# Module 3 Review and Consolidation

PH11-6, PH11-7, PH11-10

## ORIENTATION

**Purpose:** consolidate Module 3 by moving from recall to transfer. The review should check whether students can choose the model, state the constraint, and explain the physical meaning.

## RETRIEVAL MAP

| AREA | FAST CHECK | COMMON REPAIR |
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| Wave properties | define `v`, `f`, `lambda`, `T`, `A` | separate source-controlled frequency from medium-controlled speed |
| Wave behaviour | reflection, refraction, diffraction, interference | state what changes and what stays constant |
| Sound | pitch, loudness, intensity, resonance | separate frequency, amplitude, intensity, and dB |
| Ray optics | real/virtual image, lens equation, magnification | align diagram evidence with calculation |
| Thermodynamics | heat, temperature, specific heat, latent heat | select $Q = mc\Delta T$ versus $Q = mL$ |

### MIXED PRACTICE SET

1. A wave changes medium and slows down while its source frequency is unchanged. Explain what happens to wavelength.
2. Light enters glass from air. Explain why the ray bends toward the normal.
3. A sound becomes louder but the pitch is unchanged. Identify which physical quantity has changed and which has not.
4. A convex lens forms an image that can be projected on a screen. State what type of image it is and how the ray diagram supports this.
5. A block is heated but loses energy to the surrounding air. Explain why the measured input energy may be greater than $mc\Delta T$.

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### EXAM-STYLE WRITING PROMPTS

1. **Analyse:** how reflection and refraction provide evidence that wave speed depends on the medium.
2. **Explain:** why resonance can produce a large-amplitude standing wave.
3. **Evaluate:** whether a simple thermal model is adequate for a heating experiment in an open classroom.

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### MAINTENANCE PLAN

After completion, Module 3 should enter weekly maintenance:

- one equation-choice item,
- one representation item,
- one misconception repair item,
- one short explanation sentence.

### STUDENT WORKING

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