VCE Physics: Sample teaching plan

Sample Course Outline – VCE Physics Unit 2: What do experiments reveal about the physical world

**Note:** This is a sample guide only and indicates one way to present the content from the Study Design over the weeks in each school term. Teachers are advised to consider their own contexts in developing learning activities: Which local fieldwork sites would support learning in the topic area? Which local issues lend themselves to debate and investigation? Which experiments can students complete within the resource limitations of their learning environments?

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| **Week** | **Area** | **Topics** | **Practical work** |
| 1 | **How can** **motion** **be described and explained?** | Vectors and scalars; describing motion (position, displacement, speed, velocity, acceleration); motion graphs.  | Graphing everyday motion; matching motion graphs |
| 2 | Constant acceleration motion (suvat equations; falling vertically under gravity). | Measuring g (1) |
| 3 | Forces as 2D vectors (magnitude and direction, components, resultant); everyday forces (gravity; friction; reaction). | Balancing forces |
| 4 | Newton’s Laws of Motion (first law; second law; third law). | Measuring g (2) |
| 5 | Analysis of connected bodies; motion on inclined planes.  | Newton’s second law |
| 6 | Torque; rotational equilibrium; simple structures.  | Bridge building challenge |
| 7 | Impulse and momentum; collisions; conservation of momentum; applications of momentum to sports and vehicle safety. | Video analysis of momentum in collisions |
| 8 | Work; Hooke’s Law; energy (gravitational potential, elastic potential, kinetic). | Video analysis of energy transformations |
| 9 | Conservation of energy; power; efficiency.  | Efficiency of a motor |
| 10 | **Options** | Student choice of topic for option from those available. Theory (prepare summary of chosen aspect of theory to present; complete set theory questions). | Dependent on student chosen topic and focus area |
| 11 | Application (investigate chosen application aspect of topic; prepare for presentation). |
| 12 | Student presentation (present theory and application to class); self-assessment; peer and teacher feedback; reflection.  |

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| **Week** | **Area** | **Topics** | **Practical work** |
| 13 | **Practical Investigation** | Topic selection (research possible topics, shortlist ideas, teacher feedback, select); plan investigation (aim, hypothesis, relevant theory, method, resources required). | Student-designed practical investigation task |
| 14 | Receive feedback and revise plan; conduct experimental trials. |
| 15 | Conduct experimental trials; analyse results; start poster preparation.  |
| 16 | Finalise poster preparation; science fair (poster presentations). |
| 17–18 | All | **Unit revision** |  |