

ELECTROMAGNETIC SPECTRUM

Name: _____ hr _____

Use the electromagnetic spectrum picture and your notes to answer the following questions:

1. Use the electromagnetic spectrum to put the colors of the rainbow in order of increasing energy. **(7PTS)**

_____ < _____ < _____ < _____ < _____ < _____ < _____

2. You were shown a picture of a lit match. Which part is the hottest part of the flame? How do you know? **(2PTS)**

3. Which has a higher frequency: waves you can see or invisible x-rays? How do you know? **(2PTS)**

4. Radiation (waves) from the Sun come in many different wavelengths. The Sun provides us with radiation that we see as light, some that we feel as heat, and ultraviolet radiation that we don't see or feel. Put these three types of radiation in order of increasing energy. **(3PTS)**

_____ then _____ then _____

5. Exposure to sunlight has been linked to skin cancer. Which of the three wavelengths of sunlight described above are responsible for causing skin cancer? Explain why you picked this type of wave **(2 PTS)**

When people get an x-ray at the doctor, they often have to wear a vest made of lead over the parts of their body that are not being x-rayed. (For example, if you're getting a dental x-ray, you may have to wear a lead vest over your torso.) The lead vests are very heavy. Based on this information, infer:

6. Why do people have to wear lead vests? **(1PT)**

7. Why are the vests made out of lead instead of other materials (like paper or plastic)? **(1PT)**

8. What is the main thing that electromagnetic waves (or all waves for that matter) do? **(1PT)**

9. Are electromagnetic waves transverse or compressional? **(1PT)**

10. Do electromagnetic waves need a medium? **(1PT)**

11. Would light waves travel faster through empty space or through our atmosphere? **(1PT)**

12. What does ionizing mean? **(1PT)**

13. Ultraviolet rays can cause skin cancer. How can ultraviolet waves be helpful to humans? **(1PT)**