Differentiated Assignment Rubric

NGSS Standard HS-PS1-1 Matter and its Interactions: Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

Objectives:

1. Students will be able to properly explain the trends on the periodic table that relate to electron configuration.
2. Students will be able to accurately model various atoms from different groups in the periodic table.
3. Students will be able to properly explain why elements in the same groups have similar chemical characteristics.

Rubric:

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| Indicator | Met with Strength (3) | Met (2) | Not Met (1) |
| PT Trends  (NGSS HS-PS1-1) | Student shows deep understanding of how electron configuration effects periodic trends such as reactivity, metallic character, electronegativity, etc. by clearly explaining these concepts to the class (using a periodic table if necessary). | Student shows understanding of how electron configuration effects periodic trends such as reactivity, metallic character, electronegativity, etc. by correctly explaining these concepts to the class (using a periodic table if necessary) but does not go into detail about why these trends occur. | Student does not show clear understanding of how electrons configuration effects periodic trends such as reactivity, metallic character, electronegativity, etc. because student either does not mention trends or does not correctly explain trends. |
| Atom Models  (NGSS HS-PS1-1) | Student shows deep understanding of the structure and components of atoms by making accurate digital models of atoms and clearly explaining the structure and components of each model. | Student shows understanding of the structure and components of atoms by making accurate digital models of atoms and explaining the structure and components of each model but does not go into detail about why atoms have this specific structure. | Student does not show clear understanding of the structure and components of atoms because student either does not make accurate digital models of atoms or does not explain the structure and components of the models correctly. |
| Chemical Characteristics  (NGSS HS-PS1-1) | Student shows deep understanding of why the elements in the same groups on the periodic table have similar chemical characteristics by clearly explaining why this is true and giving specific examples from the periodic table. | Student shows understanding of why the elements in the same groups on the periodic table have similar chemical characteristics by explaining why this is true but does not give specific examples from the periodic table. | Student does not show clear understanding of why the elements in the same groups on the periodic table have similar chemical characteristics because student either does not mention this relationship or does not explain the relationship correctly. |

Outline of Activity:

For this activity, each student will create a digital presentation on the trends on the periodic table that result from specific configurations of electrons in atoms. Each student can use the program or programs that they would like to construct their presentation. Some programs that might be used are PowerPoint, VPython, Word, Educreations, Prezi, etc. There are three components that each presentation must have to receive full credit: a description of the effect of electron configuration on periodic table trends, student created digital models of various atoms that are accurate, and a description of why elements in the same groups on the periodic table have similar chemical characteristics. Allowing students to use whichever program(s) they like for their presentation will allow for differentiated products as well as differentiated environments as students will be able to work on their projects from any location where they have a device and internet access. Each student will make their own presentation, but students will be allowed to give each other feedback on their presentations as they work. I would hand out the above rubric to my students before explaining the project so that they would know up front exactly how they are being graded. As can be seen by the rubric above, students are graded based on the depth that they go into, whether they give explanations or not, and whether their information is correct/ accurate or not. This allows for students to know what they need to incorporate in their presentation while also giving them the freedom to make their presentation their own. When each student presents, the other students and I will use the above rubric to evaluate their presentation. Each students grade will be an average of the scored rubrics, (50% from the teacher rubric and 50% from the student rubrics).