

Universe Formation Test

Remediation Notes

8.ESS1.1) Research, analyze, and communicate that the universe began with a period of rapid expansion using evidence from the motion of galaxies and composition of stars.

Remember to write two facts from each slide

OR

Answer the questions on the slide

Once you are finished, watch the video on Ms. Bullock webpage titled Newton's Laws Video

What is the BBT

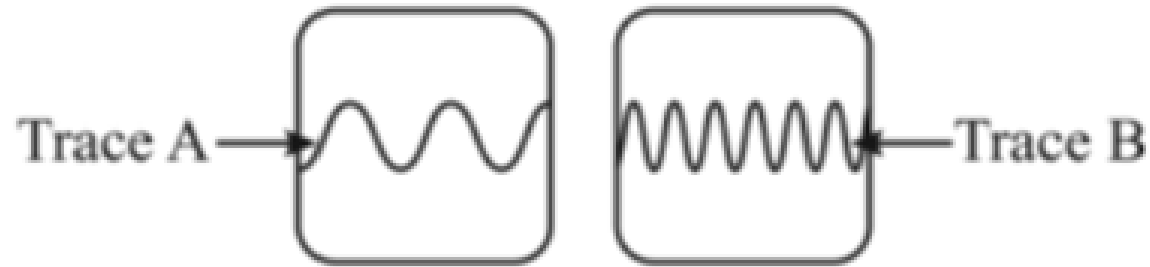
- The theory stating all matter, energy, and space was once squeezed into a very small volume.
- This resulted in a sudden expansion known as the Big Bang.
- There are 3 main pieces of evidence to support BB.
 - Motion of Galaxies (Red Shift)
 - Cosmic Microwave Background Radiation
 - Composition of Universe

Motion of Galaxies

- The universe is believed to still be expanding causing galaxies to drift away from one another.
- The main piece of evidence is Red Shift
- Red Shift occurs when a light emitting object is moving
 - Light waves produced in front of the object are compressed together and the absorption lines are shifted to the red end of the spectrum
 - Light waves produced behind the object are stretched and the absorption lines are shifted to the blue end of the spectrum.

Red Shift continued

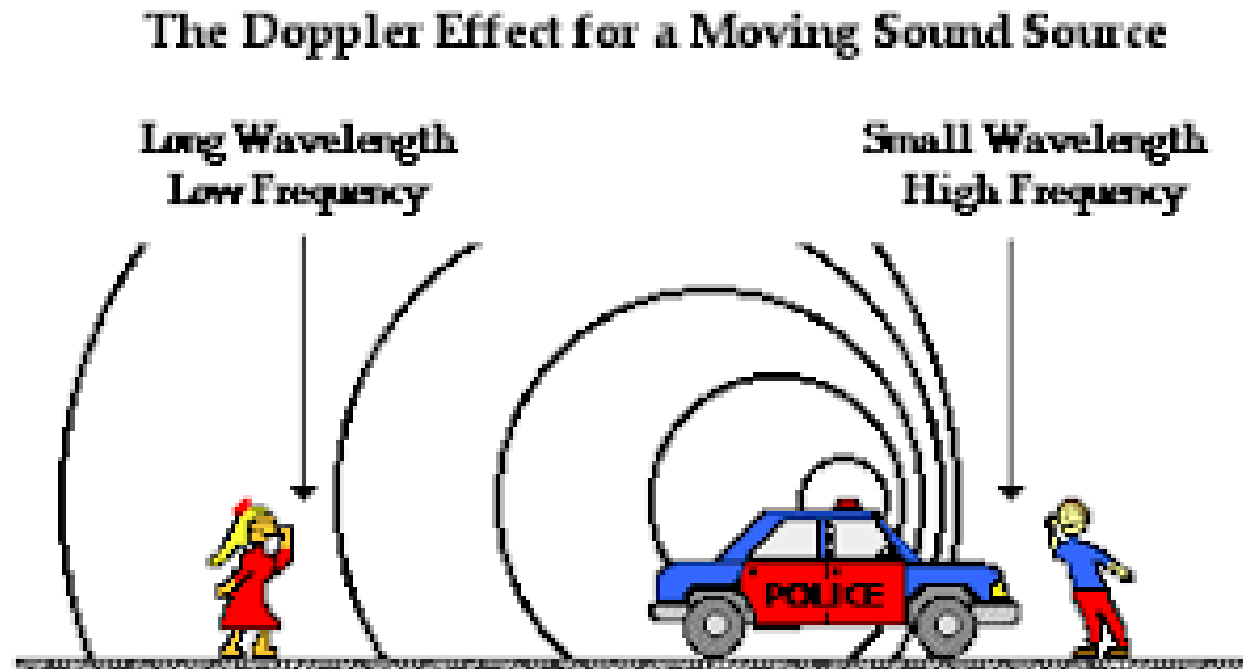
- Red light has low wave frequency and longer wave lengths
- Blue light has high wave frequency and shorter wave lengths.



- Trace A has a longer wave length and lower frequency
- Trace B has a shorter wave length and a higher frequency

Doppler Effect

- Red shift can be related to the doppler effect because the waves produced by the moving object behave in the same way
- Sound produced in front of the object will be louder than the sound produced behind the object.



Cosmic Microwave Background Radiation

- Microwaves discovered to be moving from every point in the universe
- Believe to be left over energy from the BB
- This energy has decreased over time and the frequency has decreased
- Now this energy can only be detected in microwave form

Composition of Universe

- It is believed that the universe started forming simple atoms first
- Hydrogen and Helium are the first atoms to develop after the BB
- Both H and He are very simple elements with only a few subatomic particles.
- The universe is composed of 74% Hydrogen, 24% Helium, and 1% other heavier elements