WJEC Wales Physics GCSE
SP2.8: Radioactive Decay

Practical Flashcards

Outline the basic steps of the practical.

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1. Count out 50 cubes, each with one side shaded and place them into a tub.
2. Shake the tub and throw the cubes out into a tray.
3. Record the number of cubes that landed with shaded face upwards and remove them.
4. Put the remaining cubes back into the tub and repeat another 9 times.

What graph should be plotted with the data recorded?

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A graph of the number of radioactive atoms (cubes) remaining, against the number of throws.

How would you calculate the half-life from the graph?

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Read off the number of throws that it would take for the initial number of cubes to fall by half.

How could you verify and improve your half-life value?

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1. Read off the number of throws that it would take for the number of cubes to halve again (eg. the throws between ½ and ¼).

2. Compare the numbers and calculate a mean value.

What type of curve would you expect to obtain with a large enough sample?

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An exponential decay curve.

If you experiment does not produce an exponential curve, what can be done to improve it?

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1. Increase the number of samples.
2. This could be done by combining data from the whole class.

How does this simulation represent radioactive decay?

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1. It demonstrates the random nature of radioactive decay, since which cube and when it will 'decay' is unpredictable.

2. There is a constant probability of decay.