

**STUDENT UNIT PLANNER**

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| **Year Level:** | | | 8 | | Student checklist: 🗹 when you know… | |
| **Subject:** | | | Science | | Assessment due dates  The learning goals and success criteria for this term  Changes to routines e.g. excursions  When assessment practice lessons will occur (exemplars)  When revision lessons will occur | |
| **Term/Year:** | | | 2 / 2023 | |
| **Unit Title:** | | | Energy | |
| **Assessment:** | | | Student Experiment - Rollercoasters | |
| **Key Resource:** | | |  | |
| **WK** | **Wk. Beg** | **Holidays or variations this week** | **Lesson 1** | **Lesson 2** | | **Lesson 3** |
|  | 17 Apr. 23 |  | **LG1: SC1 & 2**  **Introduction to the concept of energy**   * Recall types of energy and how it is used in daily life * **Identify** different forms of energy and their use in everyday life   **Term organisation**   * Unit planner, LGs and SC and assessment overview | **LG 1 & 2: SC 3, 4 & 5**  **Potential vs kinetic energy – Investigation**   * **Define** Potential energy as stored energy * **Define** Kinetic energy as moving energy * **Identify** Potential and Kinetic energy | | **LG 2: SC 4 & 5**  **Potential vs kinetic energy – Identification**   * Practical activity - energy stations. Identifying different forms of energy |
| 2 | 24 Apr. 23 | TUES  Anzac Day | **LG 2: SC5; LG 4: SC16 & 17**  **Elastic Potential Energy**   * Introduction to elastic potential energy * Practical activity – Target shooting challenge * **Identify** variables that can be modified to make it shoot further | **LG 2: SC5; LG 4: SC16, 21 & 22**  **Chemical Potential Energy**   * Introduction Chemical potential energy * Practical activity – Burning food * **Explain** the transfer of stored chemical in food into kinetic energy i.e. heat | | **Catch up and consolidate**   * Complete and consolidate content from lessons 1 and 2.   Suggested Stile Lessons  Energy  1.2 Forms of energy  2.2 Kinetic energy  2.4 Potential energy |
| 3 | 1 May. 23 | MON  Labour Day | **LG 2: SC 5, 6 & 9**  **Heat Energy**   * Introduction to heat energy * **Identify** examples: combustion engines, light bulbs, fire * Practical activity – Students use traditional materials to start a fire * **Compare** traditional versus modern fire-starting methods - comparisons of energy sources * Research task: When were matches invented? | **LG 3: SC 10, 11, 12 & 13**  **Transfer of Heat Energy**  • **Construct** representations of energy flow through systems  • **Identify** and evaluateheat as wasted energy in different systems | | **Catch up and consolidate lesson**   * Complete and consolidate content from lessons 1 and 2.   Suggested Stile Lessons  Energy  3.1 Energy transfer and transformations |
| 4 | 8 May. 23 |  | **LG 2: SC 4, 5, 7 & 8**  **Gravitational Potential Energy**  • **Define** gravitational potential energy and applications  • **Describe** the relationship between mass, height and gravitational potential energy | **LG 3: SC 10, 11, 12 & 13; LG 4: SC 19 & 20.**  **Gravitational Potential Energy**  • **Investigate** gravitational potential energy via practical activity  Key Skill: **Use** tables and graphs to present data, using digital technology (excel) if appropriate.  Key Skill: **Analyse** tables and graphs for trends and patterns | | **Catch up and consolidate lesson**   * Complete and consolidate content from lessons 1 and 2.   Suggested Stile Lessons  Energy  3.4 Energy efficiency |
| 5 | 15 May. 23 |  | **LG 2: SC6 & 7: LG 3: SC 10, 11 & 12**  **Kinetic energy - Flow diagrams**   * **Describe** energy transfers and transformations * **Construct** energy flow diagrams * **Observe** transfer and transformation of energy – Practical activity demonstration   Key Skill: **Construct** tables and graphs to present data, using digital technology (excel) if appropriate. | **LG 3: SC 10, 11, 12; LG 4: SC 19 & 20**  **Colliding ball bearings -Practical activity**   * **Investigate** Energy transfers and transformations during * Practical activity – Ball Bearing collision   Key Skill: **Construct** tables and graphs to present data, using digital technology (excel) if appropriate.  Key Skill: **Analyse** tables and graphs for trends and patterns. | | **LG 3: SC 10, 11 & 12**  **Law of energy conservation**   * **Investigate** PHET simulations: skate park * **Investigate** PHET: Pendulum lab * **Describe** and **construct** diagrams to show energy transfers and transformations   Formative review questions of the last four weeks |
| 6 | 22 May. 23 |  | **Rollercoasters introduction**  **LG 4: SC14 & 16**  Introduce students to equipment for assessment – Students play around with the materials that they will be given for their roller coaster design. | **Rollercoasters Introduction**  **LG 4: SC15 & 17**  Teacher demonstrates the effect of changing independent variables such as mass and starting height of the ball and how this changes the speed the ball moves through the roller coaster. | | **Rollercoasters Introduction**  **LG 4: SC14, 15, 16, 17, 18, 19**  Students finalise their rollercoaster design and do a preliminary trial. |
| 7 | 29 May. 23 |  | **Roller coaster assessment**  **Hand out assessment**.  **LG4: SC 14 & 15**  Students:   * **Identify** research question * **Predict** outcomes (hypothesis) * Write Introduction | **Roller coaster assessment**  **LG4: SC 16, 17 & 18**  Students:   * **Identify** variables * **Consider** risks * **Develop** materials list * **Develop** method | | **Roller coaster assessment**  **L4: SC 18 &19**  Students:   * **Construct** data collection table * **Draw** diagram of roller coaster design * **Select** equipment and set up experiment * Conduct trials * Collect data |
| 8 | 5 Jun. 23 | FRI  **Athletics Carnival** 9TH June | **Roller coaster assessment**  **L4: SC 18, 19 & 20**  Students:   * **Select** equipment and set up experiment * Conduct trials * Collect data * **Calculate** average results from trials | **Roller coaster assessment**  **L4: SC 19 & 20**   * Use data to generate a graph * **Analyse** trends and patterns in data and graph. | | **Roller coaster assessment**  **L4: SC 20, 21 &22**   * **Evaluate** results * **Identify** relationship between variables * **Explain** trends * **Identify** limitations |
| 9 | 12 Jun. 23 | FRI  **Show**  **Holiday**  16TH June | **Roller coaster assessment**  **L4: SC 22**  **Compare** conclusions with earlier predictions | **Roller coaster assessment**  **L4: SC 23**  **Present** and **explain** results in an experimental report. | | **Roller coaster assessment**  **Assessment due** |
| 10 | 19 Jun. 23 |  | Catch up | End of Term Activities | | Last day of term |