

## Momentum and the Neutrino

Textbook pp. 256–257

**MAIN IDEA:** Neutrinos were predicted as a way to account for missing energy and momentum in beta decay, a type of radioactive decay of atomic nuclei.

1. Complete the statements. **K/U**

Neutrinos are produced in nuclear reactions in \_\_\_\_\_ and \_\_\_\_\_ . There are three types of neutrinos: \_\_\_\_\_ neutrinos, \_\_\_\_\_ neutrinos, and \_\_\_\_\_ neutrinos. A neutrino of one type can \_\_\_\_\_ into either of the other two types and back again. \_\_\_\_\_ of neutrinos pass through each square centimetre of Earth's surface each second.

2. (a) Which scientist first predicted the existence of the neutrino?

\_\_\_\_\_

(b) What did he originally call his new particle? \_\_\_\_\_

(c) Who developed the idea of a missing particle into a full theory of beta decay? \_\_\_\_\_ **K/U**

3. The Sudbury Neutrino Observatory detector is located 2 km underground near Sudbury, Ontario. Why was it built far underground? **K/U**

4. What other method was used by the Sudbury Neutrino Observatory detector to increase the likelihood of neutrino interaction? **K/U**

5. What is the IceCube Neutrino Observatory experiment? **K/U**

### STUDY TIP

#### Asking Questions

Questions about a reading passage can be used to help you understand the main ideas. After you complete a reading, ask yourself or a partner questions about the main ideas of the reading. Use your answers to reinforce what you have read.