

Grade 12 Earth and Space Science Testible Question

SES4U

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Chapter 1

Astronomy

1.1 The Sun

1.1.1 Question 1

Which of the following explains why the sun's corona is much hotter than photosphere:
Energy from the Sun's magnetic field heats the outer layer

1.1.2 Question 2

Which process is responsible for the sun's energy production:
Nuclear fusion of hydrogen in to helium

1.1.3 Question 3

Why do sunspots appear darker than the surrounding region of the sun's surface and what cause them:

- Sunspots look darker because they are cooler
- Strong magnetic fields in this region block the normal flow of hot plasma

1.2 Stellar Evolution

1.2.1 Question 1

Which of the following is not affected directly by a star's mass?:
Chemical Composition

1.2.2 Question 2

- Nuclear fusion at the core creates pressure that pushes outward on a star, while the star's mass causes gravity to pull inwards on the star
- These two forces balanced out

1.2.3 Question 3

If the cores of supergiant stars can only fuse elements up to iron, why do heavier elements exist in the universe? **During supernova**

1.3 Black Holes

1.3.1 Question 1

What did Einstein say about gravity in his general theory of relativity?
Gravity is a curvature in space-time caused by its mass

1.3.2 Question 2

Why blackhole cannot be seen with the naked eye, scientists can still find a black hole's size and location:

Through some methods:

1. Observe a black hole's effect on objects surrounding it, including its gravitational pull and how it impacts a star's orbit
2. Measure the x-ray emitted from the hot gass inside the blackhole
3. Measure the gravitational waves given off when toe black holes collide

1.4 The Milky Way Galaxy

1.4.1 Question 1

Where is our solar system located in the Milky Way Galaxy?
In a smaller spiral arm called the Orion Arm