

Name: \_\_\_\_\_

Class: \_\_\_\_\_

**ACTIVITY SHEET****Chapter 4: Revision**

- 1** Describe how protons are kept together in the nuclei of atoms despite the force of electrostatic repulsion between them.
  
  
  
  
  
  
  
  
  
  
- 2 a** Explain how you would make a model of an atom, such as helium, that shows the position of the particles and their relative sizes.
  
  
  
  
  
  
  
  
  
  
- b** Identify the limitations of the model you have described.
  
  
  
  
  
  
  
  
  
  
- c** Explain why models such as the one described are useful in science.
  
  
  
  
  
  
  
  
  
  
- 3** Explain how the binding energy for a nucleus can be calculated.

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- 8 Explain why a person who receives a dose of radiation of about 1 Sv must have their health monitored for many years afterwards.
- 9 Define 'ionising radiation'.
- 10 Calculate the absorbed dose of radiation if 4.5 J of energy is absorbed by a 500 g tumour.
- 11 How can beta-minus emission result in a more stable nucleus?
- 12 Compare the original doses of radiation received by a 50 kg person and a 100 kg person if they both receive an equivalent dose of 1.4 Sv, with the radiation being slow neutrons.

**13** Australia has not embraced nuclear power; however, many other countries continue to depend on it for their energy needs. If the Australian Federal Government decided to build two new nuclear power stations, where would you propose that they be built? Explain your reasoning.

**14** Outline the potential advantages of fusion power over fission power.