

PHYSICS

THE BATTLE OF GORESDALE

Brief summary of activity:

The trebuchet is widely reckoned to be the most devastating weapon of the Middle Ages. It was used to launch heavy objects vast distances through the air towards formerly impregnable fortified areas. In this task the user has to use the trebuchet to hit certain targets by applying their knowledge of kinetic energy.

Specific Curriculum Area:

Year 9 — Unit 9I: Energy and electricity, Section 1: a. How is energy involved in doing useful things?

Assessment method:

Teacher observation.

Differentiation:

There is no obvious area of differentiation within this task except for the increasing difficulty when levels are completed.

Learning objectives:

Children should learn: that useful changes usually involve energy transfers and transformations; that the terms 'kinetic', 'potential', 'radiation' and 'chemical' are useful when describing energy

Use of Activity in a lesson:

This task could be set as a homework activity, assuming Internet access is possible. Alternatively, the teacher could demonstrate the task to the class (via an Interactive Whiteboard).

Hints and tips for teachers:

1. Tell pupils not to get frustrated if they do not succeed until having had many attempts—encourage trial and error.
2. Change the angle of the Trebuchet before you get to the main screen.
3. For the moving figures, do not rush into firing the trebuchet. Watch the pattern of movement to determine the best place to fire.

URL:

This screen is easily by-passed!

Swivel the pivot arm round to determine the launch angle. You MUST do this to hit the building in the first level!

Set up your Trebuchet
Drag the stone around to determine your trebuchet's launch angle - it must be between 0 and 90 degrees

Angle: 35°

+ INSTRUCTIONS

GO

The Battle! Back to Setup Level: 1

Available weights

Trebuchet being used

Use these to move the trebuchet nearer to or further from the buildings

Move Trebuchet

Ammunition

Target

Missile heading towards target

Level number

The screenshot shows the 'The Battle!' game interface. At the top, there's a 'Back to Setup' button and 'Level: 1'. On the left, a vertical stack of four black squares represents 'Available weights'. Below them, a trebuchet is shown on a green field, with a black square weight being loaded. A 'Move Trebuchet' button with left and right arrows is at the bottom left. In the center, two grey circles represent 'Ammunition'. On the right, a brown house is the 'Target'. A grey dot in the sky represents the 'Missile heading towards target'. Annotations with arrows point to these elements: 'Available weights' points to the stack of squares; 'Trebuchet being used' points to the trebuchet; 'Use these to move the trebuchet nearer to or further from the buildings' points to the 'Move Trebuchet' button; 'Ammunition' points to the grey circles; 'Target' points to the house; 'Missile heading towards target' points to the dot in the sky; and 'Level number' points to 'Level: 1'.

Troubleshooting:

If you cannot launch the missile far enough, you must alter the **ANGLE** of the trebuchet from the screen before the main screen.

Other links:

http://www.standards.dfes.gov.uk/schemes2/secondary_science/sci09i/09iq1b