

TEACHER NOTES

FOLLOW-UP ACTIVITY



Kinetic Energy

Students need to have completed the on-site resource number 101621 or 101622 to make use of this resource

Contextual Summary

This resource is for key stage 4 students who are covering forces and kinetic energy as part of the science element of the science (physics and additional science) curriculum for all exam boards.

It allows students who visit Isle of Wight Steam Railway to engage, post-visit, with the scientific aspects of this environment.

Students can use formulae to work out how much kinetic energy is utilised in the carriages for each section of the journey.

Students will present their observations and data using appropriate methods, including tables, showing how they have completed calculations.

Task Implementation

This task can be introduced to students before their visit to Isle of Wight Steam Railway, but is designed ultimately as a follow-up task. It is designed to follow resource number 10162 and variants.

Students need to have completed resource 101621 or 101622 on-site during their visit to have obtained the average speed data required to complete the tasks within this resource.

Alternatively, teachers can use this resource but will need to present hypothetical data for students to use in their calculations.

Ability Levels

There are 2 versions of this resource intended for lower and higher abilities in key stage 4. However, the resource can be adapted by teachers for other ability groups or younger students for stretch and challenge if required.

Key skills practised in this unit:

- ▶ Present observations and data using appropriate methods, including tables
- ▶ Use of standard equations
- ▶ Identifying aspects of mass, speed and kinetic energy
- ▶ Drawing conclusions from their observations at the railway

Relationship to Curriculum

The above skills are required to be taught and practised as per the National Curriculum 2014, the Scottish Curriculum for Excellence, and for all exam boards at key stage 4 (physics/additional science).

SUBJECT

Science (Physics & Additional Science)

UNIT

Forces - Kinetic Energy

OPPORTUNITIES FOR USE

- ✗ Pre-Visit
- ✗ On-Site Activity
- ✓ Post-Visit
- ✗ Peripheral Task

APPLICABILITY



KS4



S3 - S5

CURRICULUM / SYLLABUS

- ✓ National Curriculum 2014
- ✓ Curriculum for Excellence
- ✓ All Exam Boards

Applies to Resource number

101411
101412

Learning Opportunities

Pre-Visit

Students need to have done some preparatory work on speed/time/distance graphs and displacement graphs, as well as work on force/energy.

During the Visit

Completion of Science key stage 4 Isle of Wight Steam Railway resource that precedes this resource:

Picturing motion: displacement, velocity and acceleration

Resource ID: **101621** (higher ability), **101622** (lower ability),

Post Visit

Completion of Science key stage 4 Isle of Wight Steam Railway resource that links to this document:

Kinetic Energy in action

Resource ID: **101411** (higher ability), **101412** (lower ability),

Enrichment Opportunities

This resource enables students to practise and see their calculations in action, in situ, which will enhance their understanding and compound prior learning.

Learning Outcomes

Students will be able to demonstrate, practise and consolidate their understanding of the scientific principles identified above.

Students will be able to practise and present observations and data using appropriate methods, including tables whilst using and devising equations.

See Also...

Other resources at Isle of Wight Steam Railway relevant to this age group include:

101234	History	Investigate the Railways!
101571	English	Summarising Train Story
101611	Art & Design	Can You Design?
101411	Science	Transferring Energy
101631	Science	Picturing Motion: displacement, velocity and acceleration
101122	English	Understanding railway texts

For further details visit www.edudest.info and click:

- ▶ *Resource Finder* - to locate specific resources identified above
- ▶ *Venue Finder* - to learn more about education at this venue
- ▶ *Subject Finder* - to find other relevant Isle of Wight venues

10141



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Our ref: SCI-PHYS-ENER-10141-TN