher and Student self assessment (Circle one)	**Evidence (How do you know?)**
I can: **Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world.** (Q.P. 2.)	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	.
Transfer and apply learning to new situations. (A.I. 2.)	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	
Express and reflect on a variety of experiences, perspectives, and worldviews through place. (C. 3.)	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	

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Instructions To help guide your learning, make your way through the activities in Option 1, Option 2, or Option 3. You may "mix and match" between the different Option columns.

<table>
<tr><th>TOPIC</th><th>OPTION 1</th><th>OPTION 2</th><th>OPTION 3</th></tr>
<tr><td>Atom Structure</td><td>A. Using the information from the text book(p.32- 33) or a website/video, draw a Bohr model and explain the parts of the atom. Include:
All subatomic particles with charges
Nucleus
Shells
Valence electrons
Where the overall atomic mass comes from</td><td>A. Complete the "Subatomic Particles Review" worksheet.</td><td rowspan="3">Choose your own adventure!

Pick up a planning sheet from the Science Kiosk.

Create a plan!

Make sure you read through the first page of this LG, as you will need to design ways to learn/practice and show your understanding of the topic(s) and skill(s) (competencies.)

You will need to have a teacher approve your plan before beginning the LG.</td></tr>
<tr><td>Elements</td><td>B. Pick a random element between 1 and 83 on the periodic table. Find and record the proton, neutron, and electron number, as well as the number of valence electrons and atomic mass. Additionally, find and record the following information about the element:</td><td>B. Create a large scale (entire piece of paper sized) replica of the entry of an element on the periodic table. Include the following information on the back of the page:</td></tr>
<tr><td colspan="2">Its family and whether it is a Metal, non-metal, metalloid, or unknown
Ionic charge(s) (will talk about it later in LG5)
Its malleability or ductility, its reactivity, its conductivity for electricity
Uses in human society</td></tr>
<tr><td>Periodic Table and Chemical Properties</td><td>C. Using the blank "First 20 Elements Template" on the website, draw the Bohr Model for the first 20 elements. Please note the shape of the template is similar to the top of the periodic table.

D. Complete the "Periodic Table Colouring Activity" worksheet to learn about common element properties and terminology. Go to Ptable.com (https://ptable.com/?lang=en#Properties) for help.</td><td>C. Using the blank "First 20 Elements Template" on the website, draw the Bohr Model for the first 20 elements. Please note the shape of the template is similar to the top of the periodic table.
D. List 10 properties of matter or element families. Indicate what elements on the periodic table have the properties you listed. Include the general location on the periodic table of where the elements were found.</td></tr>
<tr><td>Lab</td><td colspan="3">There is no lab for this learning guide!</td></tr>
<tr><td>Self Assessment</td><td colspan="3">Reflect on the Fundamental Knowledge and Curricular Competencies. Use the rubric and make goals to improve for your next learning guide.</td></tr>
<tr><td>Interview or Quiz</td><td colspan="3">See you teacher for an interview or to have a quiz slip signed for the test center. Bring your work and staple it to your quiz when complete.</td></tr>
</table>

Resources can be found at www.THSSscience.com or the Science Kiosk
*User: **THSS***
*Password: **science***