1

The activity of a radio-isotope is 768 cpm. Find its activity after these numbers of half-lives:

a) One	d) Six	g) Eight
b) Three	e) Nine	h) Two
c) Five	f) Four	i) Seven

2

The activity of a radio-isotope is 560 cpm. Two hours later it has fallen to 35 cpm.

a) Work out how many half-lives have passed.

b) Calculate the half-life of the radio-isotope.

3

The activity of a radio-isotope is 7680 cpm. After 6 hours it has fallen to 30 cpm.

a) Work out how many half-lives were taken in 6 hours.

b) Calculate the half-life of the radio-isotope.

4

Work out the half-lives of radio-isotopes with the following activities.

a) 328 cpm originally, falling to 41 cpm in 3 hours.

b) 940 cpm originally, falling to 235 cpm in 36 minutes.

c) 600 cpm originally, falling to 37.5 cpm in 25 hours.

d) 1088 cpm originally, falling to 17 cpm in 1 hour.

e) 128 cpm originally, falling to 8 cpm in 2 hours.

f) 512 cpm originally, falling to 64 cpm in a day.

5

Every three minutes, I eat half of the sweets I've got left. I start with a full bag of 128 sweets.

a) What is the 'half-life' of the sweets?

b) How many sweets will I have left after 6 minutes?

c) How many sweets will I have left after 12 minutes?

d) How long will it take for me to have only 2 sweets left?

e) If I'm allowed to divide each sweet up, will I ever finish all my sweets?

The half-life of C-14 is 5600 years.

You need to know that the C-14 was originally 1 part in 10 000 000.

6

A wooden club is found to contain 1 part in 40 000 000 Carbon-14.

a) Work out how many half-lives it took for this to happen.

b) Calculate the age of the wooden club.

c) How much of the wooden club would be carbon-14 after another 5600 years?

7

By using the information on this page about carbon dating, you can work out the age of this organic alien spaceship.

a) Work out how many half-lives have passed if the C-14 in the spaceship is now 1 part in 320 000 000.

b) Calculate the age of the spaceship.

c) From now, how long will it take for the C-14 in the spaceship to be 1 part in 1280 000 000?