

Work and Kinetic Energy

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____
 Date _____
 Class _____

1. Key Ideas

Work is a deposit of energy. Kinetic energy is the balance. The work-energy theorem says the deposit always equals the change in balance — exactly.

- Definition of work in physics ($W = Fs \cos\theta$)
- Why a perpendicular force does zero work

2. Success Criteria

By the end, you should be able to:

- Definition of work in physics ($W = Fs \cos\theta$)
- Definition of kinetic energy ($KE = \frac{1}{2}mv^2$)
- The work-energy theorem: $W_{net} = \Delta KE$

3. Key Terms

work

the transfer of energy by a force acting through a displacement

Kinetic energy (KE)

the energy stored in an object due to its motion

force

perpendicular to motion ($\theta = 90^\circ$), $\cos 90^\circ = 0$ so $W = 0$ — no work done regardless of how large F is

Always define which direction

positive height before substituting

and PE

connected through energy conservation

Zero acceleration

an object is stationary

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "Definition of work in physics ($W = Fs \cos\theta$)". Use one specific example from the lesson.

BAND 3 **2 MARKS**

2. Apply this idea to a new example: "Definition of kinetic energy ($KE = \frac{1}{2}mv^2$)". Show your reasoning clearly.

BAND 4 **3 MARKS**

3. Analyse why this idea matters for understanding Work and Kinetic Energy: "The work-energy theorem: $W_{\text{net}} = \Delta KE$ ".

BAND 5 **4 MARKS**

6. Extend: Apply the Idea

BAND 5/6 **5 MARKS**

A student gives a memorised answer about Work and Kinetic Energy but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Work and Kinetic Energy?

- A. Identify the key concept being tested
- B. Write every fact from memory
- C. Ignore the command word
- D. Skip examples and evidence

2. Which answer would show stronger understanding of Work and Kinetic Energy?

- A. An answer with accurate terms and reasoning
- B. A copied definition only
- C. A single-word response
- D. An answer with no example

3. What should you do if a question asks you to explain?

- A. Link the idea to a reason or cause
- B. List unrelated facts
- C. Only draw a diagram
- D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: Definition of work in physics ($W = Fs \cos\theta$)

BAND 3

2 MARKS

SUCCESS CRITERION 2

Prove that you can: Definition of kinetic energy ($KE = \frac{1}{2}mv^2$)

BAND 4

3 MARKS

SUCCESS CRITERION 3

Prove that you can: The work-energy theorem: $W_{\text{net}} = \Delta KE$

BAND 5

4 MARKS

One thing I still need help with:
