

# PHYS178 – Assignment 6

**Due: Monday 13 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 meteor shower and why do they seem to originate from a point?
2. Why have asteroids accumulated in two clusters  $60^\circ$  before and after Jupiter in its orbit (i.e. the Trojan asteroids)?
3. Why do we often see two tails on a comet – what causes these tails?
4. Calculate the kinetic energy in an asteroid 200m in diameter made of iron ( $8000 \text{ Kg/m}^3$ ) travelling at a typical 20km/s in megatons of TNT ( $1 \text{ Mt TNT} = 4.2 \times 10^{15} \text{ J}$ ) [hint: see slides]
5. Why is it important to find and track Near Earth Objects?