**Tour of the Electromagnetic Spectrum Video Guide** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

<https://www.youtube.com/watch?v=HPcAWNlVl-8>

**01 Introduction (5:03)**

1. What is it that surrounds and bombards us every day?

2. What are electromagnetic waves similar to? How are electromagnetic waves different?

3. Which waves have the lowest energy? Which waves have the highest energy?

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

5. Why does a leaf look green? (What color light is absorbed? What color is reflected?)

**02 Radio Waves (3:39)**

6. How big are radio waves? (List two objects that have a similar size).

7. What do stars and other objects in space radiate?

8. What is one thing that has been discovered using radio waves (three are described)?

9. What are radio waves used for by humans?

**03 Microwaves (3:04)**

10. Where are Microwaves found on the electromagnetic spectrum?

11. Describe one thing that C‐Band Microwaves are used for?

12. What did two scientists discover by accident using L‐Band Microwaves?

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

**04 Infrared Waves (5:22)**

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

15. How are infrared waves different than visible light waves, and why does that help us while studying space?

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

**05 Visible Light Waves (4:50)**

17. What is unique about visible light waves?

18. What exactly is “White” light?

19. Which light has a longer wavelength, violet/ blue or red?

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

21. Why does our Sun produce more yellow light? What color light would the Sun be if it were cooler? What color would the Sun be if it were warmer?

22. 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?

**06 Ultraviolet Waves (3:40)**

23. Is there light past the violet part of the visible light spectrum?

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

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

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

**07 X‐Rays (2:50)**

27. How large are X-rays?

28. Describe one thing that X‐Rays are used for.

**08 Gamma Rays (3:42)**

29. What are Gamma Rays created from?

30. How big are Gamma Rays?

31. Can Gamma Rays kill living cells? How can doctors use Gamma Rays?

32. Which emits more energy, a 10 second Gamma Ray burst or our Sun during its entire 10 billion year lifetime?

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