NASA's Tour of the Electromagnetic Spectrum

This video is available in eight sections on the NASA website
http://missionscience.nasa.gov/ems/emsVideo_01intro.html

Introduction

1. What is the name for all the electromagnetic waves that exist?

2. What are electromagnetic waves produced from? What two things do they have?

3. What is the name for the section of the electromagnetic spectrum that we can see with our eyes?

Radio Waves

4. Where are radio waves on the electromagnetic spectrum in terms of energy and frequency?

5. Describe one thing that has been discovered using radio waves (three are described).

6. What are radio waves used for by humans?

Microwaves

7. Where are Microwaves found on the electromagnetic spectrum?

8. Describe one thing that **C-Band Microwaves** are used for?

9. What did two scientists discover by accident using **L-Band Microwaves**?

10. **YOUR THOUGHTS:** What is the most common use for microwaves today?

Infrared Waves

11. What is unique about infrared waves compared to the visible light spectrum?

12. Where are infrared waves found on the electromagnetic spectrum?

13. Describe generally how the earth is heated from solar radiation. What type of waves are heat?

05 Visible Light Waves

14. What is unique about visible light waves?

15. What exactly is “White” light?

16. Why does Earth’s atmosphere appear to be blue?

17. **YOUR THOUGHTS:** We see objects as having different colors. Why do these objects appear to be red, orange, yellow, green, blue, indigo, violet, or a combination of those colors?

Ultraviolet Waves

18. Where are Ultraviolet Waves on the electromagnetic spectrum?

19. What are the different types of UV light? Which is the most harmful to humans?

20. Why is the Ozone layer so important for humans?

21. **YOUR THOUGHTS:** What is UV light most commonly used for by humans?

X-Rays

22. Where are X-Rays on the electromagnetic spectrum?

23. Describe one thing that X-Rays are used for.

Gamma Rays

24. What are Gamma Rays created from?

25. Where are Gamma Rays on the electromagnetic spectrum?

26. What part of an atom can Gamma Rays collide with as it is used in Gamma Ray detectors?

27. **YOUR THOUGHTS:** Gamma Rays have the most energy of all the electromagnetic waves. Do you think this is dangerous to humans?