

GCSE Combined Science

GCSE Physics: Five Ways to Supercharge your Physics Teaching

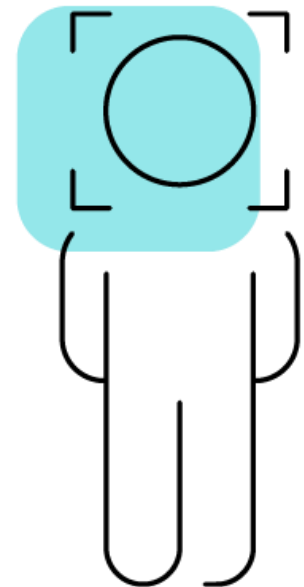
Lewis Matheson -
Physics Online



Poll #1

Which Exam Board do you use for your GCSE Science course/s?

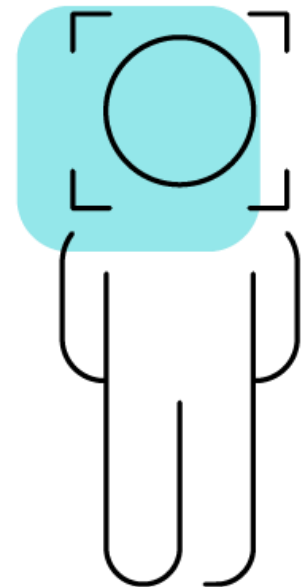
- a) Pearson Edexcel
- b) AQA
- c) OCR
- d) Eduqas
- e) Other



Poll # 2

Would you consider yourself to be a/an...

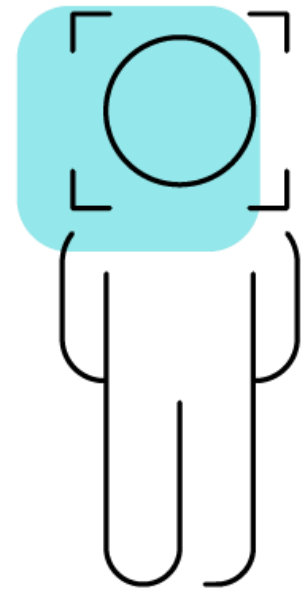
- a) Expert physics teacher
- b) Confident practitioner
- c) Non-specialist physics teacher
- d) New to science teaching
- e) None of the above



Poll # 3

How long have you been teaching?

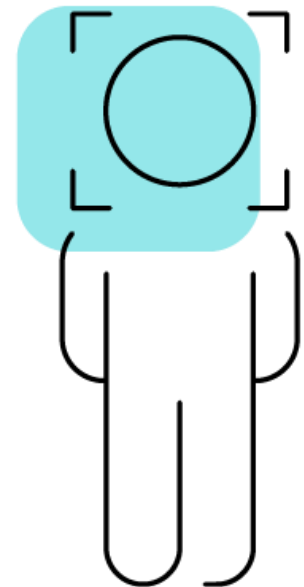
- a) 5 plus years
- b) 2–4 years
- c) 1 year
- d) New to science teaching
- e) None of the above



Poll # 4

What's your current role in your school/college?

- a) Science teacher
- b) Physics teacher
- c) Head of Subject
- d) Head of Department
- e) Senior Leadership
- f) Role not listed



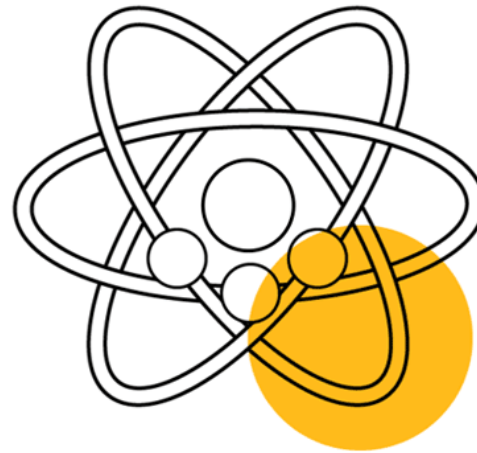
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Science Emporium



The **Science** Emporium



<https://pearsonscienceemporium.com/>

Pearson Science Symposium – in person!

