

## QUICK REVIEW

# Quick Review: Work, Energy, and Power

Refresh the most important ideas, formulas, and problem-solving strategies for Work, Energy, and Power in just a few minutes.

|                                                                                                                  |                                                                                                                         |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <br><b>TIME</b><br>5–10 minutes | <br><b>BEST FOR</b><br>A rapid refresh | <br><b>FINISH WITH</b><br>Key ideas refreshed |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

**After this quick review, you'll be able to...**

quickly recall the essential concepts, formulas, and problem-solving strategies needed to move forward with confidence.

**HOW TO USE THIS GUIDE**

Work through the four stages in order. Write directly in the spaces provided, check your work in the Quick Answers section, and finish by choosing the next resource that matches your confidence.

Choose how you want to review: work through this guide, follow the online review, or watch the video review.

[Start the Review Online →](#)

[Watch the Video Review →](#)

**YOU WILL NEED**

Pencil or pen • Calculator if needed • Approximately 5–10 minutes

## FR-02 • TOPIC ALIGNMENT

## Topic Alignment

This bundle is aligned to the approved Physics Sensei topic specification below. Use it to recover the topic structure, reinforce key decisions, and confirm readiness for the next study task.

|                                                                                                                                                                        |                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| ARCHITECTURE: Physics Sensei Independent Mechanics<br>UNIT: MEC-U06 — Work, Energy, and Power<br>TOPIC: Unit Review — Work, Energy, and Power<br>PROFILE: Foundational | BEST USED<br>✓ Before homework on energy ideas<br>✓ Before a quiz or exam<br>✓ When you need to see where the energy goes |
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### Review Prerequisites →

Physics Sensei is an independent educational resource designed to complement independently authored Physics Sensei materials. Physics Sensei content is independently authored and organized under the approved topic architecture.

## FR-03 • YOUR REVIEW PLAN

# Your Review Plan

Complete these four stages to quickly refresh the essential ideas and confirm you're ready to continue.

4 stages • Approximately 5–10 minutes

|                                                                                                 |                                                                                                 |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <p><b>1</b></p> <p><b>Quick Recall — page 4</b></p> <p>Refresh what you already know.</p>       | <p><b>2</b></p> <p><b>Essential Idea — page 5</b></p> <p>Review the most important concept.</p> |
| <p><b>3</b></p> <p><b>Confidence Check — page 6</b></p> <p>Confirm you're ready to move on.</p> | <p><b>4</b></p> <p><b>Next Step — page 8</b></p> <p>Continue your learning.</p>                 |

**PRINTING TIP**

For student copies, print double-sided and keep the Quick Answers section after the student activities so learners attempt each activity before checking their work.

FR-04 • STAGE 1 OF 4

## Quick Recall

Let's quickly refresh what you already know. This short recall activity will bring the most important ideas back to mind before you review them.

### QUICK RECALL

#### Energy changes and transfers

Recall the core energy story before looking ahead.

*For positive, negative, and zero net work, state what happens to kinetic energy. Then name the energy stored by height and by a compressed spring.*

### Ready to refresh the essentials?

Great! Now review the most important idea you'll want to remember.

**Continue to Essential Idea — page 5 →**

FR-05 • STAGE 2 OF 4

## Essential Idea

Take one last look at the most important concept from this topic. If you remember this idea, the rest will come back much more easily.

### ESSENTIAL IDEA

#### Track energy before choosing equations

Define the system and compare an initial state with a final state. Ask where the energy is stored, whether energy crosses the system boundary, and whether mechanical energy changes form or becomes thermal/internal energy.

**Work changes K • Energy changes form • Power measures rate**

EXAMPLE As a ball falls without air resistance, gravitational potential energy decreases while kinetic energy increases. Total mechanical energy stays constant.

SENSEI NOTE Friction does not destroy energy. It commonly transforms mechanical energy into thermal/internal energy.

### Ready to check your memory?

You've refreshed the essential idea. Now see how much you remember before moving on.

[Continue to Confidence Check — page 6 →](#)

FR-06 • STAGE 3 OF 4

## Confidence Check

You've refreshed the essential idea. Now answer this quick confidence check to confirm you're ready to move on.

### CONFIDENCE CHECK

#### Conservation on a frictionless track

Use energy language rather than a force-by-force calculation.

*A cart rolls down a frictionless track from rest. Is its mechanical energy conserved, and what happens to its kinetic energy as its height decreases?*

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### Ready for your next step?

Great work! You've refreshed the essential idea. Now choose the resource that best matches what you'd like to do next.

**Continue to Next Step — page 8 →**

## QUICK ANSWERS • CHECK AFTER ATTEMPTING

## Quick Answers and Explanations

Use these concise answers to check your recall and confidence—not only your final response.

**QUICK RECALL****Energy changes and transfers**

Positive net work increases kinetic energy; negative net work decreases it; zero net work leaves kinetic energy unchanged. Height corresponds to gravitational potential energy, and a compressed spring stores elastic potential energy.

**WHY IT WORKS** The work-energy theorem connects net work to kinetic-energy change, while potential energy tracks energy stored in conservative interactions.

**CONFIDENCE CHECK****CONFIDENCE CHECK****Conservation on a frictionless track**

Yes. Its mechanical energy is conserved, and its kinetic energy increases as gravitational potential energy decreases.

**WHY IT WORKS** With no friction or external energy transfer in the chosen system, energy shifts between gravitational potential and kinetic forms.

**READINESS GUIDE**

1 correct: You're ready to continue. • 0 correct: Revisit the Essential Idea or choose more practice.

FR-07 • STAGE 4 OF 4

## Next Step: Continue Learning

Great work! You've completed this quick review. Choose the next resource that best matches how confident you feel.

|                                                                                                                                                                                                              |                                                                                                                                                                                                  |                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>I'm Still Unsure</b><br>Review the essential idea again.<br><b>Review again: return to Essential Idea on page 5.</b> | <br><b>I Need More Practice</b><br>Continue with additional practice for this topic.<br><b>Go to Practice →</b> | <br><b>I'm Ready</b><br>Continue to the next recommended resource.<br><b>Continue →</b> |
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### RECOMMENDED LINKS

**Review again: return to Essential Idea on page 5.**

**Find additional practice →**

**Choose another type of physics help →**

Continue reviewing with these companion resources.

**Start the Review Online →**

**Watch the Video Review →**

### PHYSICS HELP THAT MAKES SENSE

A Physics Sensei review never ends at the last question. It always guides you toward the next useful step.

**PhysicsSensei.com**