RADIOACTIVE CUBES

OCR A LEVEL PHYSICS H556
Module 6: Particles and medical physics
6.4 Nuclear and particle physics
6.4.3 Radioactivity
f) ii) simulation of radioactive decay using dice

Outline = how mathematics describes the process of radioactivity

Apparatus = lots of (radioactive) cubes

Text book reference = pages 227-229

Independent study = page 229 questions

Method

- You will need a large number of small cubes
- Each cube has one coloured side
- Throw the cubes
- Remove those that fall coloured side up
- Throw those left over
- Keep going

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Measurements

- Throws (start with zero throws)
- Decays this throw (activity)
- Total undecayed
- Total decayed

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Calculations

- Calculate ln(A) for each throw

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Analysis

- Plot throws against decays this throw (activity)
- Plot throws against ln(A)
- How does this reveal the nature of radioactive decay?
- Determine the half life for the radioactive cubes
- Calculate the λ value for radioactive cubes
- Use both graphs! (Do they agree?)

Further thoughts?