25 June 2024 at 09:30–16:00 GMT

Location: Pearson's HQ – 80 Strand, London.

A face-to-face event for teachers or Heads of Department of Pearson Edexcel's GCSE Science qualifications.

There will be a selection of speakers relevant to our GCSE spec – focusing on topics ranging from practicals, data analysis to understanding the way our assessments work.

There will be opportunities to listen, learn and discuss the wonderful world of science teaching with other like-minded colleagues.

Book your place by visiting [the Pearson Edexcel GCSE Science Symposium page on our website](#).





5 Big
Misconceptions in
GCSE Physics



Misconceptions in Physics

1. Forces inside the atom
2. Wave graphs
3. Force, mass and acceleration (Newton's 2nd law)
4. Newton's third law
5. Energy transferred to a moving object

Specification Links



6.1 Describe an atom as a positively charged nucleus, surrounded by negatively charged electrons, with the nuclear radius much smaller than that of the atom and with almost all of the mass in the nucleus.

4.1 Recall that waves transfer energy and information without transferring matter

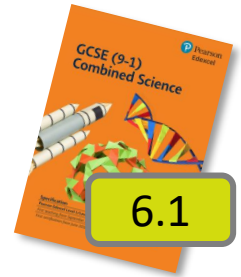
2.15 Recall and use Newton's second law $F = ma$

2.19 Investigate the relationship between force, mass and acceleration by varying the masses added to trolleys

2.23 Recall and apply Newton's third law **both to** equilibrium situations and **to collision interactions and relate it to the conservation of momentum in collisions.**

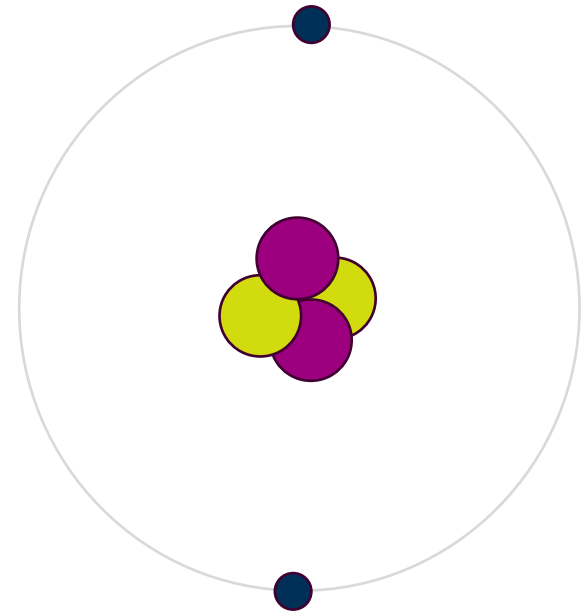
3.3 Draw and interpret diagrams to represent energy transfers

Misconceptions in Physics

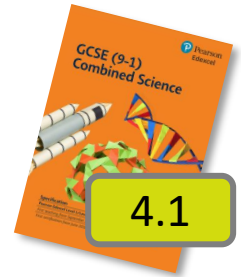


1. Forces inside the atom

- What do **positive** charges do to each other?
- What do **opposite** charges do to each other?
- Describe the structure of a hydrogen atom...
- Describe the structure of the nucleus...



