Date: _____

The Electromagnetic Spectrum- Limits of light video questions

1. What part of the wave gives light its colour?
   The wavelength

2. a.. Who discovered that white light was made up of different colours?
   Newton

   b. Describe the experiment he used to prove this.
   He passed sunlight through a prism that split the light into a rainbow of colours.

3. What are pigments? How do they work?
   Pigments are chemicals that create colours. Pigments are complicated molecules that absorb some colours and reflect other colours. This reflected colour is the colour we see.

4. Why are leaves green?
   Leaves reflect green light.

5. Why is the sky blue?
   The sky scatters sunlight as it enters the atmosphere. Blue has the shortest wavelength and is scattered the most. It appears to us on earth that the blue light is coming from everywhere.

6. What were some uses of the colour indigo?
   Indigo was used as war paint in olden Europe (Celts). It can also be used as an antiseptic.

7. Name an animal that can see UV. How do they use this adaptation?
   (UV light has shorter wavelengths than blue light) Bees use UV to see invisible patterns on flowers.

8. What was the first X-ray of?
   (X-Rays have shorter wavelengths than UV rays). Wilhelm Rontgen passed high voltage electrical discharges through vacuum tubes.

9. What can cause bursts of gamma rays? (at 29:09 of video)
   (gamma rays have even shorter wavelengths than X-Rays). Gamma Ray bursts can come from interstellar objects such as two Neutron Stars colliding.

10. In nature what do the colours orange and red signify?
    These colours signify warning.

11. How were infrared rays discovered?
    (infrared rays have longer wavelengths than red light) William Herschel (1800) was measuring the temperature of different colours of light and he noticed that a thermometer in a dark area (below red) was warmer than the other colours.

12. What is one application of infrared light?
    Infrared photography. These types of cameras can pick up reflected (or emitted) infrared light.

13. Which parts of the body radiate the most heat?
    Far infrared waves indicate the temperature of an object. Your head radiates the most heat.

14. What is one application of microwaves?
    (microwaves have longer wavelengths than IR) Heating food.

15. What are quasars and how were they discovered?
    (radio waves have longer wavelengths than microwaves) A special type of galaxy that is 12 billion light years away that emit radio waves from a super-massive black hole at the centre of the quasar.

https://www.youtube.com/watch?v=jnGTCaiZqOE