**Energy Study Guide**

1. Briefly try to define energy, giving examples of **potential** and **kinetic** energy

2. Why do living things require a net input of free energy? (describe **entropy** in your answer)

3. Describe the function of **ATP** in living things

3b. Drawing a basic picture of the molecules involved in hydrolysis of ATP into ADP and P

4. Explain why the hydrolysis of ATP releases energy.

5. Define **exergonic** and **endergonic** processes and how they can be coupled.

6. Contrast **endothermic** and **ectothermic** strategies to maintaining body temperature

7. Explain some of things organisms require free energy to accomplish

8. Explain why smaller organisms require more free energy relative to their body size than larger organisms do

9. Explain why there will always be more producers than herbivores than carnivores in a population

10. Explain each of the following:

a. Why most plants flower in the spring

b. Why the largest populations of species are found in tropical forests

c. If humans require 100kj of energy to complete cellular processes, why must we eat significantly more than that?

d. When we lose weight, where does that energy go? Where does the mass go?

e. Why small animals eat more often than large animals do