



- 1) What type of spectrum is produced when the light emitted directly from a hot, dense object passes through a prism?
- 2) What type of spectrum is produced when the light emitted directly from a low density object passes through a prism?
- 3) Describe in detail the source of light and the path light must take to produce an absorption spectrum.
- 4) There are blank lines in the absorption spectrum that represent missing light. What happened to the light that is missing from the absorption line spectrum?

- 5) Stars like our Sun have a low density, gaseous atmosphere surrounding their hot dense cores. If you were looking at the Sun's spectrum, which of the three types of spectrum would be produced? Explain your reasoning.
- 6) If a star existed that did NOT have a low density atmosphere surrounding it, what type of spectrum would you expect this particular star to produce?
- 7) Two students are looking at a brightly lit full moon, illuminated by reflected light from the Sun. Consider the following discussion between two students about what the spectrum of moonlight would look like.

**Student 1:** *I think moonlight is just reflected sunlight, so we will see the Sun's absorption line spectrum.*

**Student 2:** *I disagree, an absorption spectrum has to come from a hot dense object. Since the Moon is not a hot dense object it can't give off an absorption line spectrum.*

Do you agree or disagree with either or both of the students? Explain the reasoning behind your answer for each student.

- 8) Imagine that you are looking at two different spectra of the Sun. Spectrum #1 is obtained using a telescope that is in a high orbit far above Earth's atmosphere. Spectrum #2 is obtained using a telescope located on the surface of Earth. Label each spectrum below as either Spectrum #1 or Spectrum #2.

 Spectrum #\_\_\_

 Spectrum #\_\_\_

Explain the reasoning behind your choices.