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|  |  | Aim and Objective | AusVELS | Outcome | Activities | Formative assessment |
| Week 1 | 100 min | Identifying misconception about energyIdentifying 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 energyIdentifying the source of all energyUnderstanding 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 systemIntroduction to flow diagramIntroduction to light energyExplaining 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 energyApplying this knowledge to justify changing to LEDsUsing visual representation to explain the energy conservation of LEDsSuggesting 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 transfersPredicting 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 energyUnderstanding 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 energyInvestigating the relationship between kinetic and sound energyIdentifying 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 energyUnderstanding energy efficiency &its connection to law of conservation of energyCalculating 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 energyIntroduction 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 |