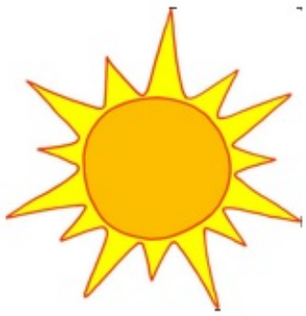
INTERMEDIATE SCIENCE 9
UNIT 1: SPACE
WORKSHEET # 6: THE SUN

Fact about the sun:



- The Sun is an average-sized star
- It contains more than 300 000 times more mass than Earth.
- 110 Earths lined up side-by-side to match the Sun's diameter
- Scientists have calculated that the Sun has been giving off heat and light for 5 billion years and it has enough hydrogen to last another 5 billion years.

Composition and characteristics of the sun

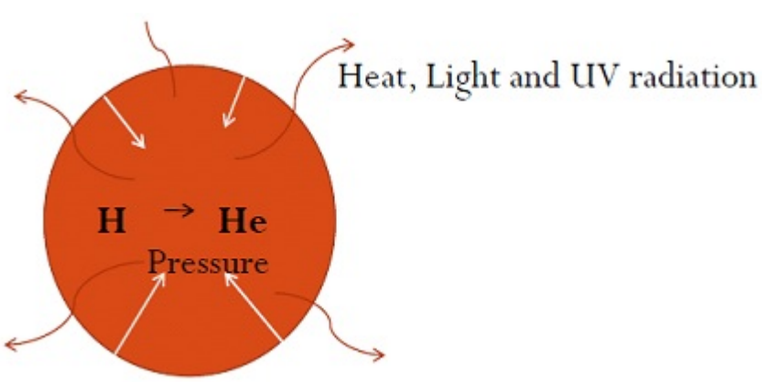
Criteria	Characteristics
Mass	contains 300 000 times more mass that Earth
Motion	rotates
Composition	contains hydrogen and helium atoms
Function	chemical reactions in the sun give off electromagnetic radiation, including heat and light which support life in our solar system
Special Features	contains sun-spots, solar flares and solar prominences

How The Sun Produces Energy

The Huge size of the sun causes pressure to build up at the center of the sun as gravity pulls the mass inward…

Thermonuclear Reactions turn:

giving off Heat, Light and UV radiation in the process



Special Features of the Sun::

Solar Radiation - energy emitted from the sun in the form of Electromagnetic Radiation

Solar Prominence- (also known as a filament) is an arc of gas that erupts from the surface of the Sun. Prominences can loop hundreds of thousands of miles into space. It can last for many months..

Sunspots – dark patches of slightly cooler (3500°C) surface areas on the sun, they increase and decrease in number on an 11-yr cycle. They may be related to changes in the Earth's climate .

Solar Flares – eruptions of gas on the suns surface –can last a few hours, temperatures increase up to 11,000,000°C Creates Solar Wind

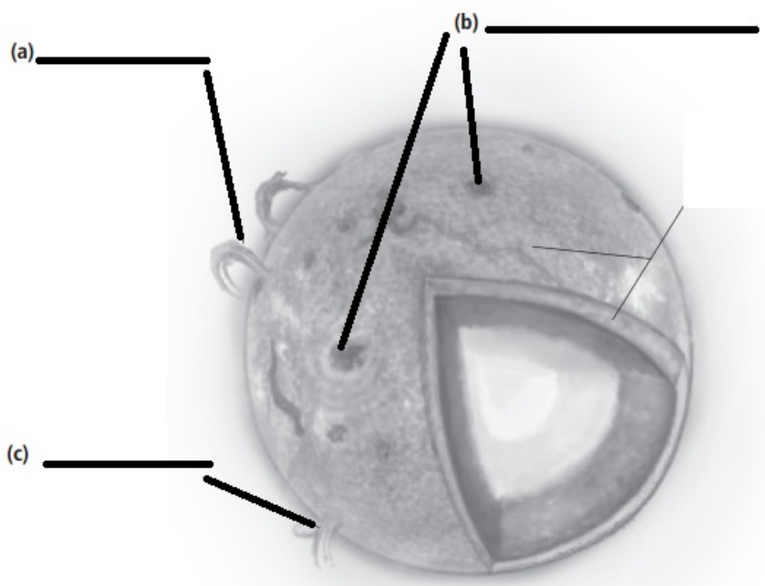
Solar Wind- refers to the he continuous flow of charged particles from the sun that rush pass the earth

EFFECTS OF SOLAR FLARES

1) Energetic particles emitted by solar flares are a primary contributor to the aurora borealis (Northern Lights)

2) Some solar winds can disturb Earth's magnetic field and disable satellites, knock out power lines, and expose astronauts to high levels of radiation

1. Label this diagram of the Sun. [3]



2. Why is solar radiation good for earth?

_____

_____

3. Match each feature of the Sun on the left with its description on the right.

1. _____solar flares 2._____ solar prominences 3. _____sunspots	A. streamers of glowing gas that arch into space B. cooler, darker regions at the surface; their numbers increase and decrease in a regular pattern C. violent outbursts of hot gases that send streams of high-energy particles into space; these streams of particles are called the solar wind

4. What is the sun?

(A) the sun is the first planet
(B) the sun is the closest star
(C) the sun is a hot ball with an internal temperature of about 10,000 degrees F.
(D) the sun is a hot gas made mostly of helium gas

5. Why is solar radiation so important to earth?

(A) It supports life
(B) It causes cancer
(C) It causes the Auroras
(D) It helps with satellite communication

6. How many times bigger is the mass of the sun compared to earth

(A) 300
(B) 3 000
(C) 30 000
(D) 300 000

7. Which of the following describes a Sunspots?

(A) are caused by changes in magetic fields on the sun
(B) cooler areas (around 2000 degrees C)
(C) look dark, but they are still brighter than lightning
(D) all of the above

8. Solar flares can cause

(A) an aurora, such as the Northern Lights
(B) damage to satellites
(C) block radio signals
(D) all of the above

9. What is the composition of the sun?

(A) Helium
(B) Hydrogen
(C) Hydrogen and Helium
(D) Everything except Hydrogen and Helium

10. Which of the following is not a special feature of the sun?

(A) Solar Flare
(B) Sunspot
(C) Solar Prominence
(D) Solar Panel