

Sets (s): double award

YEAR 11

SUBJECT Physics

Knowledge Focus: Work and energy



Ysgol Uwchradd
Prestatyn
High School

This half term : Skills, Knowledge and Understanding to be developed:

This topic explores the relationship between work and energy. The equations for kinetic energy and change in gravitational potential energy are developed. The principles of force, energy and motion are used to analyse such safety features of cars as air bags and crumple zones.

Key Terms to be learned this half term:

work done, energy transfer, kinetic energy, gravitational potential energy, elastic potential energy

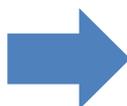
Week 1 and 2 Learning Objectives etc:

Study Newton's 3rd law of motion and be able to apply it in different situations. **Higher tier be able to state it: if a body A exerts a force on body B then body B exerts an equal and opposite force on body A.**

Work is done when energy is transferred from one form to another. Work done can be calculated by Force x distance.

Work is a measure of the energy transfer

Work= energy transfer (if no thermal transfer)



Objective assessments:

Questions 1-7 pg 176 in wjec text book on work done.

Homework:

Q7 2010 F

Week 3 and 4 Learning Objectives etc:

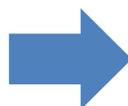
Work is a measure of energy. An object can possess energy because of its motion, position or deformation.

Higher tier learn equations for kinetic energy and changes in potential energy.

Study the relationship between force and extension for a spring. Carry out the specified practical – investigate the force extension graph for a spring.

Higher tier the work done in stretching by finding the area under the force-extension graph.

APP in chemistry



Objective assessments:

Questions on and examples kinetic energy and gravitational potential energy

Wjec text book pages 179-182

Complete analysis of the investigation by calculating the mean length for each mass, then the extension for each mass, plot the graph and determine whether it obeys Hooke's law.

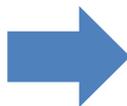
Homework:

Q4 pixel (F)
Q6 pixel (H)

Revise for mock examinations

Week 5 and 6 Learning Objectives etc:

All pupils will be sitting mock examinations.



Objective assessments:

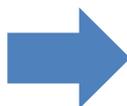
Homework:

Revise for mock examinations

Week 7 Learning Objectives etc:

Look at how efficiency of vehicles can be improved (aerodynamic, rolling resistance, idling losses and inertial losses)

Learn the principles of forces and motion to an analysis of safety features of cars.



Objective assessments:

Homework:

Jan 2014 Q8