**Electromagnetic Spectrum Project**

**Due: December 9 (tentatively)**

You have been asked to research one wave of the electromagnetic spectrum and give a presentation about your wave to your classmates.

The waves of the electromagnetic spectrum are:

* Radio waves
* Microwaves
* Infrared rays
* Visible light
* Ultraviolet light
* X-rays
* Gamma rays
* **Cosmic rays: extra credit**
  + If you choose, you may include any/all of the bullets listed below about cosmic rays. The more information you include about cosmic rays, the more extra credit you will receive.

You will become an expert on your type of wave. Your wave will be assigned to you and **YOU MAY NOT TRADE.**

You can create any kind of presentation that you like (google slides, PowerPoint, poster, tri-fold poster, model, or any other kind that is approved).

**Your presentation must include:**

* Name of the wave
* Picture of the wave (from the internet or hand drawn)
* Frequency of the wave in hertz
  + You should **also** explain what your frequency means. For example, “gamma rays have a frequency of 1X1019 Hz which means that 10000000000000000000 gamma rays pass a point every second.”
  + To find the frequency, simply take the exponent (in this case 19) and add that many zeros to the number 1. So you write the number 1 and then add 19 zeros so it should have 20 zeros.
  + If the frequency of your waves is something like 5X1016 hertz then you will take the first number, 5, and add 16 zeros. Simply take the first number, in this case 5, and add the amount of zeros shown by the exponent.
  + **IF YOU NEED ADDITIONAL HELP WITH THIS MAKE SURE YOU COME SEE ME**
* Wavelength of the wave (usually it’s written in meters)
  + Use the same method for wavelength as frequency. For example, if your wavelength is 8X106 meters, you would put 8000000 (8 with 6 zeros)
* What are the waves used for?
* How are these waves created?
* How dangerous are the waves?
* Three other facts about your wave
* Works cited page

**Wave assignments:**

**6A**

Abdullah, Releigh: Radio waves

Vivek, Skylar: Microwaves

Megan, Ian: Infrared light

Connor, Niamh, Natalya: Visible light

Aubrey, Arjun: Ultraviolet

Marshall, Elliot: X-rays

Maddy, Cora: Gamma rays

**6B**

Derek, Katelyn: Radio waves

Savannah, Amelia: Microwaves

Chris, Jesse: Infrared light

Grace, Alex: Visible light

Gabby, Hasan: Ultraviolet

Oliver, Dusty: X-rays

Keith, Dominic: Gamma rays

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| --- | --- | --- | --- | --- | --- |
|  | 0 | 1-2 | 3-4 | 5-6 | 7-8 |
| **Criterion A:** **Knowing and Understanding**  **Level Descriptor: i** | The student does not reach a standard described by a descriptor | Select scientific knowledge | Recall scientific knowledge | State scientific knowledge | Outline scientific knowledge |
| **Criterion A: Knowing and Understanding**  **Level Descriptor: ii** | The student does not reach a standard described by a descriptor | Select scientific knowledge and understanding to suggest solutions to problems set in familiar situations | Apply scientific knowledge and understanding to suggest solutions to problems set in familiar situations | Apply scientific knowledge and understanding to solve problems set in familiar situations | Apply scientific knowledge and understanding to solve problems set in familiar situations and suggest solutions to problems set in unfamiliar situations |
| **Criterion A: Knowing and Understanding**  **Level Descriptor: iii** | The student does not reach a standard described by a descriptor | Apply information to make judgments, with limited success | Apply information to make judgements | Apply information to make scientifically supported judgements | Interpret information to make scientifically supported judgments |
| **Criterion D: Reflecting on the Impacts of Science**  **Level Descriptor: iii** | The student does not reach a standard described by a descriptor | Apply scientific language to communicate understanding | Sometimes apply scientific language to communicate understanding | Usually apply scientific language to communicate understanding clearly and precisely | Consistently apply scientific language to communicate understanding clearly and precisely |
| **Criterion D: Reflecting on the Impacts of Science**  **Level Descriptor: iv** | The student does not reach a standard described by a descriptor | Document sources | Sometimes document sources correctly | Usually document sources correctly | Document sources completely |
| **Organization** | No organization is shown | Minimal organization is shown. Student showed little effort to organize the presentation | Some effort was put into organizing the presentation. | Sufficient effort was put into organizing the presentation | Maximum effort was out into organizing the presentation |
| **Content** | No content in presentation | 1-3 bullets answered. No works cited page | 4-6 bullets answered. No works cited page | 7-9 bullets answered. No works cited page | All 10 bullets are answered. Works cited page |
| **Presentation** | Student showed no preparation has gone into the presentation. No eye contact with the audience was made. The student did not walk around at all. | Student read directly from the slides and did not say anything that was not on the slides. Student gave eye contact 1-2 times. Student moved around in the same spot. | Student read mostly from the slides and barely said anything that wasn’t on the slides. Student gave eye contact 3-4 times and moved around one side of the screen. | Student only minimally read from slides. Student gave eye contact 5-6 times and moves around the front of the room. | Student did not read form the slides at all and gave eye contact 7 or more time. Student walked around the entire room or the entire of the front of the room. |