

Unit E Review – Space Exploration

Topic 1

1. In terms of light, how do stars differ from planets and moons?
2. What is a constellation?
3. Differentiate between altitude and azimuth and identify the instrument used to measure each and explain how each is measured?
4. Differentiate between the geocentric and the heliocentric models of our universe. Regardless of which model, what celestial body still orbits the earth?
5. How does the current heliocentric model differ from the heliocentric model proposed by Copernicus?

6. Differentiate between equinoxes, solstices and eclipses.

Topic 2

1. Differentiate between reflecting and refracting light telescopes. For each type, provide one advantage of each and an example.

Topic 3

1. What instrument do we use to study spectroscopy? Identify and explain *in detail* two pieces of information we can infer from the spectral analysis of a star

Topic 4

1. What is the advantage of having a telescope such as the Hubble telescope in orbit above the Earth's atmosphere?
2. What is triangulation and how would you manipulate the baseline in order to make your triangulation more accurate? How would we do this on Earth?
3. What is meant by the parallax technique?
4. Compare and contrast an astronomical unit with a light year.

Topic 5

1. What do radio telescopes detect and what advantage do they have over light telescopes?
2. What is interferometry and what advantage does it provide us?

5. What is remote sensing and provide examples of its application.

6. What does GPS stand for and what is it used for?

7. What is space junk? How is it created? Why is it an issue? Explain why even a tiny, little screw is an issue?

Topic 7

1. What are galaxies and what holds them together? What is the name of the galaxy we are located in?

2. Arrange the following terms: solar system, galaxy, moon, Earth, sun and Jupiter in order of increasing mass, size, and diameter.

Mass:

Size:

Diameter:

7. Differentiate between meteoroids, meteors, and meteorites?

8. What are space probes used for?

Topic 8

1. What was unique about the Space Shuttle program? What was Canada's contribution to the Shuttle?

2. What is microgravity and what effect does it have on an astronaut's body?

3. What is the International Space Station? How do the astronauts on the I.S.S. take care of their water and oxygen needs?

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Topic 6

1. Differentiate between a rocket and its payload. What is the advantage of a multistage rocket over a single-stage rocket?
2. Ion drives use xenon gas as a propellant in some rockets. Differentiate between chemical fuels and solar sales. Which type of rocket was used by the now retired Space Shuttle?
3. Differentiate between geosynchronous and low-earth orbit satellites and provide examples of each?

4. If you need a satellite to see more of more the Earth's surface, how would you manipulate its orbit?
5. What is remote sensing and provide examples of its application.
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Topic 7

1. What are galaxies and what holds them together? What is the name of the galaxy we are located in?
2. Arrange the following terms: solar system, galaxy, moon, Earth, sun and Jupiter in order of increasing mass, size, and diameter.
3. What is a nebula? Differentiate between a supernova and a black hole.
4. Identify and differentiate between the inner and the outer planets based on their composition and number of moons?
5. Describe the relationships between the radius of a planet's revolution (orbit) and its surface temperature (any exceptions?), the radius of a planet's revolution (orbit) and its length of year, and the period of a planet's rotation and the length of its day. Draw a graph for each of these relationships.
6. What are asteroids and where in our system is there a major asteroid belt?
7. Differentiate between meteoroids, meteors, and meteorites?
8. What are space probes used for?

Topic 8

1. What was unique about the Space Shuttle program? What was Canada's contribution to the Shuttle?
2. What is microgravity and what effect does it have on an astronaut's body?
3. What is the International Space Station? How do the astronauts on the I.S.S. take care of their water and oxygen needs?
4. When on a space walk, astronauts wear a space suit. How does the suit protect them from ultraviolet radiation, drastic temperature changes, a lack of atmosphere, and prevent them from floating away?

Science General

1. Differentiate between manipulated, responding, and controlled variables.
2. The future of space exploration is a concern for many nations based upon political, ethical and environmental issues. Differentiate between these issues?

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