Name(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_

***Unit 2 Project: Foundations of Astronomy***

This project will be taken as a major grade. Choose a topic from the list below (circle your choice).

**You and a partner** will first research the topic, with the intention of giving a short, informal presentation of what you have found. The first day of work on this will require you to select a topic and begin to do detailed research on that topic. ***(Please note the presentation description on the second page as a guide.)***

1. **Constellations** (choose three constellations)
   1. What does it look like in the night sky?
      1. Which stars comprise it (names)?
      2. How far are the stars from Earth?
   2. When is it visible in the Northern Hemisphere?
   3. How is the constellation viewed by various cultures?
      1. What is the significance of the constellation to various cultures?
      2. What story(ies) are associated with the constellation?
2. **Ancient Astronomy**
   1. How did ancient cultures use astronomy?
      1. Choose 3 cultures: Mesopotamians, Egyptians, Indians, Thai, Chinese, Greeks, Mayans, Aztecs, Africans, native Americans
      2. How did their knowledge/understanding of astronomy influence
         1. daily life?
         2. their religion/spirituality?
         3. their understanding of the Earth, solar system, etc.?
   2. What (if any) ancient ideas are evident in today’s world cultures?
   3. Contrast ancient cultures’ understanding of astronomy with modern, Western understanding.
3. **Historical Developments in Astronomy**
   1. What did each person contribute to our modern, Western understanding of astronomy?
      1. Choose 3 people: Ptolemy, Nicolaus Copernicus, Tycho Brahe, Johannes Kepler, Galileo Galilei, Isaac Newton, Albert Einstein, Edwin Hubble, Maria Mitchell, Henrietta Swan Leavitt, James Van Allen, Stephen Hawking
      2. Where is the person from? When did they live? What was the cultural climate with respect to the science of astronomy?
      3. Describe the person’s contribution to astronomy.
   2. What is the modern, Western understanding of the Earth’s place in the universe?
      1. Where is the Earth with respect to other stars/galaxies?
      2. How big is the known universe? Is the size changing?
      3. How old is the known universe?
4. **Timekeeping and Astronomy**
   1. How has humanity’s study of astronomy influenced our sense of time?
      1. Give examples of how knowledge of astronomy has influenced our modern, western methods of timekeeping.
      2. What other methods of timekeeping, used by other cultures have been influenced by astronomy?
   2. Choose one area of study:
      1. *Build* a sundial. Test it for accuracy against a cell phone, or other time keeping device that references an atomic clock (include a data table)
      2. Describe how astronomy effects the four seasons.
         1. What about Earth’s rotation causes the seasons?
         2. How does latitude influence length of day?
         3. How does latitude influence the magnitude of the sun’s intensity?
         4. How are the four seasons experienced at different latitudes?
         5. List some constellations that are visible in the Northern Hemisphere during different parts of the year.
5. **Navigation**
   1. Describe how astronomy has influenced navigation.
      1. How can the sun be used to navigate?
      2. How can other stars be used to navigate?
         1. Give specific examples.
         2. What is a sextant, and how is it used?
         3. How are modern day GPS systems similar to celestial navigation?
   2. Use the sun to determine your latitude. Include a data table, diagram, and percent error

* **\*\*\*\*\*\* Your project will be presented to the class. The presentation should last between 6 and 10 minutes. Your presentation must include visual information. (e.g. PowerPoint, Prezi, video, photos, etc.). We are looking for an informal presentation, meaning that you are telling the class what you have found *without* reading slides word for word. Ideally, you might have a visual to illustrate each thing or topic you are talking about, but the additional information should come from notes that you memorize or jot down on cards to help you. The information does not need to be on a visual unless that would be particularly helpful. \*\*\*\*\*\***
* **You must site resources used (MLA format). Your project should reference at least 3 different, credible sources.**
* **This project and presentation will count as a major grade on the first grading cycle. Due dates and grading rubric to follow…**