ES 11 **Space Technology Research Assignment**

In groups of 2-3, You will research how a particular technology is used to research space. You will present to the class.

Topic Questions:

1. How do we know about Cosmic Background Radiation that was left over from the Big Bang?
2. How do we know what the surface of another planet looks like? Mars Rover
3. How do we know that Dark Matter exists? SNOLAB
4. How are living beings impacted by weightlessness ISS
5. How can we maintain equipment in space? Dextre
6. How do we know what Black Holes look like? Event Horizon Telescope. (Radio Telescope)
7. How do we know the universe is expanding? Hubble
8. How can we communicate and measure things outside of our solar system? Voyager 1

Your presentation will address the following:

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| * What topic question does it answer? * Describe the thing it was meant to study (what is dark matter? Red shift, char of ...., what are the effects of weightlessness – what they do to overcome, recovery time, what is a black hole and how does it form?) |
| * Description and images of the technology (Hubble telescope, radio signals, space shuttles, stations) * Who (what organization/country) made it? Joint effort? * When was it made/Launched/ fully operational? * How long did it take to make? * How much did it cost? |
| * What does it do? It is still doing it? * What have we learned? * What did it accomplish? |

* You have two library classes to complete your research and organize your information.
* DUE: June 17/18, Posters or PPT must be submitted to teacher
* You will present your research to other groups June 17/18.
* Your peers will review your presentation.

**Rubric**

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|  | 4 – Exceeding Expectations | 3 – Meeting | 2 - Approaching | 1 – Not Meeting |
| Content | Extra information provide to further clarify topic that is relevant and easy to understand. | Information is accurate and relevant. | Some elements missing. | Many elements missing. |
| Organization | Information is clear, concise, well described and explained, no grammar or spelling mistakes | Information is clear, concise, correct grammar, few spelling mistakes | Information mostly explained. | Many grammatical or spelling errors |
| Graphics: | Detailed Images that are relevant and fully support topic | relevant, support text | Some images provided | No images or images do not pertain to topic |
| Presentation | Presenter is well prepared and knowledgeable about topic; provides extra information not on slides | Presenter is knowledgeable about topic. Presented clearly | Presenter reads directly from slides. | Presenter unsure about what s/he is reading. |