

getting the physics straight

energy is quantitative

not having enough energy rules out some possibilities

energy is conserved

energy tends to be dissipated

power sets the rate at which energy accumulates

representing the topic effectively

energy is found in stores and measured in joules

the power in a pathway is measured in watts

energy is found in stores; power in pathways

the power in a pathway accumulates changes in energy in a store

particular teaching challenges

different (non-technical) uses of the words 'energy' and 'power'

restricting descriptions to helpful situations

avoiding 'electrical energy', 'light energy', 'sound energy'

developing and using a coherent model of power and energy

Linking energy and power and choosing when to use each

dealing with existing ideas

developing helpful ways of thinking about energy as a conserved quantity

using a consistent and coherent power-based description of

using a consistent and coherent energy-based description of

distinguishing between resources, which are not conserved, and energy,

being clear about what it is to be 'renewable'

selected teaching principles

systematic use of teaching models

respecting the quantitative nature of energy

giving an explanation as telling a story - moving from one description

using a few coherent models well

developing and sharing explicit models