

Modelling ion bombardment

Education in Chemistry

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rsc.li/EiC218-thehuntison

This activity accompanies the above article 'The hunt is on'.

This article describes the tricky process of creating a new element by smashing two atoms together in a particle accelerator. The two nuclei simply bounce off each other unless there is a direct hit between the atoms. This practical activity is designed to show just how difficult it is to get a direct hit between two nuclei. A ping pong ball representing one nucleus is aimed at a plastic cup representing the other nucleus.

Method

- Set up the plastic cup on a bench at one end of the lab.
- Your ping-pong ball thrower stands at the other end of the lab (use a metre ruler or tape to measure the distance between the thrower and the target).
- The aim is to throw the ping-pong ball into the plastic cup. If this is achieved then congratulations! You have achieved fusion and created a new element. Record this in the tally chart.
- If the ball bounces out, the cup is knocked over by the ball or the thrower misses, you are unsuccessful. Record this in the tally.
- At the end of the session, work out the ratio of successful hits compared to misses, fission and repulsion.

Result	Model for	Tally
Hit – stays in cup	Successful	
Hit – bounces out	Repulsion	
Cup knocked over	Fission	
Miss	Miss	