

CLASS 9

SCIENCE

EXTRA QUESTIONS

Class 9 Science Chapter 7 Work, Energy and Simple Machines – Extra Questions with Answers

Extra practice questions for Class 9 Science Chapter 7 (Work, Energy and Simple Machines), beyond the textbook. These Class 9 Science Chapter 7 important questions are handy for last-minute exam practice.

Contents

Very Short Answer Questions (1 mark)

Short Answer Questions (2–3 marks)

Higher-Order Thinking / Application Questions

Extra practice questions for Class 9 Science Chapter 7 (Work, Energy and Simple Machines), beyond the textbook. These Class 9 Science Chapter 7 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Write the formula for work done by a constant force.

Ans: $W = F \times d$.

Q2. Write the formula for kinetic energy.

Ans: $KE = \frac{1}{2}mv^2$.

Q3. What is the SI unit of power?

Ans: Watt (W).

Q4. What does mechanical advantage measure?

Ans: The ratio of load to effort — how much a machine multiplies the input force.

Q5. State the law of conservation of energy in one line.

Ans: Energy cannot be created or destroyed, only transformed from one form to another.

Short Answer Questions (2–3 marks)

Q6. A person carries a heavy bag while walking on level ground. Is work being done on the bag, according to physics? Explain.

Ans: No physics work is being done on the bag in the vertical sense, since the force (upward, supporting the bag's weight) is perpendicular to the horizontal displacement (walking). Since work requires displacement in the direction of the force, no work is done on the bag by the carrying force.

Q7. Explain, using the work-energy theorem, what happens to a moving object's kinetic energy if the net work done on it is negative (e.g. by friction).

Ans: According to the work-energy theorem, the change in kinetic energy equals the net work done. If the net work is negative (friction opposing motion), the kinetic energy decreases, meaning the object slows down.

Q8. Explain why an inclined plane makes it easier to lift a heavy object to a certain height, even though the total work done is the same as lifting it straight up.

Ans: An inclined plane spreads the same amount of work over a longer distance, which reduces the force needed at any given moment (since $W = F \times d$, a larger d for the same W means a smaller F), making the task feel easier, even though the total work done remains the same as lifting straight up (ignoring friction).

Higher-Order Thinking / Application Questions

Q9. Two workers lift identical boxes to the same height, but Worker A takes 10 seconds while Worker B takes 20 seconds. Compare the work done and the power exerted by each worker.

Ans: Both workers do the same amount of work, since work depends only on force and displacement (which are identical for both), not on time. However, Worker A exerts more power than Worker B, since power is work done per unit time, and Worker A completes the same work in less time.

Q10. A ball is dropped from a height and allowed to fall freely, ignoring air resistance. Describe how its potential energy and kinetic energy change as it falls, and explain why total mechanical energy stays constant.

Ans: As the ball falls, its height decreases, so its potential energy ($PE = mgh$) decreases; simultaneously, its speed increases, so its kinetic energy ($KE = \frac{1}{2}mv^2$) increases. The potential energy lost is converted directly into kinetic energy gained, so the sum of PE and KE (total mechanical energy) remains constant throughout the fall, consistent with the law of conservation of energy (ignoring air resistance, which would otherwise convert some energy to heat/sound).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#)

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Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#)