



# Spinning water (Newton’s Laws of Motion) Lesson plan

## Aim

In this fun and practical activity, young people will learn about Newton’s Laws of Motion and Scotland’s space industry. They will also learn about some of the job roles needed in the sector.

## Mapping

CES ‘I Can’ Statements	CMS Themes
<ul style="list-style-type: none"> <li>★ I can discuss the relevance of skills to the wider world and make connections between skills and the world of work</li> <li>★ I can demonstrate and apply the skills I have learnt across the curriculum in relation to the world of work</li> </ul>	<ul style="list-style-type: none"> <li>★ Horizons</li> </ul>

## Learning Outcomes

Young people will:

- ★ Learn about physics and investigate Newton’s 3 laws of motion by spinning water upside down
- ★ Learn about and investigate Scotland’s current and developing space industry

Activity on next page...



## Instructions

- ★ Watch the accompanying video guide, [‘Spinning water’](#) (1)
- ★ Print off or open the Spinning Water worksheet
- ★ An adult should assist with the experiment and it should be done in a large open space, ideally outside
- ★ To do the experiment, the following items will be needed:
  - Frisbee or bucket with handle
  - Rope or strong nylon cord (3x1m length attached to frisbee or 1m length attached to the bucket handle)
  - Plastic cup
  - Water
  - Outdoor or large space!

## Follow-up

There are lots of related job profiles on My World of Work that the young person could find out more about:

[Aerospace engineer](#) (2), [Electronics engineer](#) (3), [Design engineer](#) (4), [Satellite systems technician](#) (5), [Materials technician](#) (6), [Physicist](#) (7), [Structural engineer](#) (8), [Robotics engineer](#) (9), [Astronaut](#) (10)

They can find about related apprenticeships on [Apprenticeships.scot](#) (11)

Foundation apprenticeships - [Engineering](#) (12), [Software Development](#) (13), [Hardware and System Support](#) (14), [Scientific technologies](#) (15)

Modern Apprenticeships - [Information Security](#) (16), [Engineering](#) (17), [IT and Telecommunications](#) (18)

Graduate apprenticeships - [IT: Software Development](#) (19), [Engineering: Design and Manufacture](#) (20), [Engineering: Instrumentation, Measurement and Control](#) (21), [Data Science](#) (22)

## Website references

1. Spinning Water activity guide video <https://bit.ly/2zFwLyI>
2. Aerospace engineer <https://bit.ly/2AGEOuS>
3. Electronics engineer <https://bit.ly/3g7ICpj>
4. Design engineer <https://bit.ly/36gCR3Z>
5. Satellite systems technician <https://bit.ly/3e7rTRi>
6. Materials technician <https://bit.ly/3dV9R4C>
7. Physicist <https://bit.ly/2zW7Nue>
8. Structural engineer <https://bit.ly/2ZmRdyE>
9. Robotics engineer <https://bit.ly/2Zo9qLX>
10. Astronaut <https://bit.ly/2All4G8>
11. Apprenticeships.scot [www.apprenticeships.scot/](http://www.apprenticeships.scot/)
12. Engineering Foundation Apprenticeship <https://bit.ly/2AJ1zhL>
13. Software development Foundation Apprenticeship <https://bit.ly/36iTWE5>
14. Hardware and systems support Foundation Apprenticeship <https://bit.ly/3cSKrEx>
15. Scientific technologies Foundation Apprenticeship <https://bit.ly/3bUcbHO>
16. Information security Modern Apprenticeship <https://bit.ly/2TpYiua>
17. Engineering Modern Apprenticeship <https://bit.ly/2z9VryW>
18. IT and telecommunications Modern Apprenticeship <https://bit.ly/2WPYQAz>
19. IT: Software development Graduate Apprenticeship <https://bit.ly/3ei41KX>
20. Engineering: Design and manufacture Graduate Apprenticeship <https://bit.ly/2ToxBq3>
21. Engineering: Instrumentation, measurement and control Graduate Apprenticeship <https://bit.ly/3bSgMde>
22. Data science Graduate Apprenticeship <https://bit.ly/2LOj4j0>