Unit Topic:_____Franklin-Simpson Middle School Date:_____

DAY IN UNIT	*Content Strand *Learning Target -I Can *Essential Questions -WHY?? -How do you know? Curriculum document Common Core	Vocabulary/ Vocab Activity Activities Activities II	Thoughtful Ed./ Student Engagement www.marshall.kyschools.us/ www.muhlenberg.kyschools.us/?q=node/61 Engagement Cube Cube II (examples)	Literacy/Reading in the Content Literacy Ideas	Formative/ Summative Assessment F –Formative S-Summative www.act.org/standard/guides/explore/ Strategies More Ideas	Differentiation T-Task S-Special Needs G-Gifted/Accel. http://serge.ccsso.org/ Ideas 9 Types Big Explanation Tool	Technology 50 Ideas

1	SC-H-STM-U-4 *SC-HS-1.1.2* SC-H-STM-S-10 -define atomic number -calculate the number of protons neutrons and electrons present in the most common isotope of an element -construct basic Bohr model with correct placement of protons, neutrons and electrons. -define an isotope -Use the periodic table to construct models of isotopes and ions	Atom Proton Neutron Electron Subatomic particle Isotope Atomic number Mass number Nucleus Electron cloud Energy levels Fundamental Particle Bellwork: Three pictures vocab strategy for "fundamental." Afterwards: Describe what the word fundamental means to you. How is it used?	Students will receive a square from the periodic table and models of each isotope for that element. They will determine the relationship between the atomic number and mass numbers on the periodic table and the models that they have. They will write rules for determining the numbers of protons, neutrons, and electrons in an atom as well as the determining the identity of an atom.	Read about the characteristics of protons, neutrons, and electrons; make notes as they read.		Simple vs. more complex atoms	

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2	*SC-HS-1.1.2* - determine the location of a proton. -determine the charge of a proton. -determine the size of a proton. - determine the location of a neutron. -determine the charge of a neutron. -determine the size of a neutron - determine the location of an electron. -determine the charge of an electron. -determine the size of an electron.	Students will make a table from the previous day's discussion with the following information: the charge, location, mass, and function of protons, neutrons, and electrons.	Students will apply the rules they wrote on day 1 to new elements by drawing their own atomic models.				

3			Bellwork: Complete the following analogy: A proton is to _____ as an electron is to _____. Complete it based on one of the characteristics from the previous day. Play the Atom Game.				
4			Play the atom game.		Quiz on the characteristics of protons, neutrons, and electrons.		
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5		Electron Cloud Energy Levels Nucleus Proton Neutron Electron *defined from an historical context	Compare and contrast models	Read and annotate information on the history of atomic theory.	Bellwork: Draw a model of Carbon-14. What would you need to do to this atom to change it to Nitrogen-14. How are the two atoms similar? How are the two atoms different?		
6			Identify the similarities and differences between Thomson's experiment and model of the atom and Rutherford's experiment and model of the atom.		Bellwork: Draw a model of Lithium-6 and Lithium-7. What is the atomic number of each of these atoms? What is the mass number of each of these atoms? How are they similar? How are they different?		

7			Bellwork: Look at a cartoon of Rutherford which uses his head as a nucleus and has an electron orbiting around it. Ask students to explain the cartoon and draw one of their own for Thomson, incorporating his ideas about the atom into their work. More in depth discussion about Thomson and Rutherford's experiments, conclusions, and models.		Use student discussion about the Rutherford cartoon to gauge their understanding of the concept. Reteach as needed.		Use You Tube to show videos of Thomson and Rutherford's experiments recreated.
8			Bellwork: Think of a candy or snack that could be used to represent the atom as it was thought of by Dalton, Thomson, Rutherford, and with modern atomic theory. Explain how the candy you chose would represent the atom from each time period.	Students will write about Thomson and Rutherford's experiments, conclusions, and models.	Discuss the candy atom models with students to determine their understanding of how ideas about atomic theory have changed.		

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9		Revisit the word "fundamental." Remind students what it means and how it is used in the study of atoms.			Check for student understanding as they are working. As needed, provide additional explanation for those who do not understand some part of what they are reading.		Webquest: Use the atom builder website to introduce students to the idea of quarks.

10				Read a passage about quarks and the stability of atoms. Students will annotate for important vocabulary and the meaning as well as summarize each paragraph. They are also encouraged to write down any questions or thoughts they have about the passage so that we can discuss them.			Finish the atom Builder webquest together by building atoms online and determining what makes them stable, ionized, how many and what types of quarks make protons and neutrons

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11			Bell work: What If isotopes Discuss how scientists determine the masses of isotopes using mass spectroscopy. Begin working on solving problems on calculating average atomic mass using the highlighter method and rules written by the students.				
12			Bell work: what if isotopes Practice solving problems calculating average atomic mass using the students' rules. Use highlighters/colored pencils to identify the steps in the problems. Work in team help sessions after working individually. V				

			Bell work: calculate average atomic mass Identify similarities, differences, and connections between the terms atomic number, average atomic mass, and mass number using a modified T chart.		Isotope Quiz in What If format		
			Review		Calculating average atomic mass quiz Evaluate students abilities to correctly write isotope names and symbols.		

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			Review using various methods employed earlier in unit				
					Unit Assessment		

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