

Wave and particle models to describe energy transfer through different...

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Learning intention

- use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena

Teach and model

- describing the processes underlying convection and conduction of heat in terms of the particle model
- modelling the transfer of sound energy as waves using slinky springs and relating to the medium through which the sound is transferred
- examining how the particle model of electricity explains static electricity and electrical current and relating this to voltage, conductors and insulators

Check understanding

- Explain the main idea in wave and particle models to describe energy transfer through different... using an example.
- Show the idea in a second way: with words, a model, a diagram or symbols.
- Apply the idea to a short unfamiliar situation and justify the result.

Teaching cautions

- Ask the student to explain their choice, not only state an answer.
- Check that key vocabulary is understood in a new example.
- Mix representations so the skill is transferred rather than copied.

Quick lesson sequence

- Connect to prior knowledge and introduce the key vocabulary.
- Model one clear example, then solve a second example together.
- Finish with an independent check and a short student explanation.