

PHYS178 – Assignment 7 Rough Model Answers

Due: Monday 20 October 2008

This assignment contributes 2% to your final grade. Please write brief answers directly on the sheet in the spaces provided (and on the back if necessary). The assignment should be turned into the PHYS 178 assignment box on level 2 of E7B, just outside the doorway to E7A.

1. What is the safe way to observe a solar eclipse and why shouldn't you look at it directly with a telescope?

Project a large image onto a screen, use the shadow to align the telescope.

2. What produces granulation on the surface of the sun?

It's the result of convection in the layer below...

3. What is the solar cycle and what effects does it have?

The sun's magnetic field reverses its orientation every eleven years or so. This affects the solar activity – sunspots, prominences, flares etc

4. Why does the sun shine? How could it have lasted for so long?

At the core of the sun the temperatures and pressures are enough to fuse Hydrogen into Helium (with a little help from quantum mechanics). This process releases energy which eventually reaches us as sunlight. Nuclear fusion is incredibly efficient at releasing energy and can easily account for the age of the sun.

5. What are solar flares?

It's a massive eruption of radiation and plasma caused by the release of stored up magnetic energy. Tends to occur near sunspots, where the magnetic fields are high.