

Colleen's Cubes

Apparatus

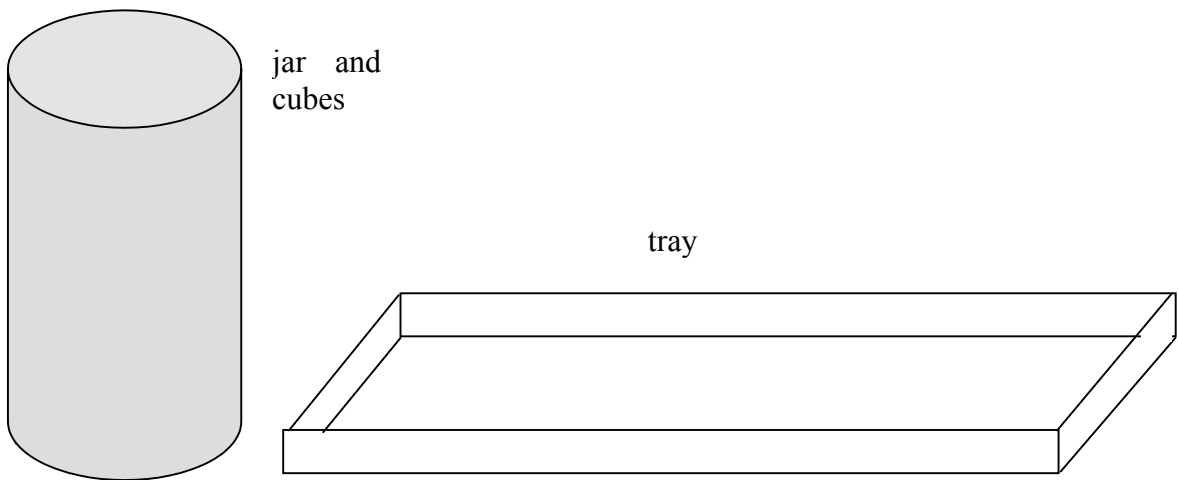
100 or more wooden cubes, about 2cm to a side, each with a dot on one side, a large jar and a tray

Action

The students pour the cubes from the jar into a single layer in the tray. They remove those with dots showing, count the number remaining and repeat several times, or until no cubes are left. They then sketch the number left with each throw or the number removed. (Or both.)

The Physics

This represents the random process of nuclear decay. The sketch will be (approximately) exponentially decreasing.



Accompanying sheet:

Colleen's Cubes

Shake the jar containing the nuclei (cubes) and pour them into the tray.

Write down the number of cubes with dots showing on top,

remove those cubes and replace the rest in the jar.

How many cubes are left of the original 100?

Repeat several times.

Sketch the number of cubes removed (the activity) as a function of time.

Sketch the number of cubes remaining in the jar as a function of time.