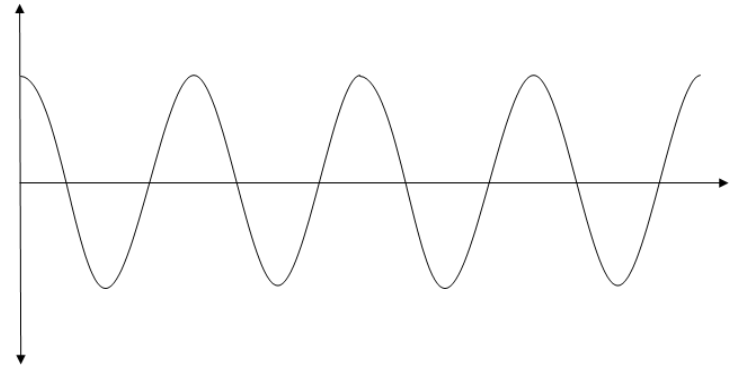
Misconceptions in Physics



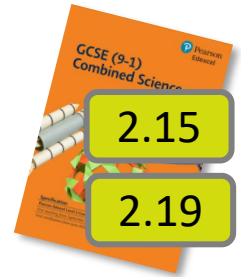
1. Forces inside the atom

2. Wave graphs

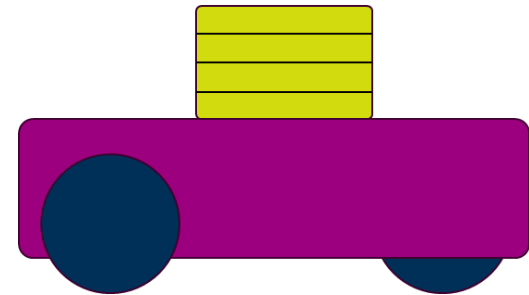
- What does a transverse wave look like?
- What does a longitudinal wave look like?
- How do you measure the **wavelength** of a sound wave from the graph on an oscilloscope?



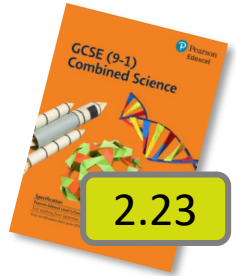
Misconceptions in Physics



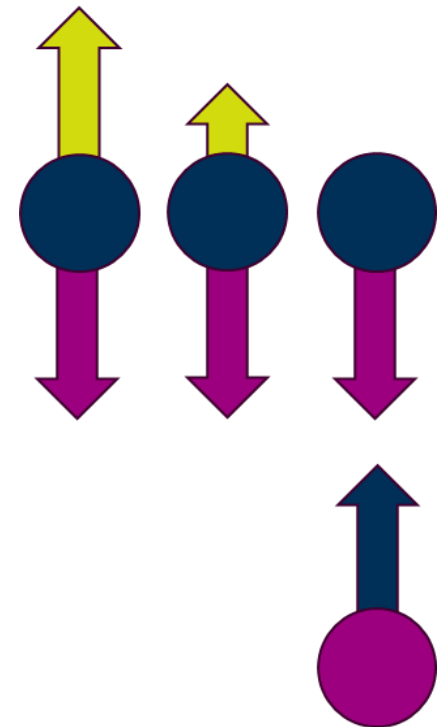
1. Forces inside the atom
2. Wave graphs
3. Force, mass and acceleration
 - What is Newton's second law?
 - How could your class investigate the relationship between the acceleration and mass for a constant **force**?
 - How could your class investigate the relationship between the acceleration and force for a constant **mass**?



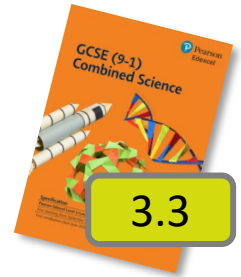
Misconceptions in Physics



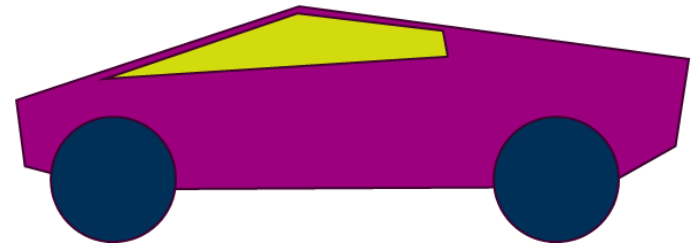
1. Forces inside the atom
2. Wave graphs
3. Force, mass and acceleration
4. Newton's third law
 - What is Newton's third law?
 - Does it only apply when systems are in equilibrium?
 - What is the '**equal** and **opposite**' force acting on you while you sit on your chair?



Misconceptions in Physics



1. Forces inside the atom
 2. Wave graphs
 3. Force, mass and acceleration
 4. Newton's third law
 5. Energy transferred to a moving object
- How do you calculate the energy stored in a moving object?
 - What are the energy transfers involved in a car driving at 30 m/s?





Misconceptions in Physics

1. Forces inside the atom
2. Wave graphs
3. Force, mass and acceleration (Newton's 2nd law)
4. Newton's third law
5. Energy transferred to a moving object



Questions



Feedback

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