

NOTE:

This document contains both the pre- and post- test and the pages are labeled accordingly.

Before giving the pre-test, please inform the students that you do not expect them to know all or even many of the answers, but that the pre-test is simply to gauge their previous knowledge of the subject.

Dying Stars and the Birth of the Elements

Pre -Test

Name _____ Major _____
Graduation Date _____

Circle the correct answer or fill in the blank.

1. Where did the iron in the Earth and in your blood come from?
 - a) It was created in the Big Bang.
 - b) It has always existed.
 - c) It was created in supernova explosions.
 - d) It is not known where it came from.

2. X-ray spectra from a supernova remnant (the gas expanding after a star explodes) can tell us
 - a) the temperature of the gas.
 - b) the elemental composition of the gas.
 - c) the amount of absorbing material between us and the gas.
 - d) none of the above
 - e) all of the above

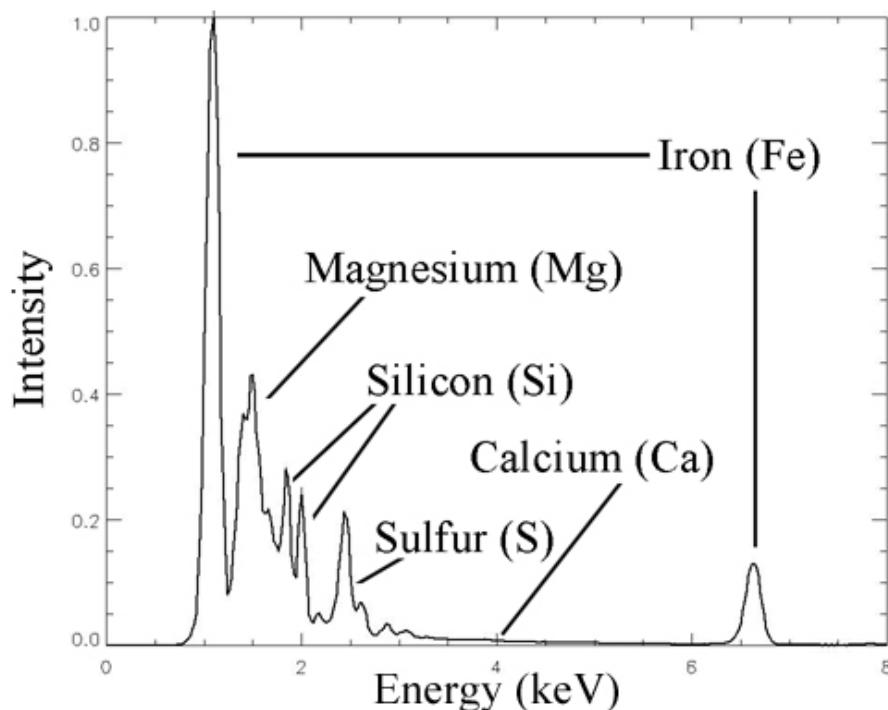


Figure 1:
An X-ray spectrum of
a supernova remnant

3. Figure 1 shows a spectrum of a supernova remnant. If the amount of silicon in the gas were to increase, the two bumps in the spectrum labeled “silicon” would

- a) be higher.
- b) be lower.
- c) remain unchanged.
- d) disappear.

4. Looking again at Figure 1, if you measured the x-ray spectrum of *a different part* of the supernova remnant, the intensities (heights) of the peaks shown in the figure would

- a) stay the same.
- b) all increase.
- c) all decrease.
- d) some peaks would increase and some would decrease
- e) all of the above are possible

5. Massive stars explode because they

- a) contain oxygen which is flammable.
- b) run out of fuel.
- c) collide with other stars.
- d) massive stars don't explode

6. What happens to the iron in a supernova remnant?

- a) It all falls back onto the newly formed black hole.
- b) It combines to form a new star at the center of the remnant.
- c) It gets dispersed into the Galaxy and becomes part of newly forming stars and planets.
- d) It disappears.

Dying Stars and the Birth of the Elements

Post -Test

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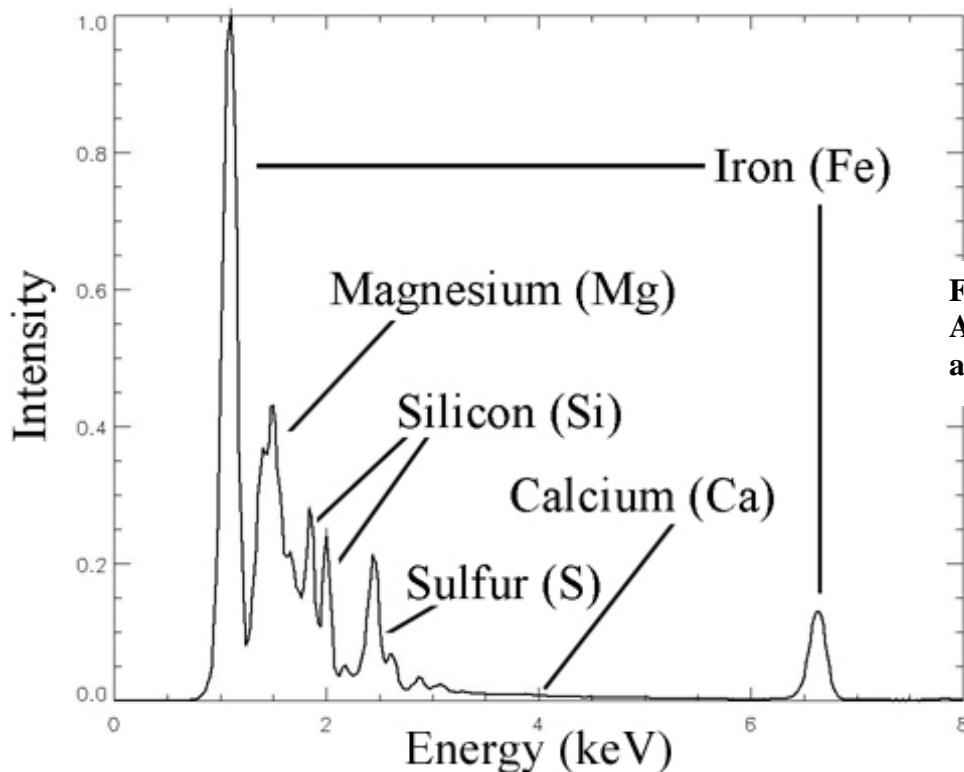


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