

- The sun generates heat by _____.
 - burning with hydrogen gas with oxygen
 - turning hydrogen gas into helium gas
 - burning oxygen gas into heavy metals
 - splitting apart atoms of uranium
- The sun is hot enough (millions of degrees) that everything in the sun is a gas. Why doesn't the gas blow off into space?
 - Gravity holds the gases together.
 - The gases possess an electrical charge that pulls all the gas molecules together.
 - The super cold temperature of space repels the sun's gases back into the sun.
 - Electromagnetic radiation from every burning molecule generates an electrical force field.
- Neutrons added to the nucleus allow the protons to remain near each other. The most stable nucleus is _____. Nuclei larger than this will spontaneously release protons, neutrons, electrons, and radiation in order to become more stable.
 - neon
 - gold
 - diamond
 - iron
- Nuclear decay occurs in the follow ways except _____.
 - alpha radiation (release of a helium nucleus)
 - beta radiation (release of an electron)
 - gamma radiation (release of electromagnetic radiation)
 - delta radiation (release of a neutron)
- The mass of the sun is decreasing because the sun's mass is being _____.
 - used up to create heavy metals
 - slowly released into outer space
 - converted into the energy
 - recycled into hydrogen gas
- Elements heavier than iron are made _____.
 - when stars die and then explode
 - by stars in the process of running out of hydrogen
 - in the heated interior of active stars
 - when elements undergo radioactive decay
- After three half-lives, you can expect to find _____.
 - 1/16 of the material you started with
 - 1/8 of the material you started with
 - 1/4 of the material you started with
 - 1/2 of the material you started with

8. Carbon dating is only accurate for the past _____.

- (A) 50,000 years
- (B) 500,000 years
- (C) 1,000,000 years
- (D) 1,000,000,000 years

9. Carbon dating _____.

- (A) only works for things that once lived
- (B) works on any substance so long as it was exposed to the air
- (C) will not work for things submerged in water
- (D) has provided evidence for the evolution of dinosaurs

10. Mass spectrometry separates a mixture of atoms based on their _____.

- (A) number of protons
- (B) number of neutrons
- (C) molecular weight
- (D) molecular number

11. In order for a nucleus to emit a beta particle or an alpha particle, _____.

- (A) there must be an unequal ratio of protons and neutrons in the nucleus
- (B) two protons in the nucleus must be outside the strong force
- (C) the nucleus must be unstable
- (D) there must be a disturbance of the nuclear ground state