



Deliberate and specific retrieval of expected prior knowledge (be specific)

Retrieval should occur regularly throughout the learning journey:

- What energy is and what it is measured in.
- How energy can be used in an everyday setting
- A basic understanding of the different ways energy can be stored
- Know that energy cannot be created or destroyed, only transferred

Academic transformation (be specific)

Your core curriculum must do all of the following:

- Calculating energy; the total energy has the same value before and after a change.
- Comparing conditions of a system around a change and discussing the associated changes in energy (movements, temperatures, changes in positions, elastic distortions and in chemical compositions).
- Heating and thermal equilibrium: temperature difference between two objects leading to energy transfer from the hotter to the cooler one, through contact (conduction), movement (convection) or radiation; such transfers tending to reduce the temperature difference.
- The effect of conductors and insulators on the rate of energy transfer between two objects in a system.
- Other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels.

Personal transformation (2 or 3)

Deliberately inviting students and our community to enrich learning by sharing their experiences, history and first hand accounts. Explicitly choose application opportunities for learners to:

Referring to hobbies when giving examples of energy transfers. – e.g. football

Fuel companies – working to create schemes to reduce energy transfers in the home – insulation, solar panels etc – links to conduction, convection and radiation

Careers – Energy saving trust

<https://energysavingtrust.org.uk/energy-at-home/reducing-home-heat-loss/>

Can I Learning Questions

- *Can I describe the different energy stores?*
- *Can I explain the changes in gravitational potential energy stores?*
- *Can I explain the changes in kinetic energy stores?*
- *Can I link energy resources to electricity?*
- *Can I explain how energy can be transferred through conduction, convection and radiation?*
- *Can I describe the impact of conductors and insulators in energy transfers?*

Literacy/oracy

Think, pair, share – regularly used

Frayer model – energy

Key vocabulary

Gravity, Potential, Kinetic, Elastic, Equilibrium, Transfer, Resource, Conduction, Convection, Radiation, Conductor, Insulator.

Disciplinary reading

The power of renewable energy and energy transfers (Energy AMGA folder)

Spot the misconceptions – revision lesson (to be made)

Classroom talk

Choral reading – use the spot the misconceptions worksheet – revision lesson (to be made)

The power of renewable energy and energy transfers (Energy AMGA folder)

Misconceptions (5 or 6 examples)

- Not to use the word produce but only release
- LAP – energy can be confused with electricity – electricity is an energy transfer but not a store
- Thermal energy stores
- Heating is an energy transfer – can be separated into conduction, convection and radiation
- Temperature is an average of the energy, heat energy is the accumulative sum of all of the energies
- Refer to gravity as gravitational potential energy to not be confused with the force

Definition

Characteristics/facts

Energy

Examples

Non-Examples

