**Atomic Model for the Georgia Science Museum**

You are a team of scientists that work for the Georgia Science Museum. You have been asked to design a 4-meter high museum wall display of a simple atom. Along with the model you must develop a fact sheet to be displayed that will help the public understand the different subatomic particles as well as how to determine the number of subatomic particles in any element’s atom. It is important to provide this information in as much detail as possible, however it must also be in simple terms that the general public will be able to quickly understand.

![C:\Users\Kristin\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\S4NXGUFJ\MC900303693[1].wmf]()The purpose of your display is to help museum visitors better understand the atom. Your team will present your initial design on a smaller; two or three-dimensional poster or model of a specific atom chosen by your team. You must choose an atom that has an atomic number between 3 and 18. If you would like to choose an atom with an atomic number higher than 18, please discuss this with the project manager (your teacher). Good Luck!

**Due Date: \_September 9, 2015\_\_\_\_**

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| **Project Timeline** | **Goals for each Phase** |
| **Phase One**Day 1 | * Develop the essential questions that you will need to explore and answer prior to beginning the model and fact sheet.
* Compare these questions with other teams in your department and add to your list as needed.
* Organize your questions in a format of your choosing, see examples given by the project leader.
* Determine which tools you will need in phase two in order to research your question. Tools may include the textbook, computers, Smartphones, IPads etc.
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| **Phase Two**Day 2 and 3 | * Research essential questions and record answers. Make sure that all team members have a copy of all questions and answers.
* Share and discuss answers with the other teams in your department.
* Check in with your project manager if you are having trouble finding the answer or understanding the answer to any of your essential questions.
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| **Phase Three**Day 4 | * Determine the atom that you will build a model of and notify your project manager.
* Decide whether you will build/draw a two or three-dimensional model.
* Sketch a rough draft of your model.
* Brainstorm a list of materials that your team will need in order build the model. Determine who will be responsible for bringing each item and notate this on the Project Management Log.
* Brainstorm a list of topics to be included on the fact sheet.
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| **Phase Four**Day 5 and 6 | * Team members must report with all materials discussed in phase three.
* Begin building model of chosen atom.
* Write a rough draft of the fact sheet and have all members proof-read before final draft is completed.
* Complete final draft of fact sheet and decide how it will be presented.
* Prepare presentation to your department. This should be a short 2-3 minute presentation of some of your key findings during this investigation.
* Review Project Rubric to make sure all requirements are included in your model and on your fact sheet.
* Ask any remaining questions about the structure of the atom prior to your assessment.
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| **Phase Five**Day 8 | * Present model and fact sheet. Turn in completed assignment with rubric. Please make sure all team member names appear on the rubric.
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| **Phase Six**Day 9 | * Atomic Assessment
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\*\*Please note that this timeline may be adjusted as needed if tasks take more or less time than expected. In addition your project manager may take about 10 minutes of each day to review topics or give short demonstrations to help aid in your understanding of the material. The final model will be worth a quiz grade and the assessment worth a test grade.

**Model of the Atom Rubric**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Team Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Our Atom is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Atomic # is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
| **Required Items** | **Possible Points**  | **Self-Check** | **Teacher Check** |
| Correct number of protons | 5 |  |  |
| Correct number of electrons | 5 |  |  |
| Correct number of neutrons | 5 |  |  |
| Respective sizes of protons, neutrons, and electrons is correct  | 5 |  |  |
| Nucleus visible and correct particles are located within it | 5 |  |  |
| Electrons placed correctly in electron shells | 5 |  |  |
| Model completely labeled: including element name, subatomic particles color coded (key provided), group names and period # | 5 |  |  |
| Neatness/Creativity  | 5 |  |  |
| Atom Fact Sheet* Subatomic Particle location, charge and mass described. (9)
* How to determine the number of protons, neutrons and electrons is explained. (6)
* Information on how isotopes and ions are different from their original atoms. (5)
* How to determine electron placement for atomic numbers 1-18. (5)
* What does it mean if elements are in the same group? Period? (5)
* Information on the 4 forces of the atom (5)
* Any other interesting and relevant information.
 | 35 |  |  |
| Fair Share Partner Evaluation | 5 |  |  |
| TOTAL | 80 |  |  |

*\*All atoms will be shown and presented to the class.*