

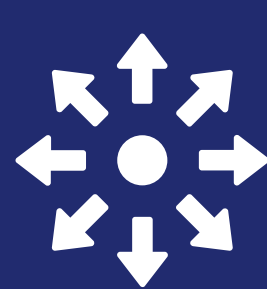
# Motion and Forces

(describing motion and forces)

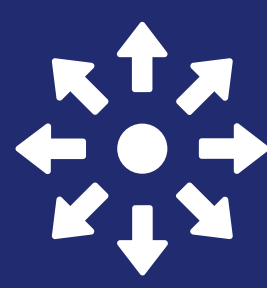


 66 Year 9 students

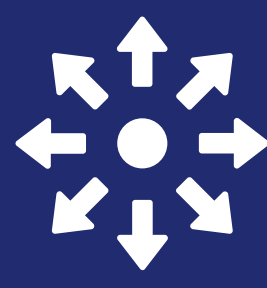
## Objectives



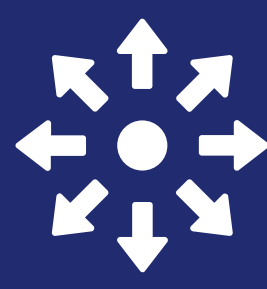
Increase student's science capital through engagement with employers



Increase student's awareness of multiple pathways through Further Education into employment



Students can use light gate equipment to measure and improve their performance in athletics



Students apply mathematical concepts and their learning from science lessons to solve authentic problems using forces and motion by microphone diaphragm and the ear drum

## Learning activity

### Motion and forces topic learning in lessons

Students develop knowledge of forces and motion in their science lessons

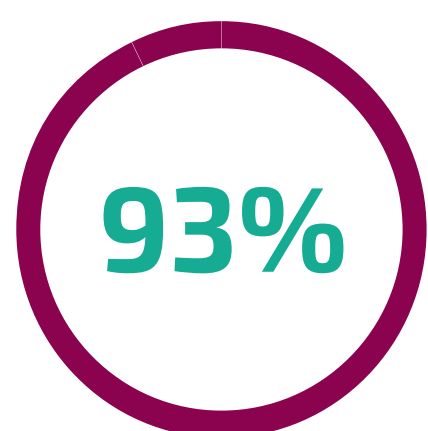
### Visit to Tyne Metropolitan College

Students visit the Sports College meeting key tutors, understanding FE as a pathway and exploring facilities. Students participate in a practical activity using light gates to measure their speed, then apply principles of forces and motion to improve their performance in short distance running. Students worked scientifically, making predictions, conducting an experiment with light gate apparatus, recorded observations and calculated results.

### In school visit from Northumbria Police Forensic Collision Investigation Officers

FCIU Officers showcase their pathways into policing and demonstrate the applications of physics theory in their everyday work e.g., calculating the speed of a vehicle prior to a collision. Learning from science lessons and maths skills are applied by students to use the equation of motion to solve the authentic scenario considering variables such as road surface and weather conditions.

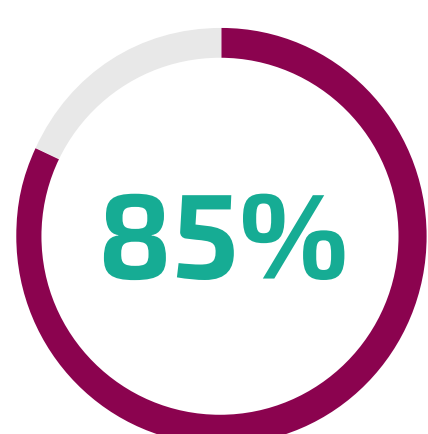
## Outcomes



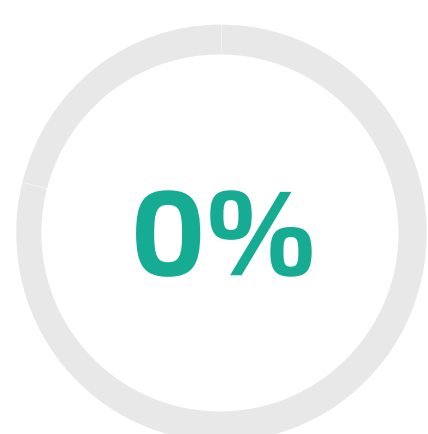
93% of students feel they understand what types of courses they can study at college



95% of students enjoyed the encounter with Tyne Coast College and Northumbria Police



85% of students feel they know how curriculum learning from science lessons links to careers in sports and forensic collision investigation



0% of students feel that STEM jobs are more for boys or for girls (compared to 15% pre-pilot feeling STEM jobs are more for boys)

## Feedback

"It was a pleasure meeting the students through this project and the team all really enjoyed it. It was all a bit alien to us as it's the first time we have engaged in this way and in this environment, but it all went really well. Hopefully we can engage in future events!"

**Northumbria Police, Forensic Collision Investigation Unit**

"Students always struggle with the equations of motion, so to have Northumbria Police's Forensic Collision department link content to a real-world application was fantastic! Students really engaged with the workshop which provided them with challenge as well as context. Our workshop with Tyne Met College was perfect preparation for the physics required practical linked to acceleration. Students were able to measure their own speed in running races and thoroughly enjoyed the competitive aspect of this activity. Both workshops allowed students to link their learning in science to everyday applications of physics and gave them insight into STEM based careers."

**North Gosforth Academy**

"I really enjoyed learning about how to apply formulas from our science lessons to a practical activity linked to Sports."

"I enjoyed seeing the Forensic Collision Investigation Unit vehicles and seeing what equipment they use."

**Student**