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|  |  | Aim and Objective | AusVELS | Outcome | Activities | Formative assessment |
| Week 1 | 100 min | Identifying misconception about  energy Identifying different types of energy | Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems | - Be able to define energy as "the ability to do work" - Be able to list at least 5 different forms of energy | - Energy trivia - Listing all know types of Energy and collaborating among classmates to fill list. | Energy trivia & listing worksheet |
| 50 min | Observing conversion of energy Identifying the source of all energy Understanding the law of conservation of energy | recognising that kinetic energy is the energy possessed by moving bodies | - Realized the connection between different energy through conversion - Realize that energy cannot be lost, therefore has never been created or destroyed since the big bang | - Kahoot  - Cat-trapment | - Answering cat-trapment questions. - Discussion of the ultimate source of energy |
| Week 2 | 100 min | Understanding the components which make up a system Introduction to flow diagram Introduction to light energy Explaining the difference between CFLs and LEDs | recognising that potential energy is stored energy, such as gravitational, chemical and elastic energy | - Able to use a flow diagram to represent simple energy transfer discussed in week 1 - Able to apply the law of conservation of energy to system to realise that energy remains constant over time. | - Kahoot  - Slowmo Guys and discussion | - Discussion of energy transfer/ transformation  - Observation of drawing flow diagram |
| 50 min | Understanding how LEDs use lesser energy Applying this knowledge to justify changing to LEDs Using visual representation to explain the energy conservation of LEDs Suggesting possible improvement for better energy efficiency | - using flow diagrams to illustrate changes between different forms of energy  - investigating different forms of energy in terms of the effects they cause, such as gravitational potential causing objects to fall and heat energy transferred between materials that have a different temperature | - Able to explain energy efficiency using accurate terminology of input and output energy - Able to calculate percentage - Able to think critically and give suggestion and justification of possible improvement | - Kahoot  - Spinning snake experiment and worksheet | - Observing experimental techniques  - Observing if students adhere to safety protocols  - Evaluation of worksheet |
| Week 3 | 100 min | Identifying everyday example of heat energy transfers Predicting then testing prediction for best insulator  Calculating mean, percentage and identifying range | recognising that heat energy is often produced as a by-product of energy transfer, such as brakes on a car and light globes | - Recognising that heat can be transformed from a variety of different energy types - Recognize heat can be a by-product of energy transfer | - Kahoot  - Insulator experiment - Classroom activity and discussion | - Observing experimental techniques  - Observing if students adhere to safety protocols  - Evaluation of worksheet |
| 50 min | Introduction to different types of potential energy Understanding the creation of biomass energy and its status as a renewable energy source | - recognising that potential energy is stored energy, such as gravitational, chemical and elastic energy  - using flow diagrams to illustrate changes between different forms of energy | - able to identify different types of potential energy  - able to give novel example of potential energies  - able to explain the source of biomass energy and its status as a renewable energy | - Kahoot  - Slowmo Guys and discussion  - Classroom activity and discussion | - Discussion of energy transfer/ transformation  - Observation of drawing flow diagram  - Justification on use renewable energy |
| Week 4 | 100 min | Introduction to nuclear energy and sound energy Investigating the relationship between kinetic and sound energy Identifying the effect of different energies using everyday example in household appliance and transportation | - recognising that kinetic energy is the energy possessed by moving bodies  - using flow diagrams to illustrate changes between different forms of energy | - able to explain the source of energy for nuclear energy  - able to draw a flow diagram to show transformation  - able to identify at least 4 every day appliances and outline the energy transfer/ transformation using a flow chart  - able to use a diagram to show the movement of dye in beaker  - able to explain the phenomena of convection current using experiment as an example | - Kahoot  - Convection current in Beaker experiment and worksheet | - Observing experimental techniques  - Observing if students adhere to safety protocols  - Evaluation of worksheet |
| 50 min | Investigating the need for renewable energy Understanding energy efficiency & its connection to law of conservation of energy Calculating energy efficiency of a system | recognising that potential energy is stored energy, such as gravitational, chemical and elastic energy | - Able to independently calculate energy efficiency using formula and explain using appropriate scientific language | - Kahoot  - Classroom activity and discussion | - Worksheet on calculating percentage  - |
| Week 5 | 100 min | Recapping important facts about energy Introduction to engineers and the importance of energy to their career. Applying the engineering process | recognising that potential energy is stored energy, such as gravitational, chemical and elastic energy | - able to use engineering process to improve boat function  - able to remember and explain content covered in the last 4 weeks. | - Revision Kahoot - Aluminium Foil Boat Experiment | - Observing experimental techniques  - Observing if students adhere to safety protocols |
| 50 min | Evaluating the level of understanding and familiarity with knowledge presented in this topic | - Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems - recognising that kinetic energy is the energy possessed by moving bodies | - able to remember and explain content covered in the last 4 weeks. | Topic test | Observation, number of times students ask for help with test questions and the level of help needed. |
| Week 6 | 100 min | Research for Renewable Energy Project | - recognising that potential energy is stored energy, such as gravitational, chemical and elastic energy recognising that kinetic energy is the energy possessed by moving bodies - recognising that kinetic energy is the energy possessed by moving bodies  - Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people’s understanding of the world [(ACSHE134)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACSHE134) | - Able to use appropriate format to present ideas  - obtaining resource from creditable sources  - able to use PowerPoint to show information obtained from research.  - able to use information to justify changes practice | Group work, researching, mind mapping | Observation of questions asked, level of corporation between students, research skills, reading, using scientific terminology and language. |
| 50 min | Presentation on renewable energy project | - Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems - recognising that kinetic energy is the energy possessed by moving bodies  - Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people’s understanding of the world [(ACSHE134)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACSHE134) | - Able to relate sustainability to renewable energy  - have an in-depth knowledge on different forms of renewable energy.  - understand the negative effects of non renewable energy | Oral presentation, Peer feedback | Assessment criteria |