MindSET-do

Year 6 – Electrical Energy 90mins Lesson 2

Learning Intentions	Lesson Outcomes
• Students recognise the need for a complete circuit to allow the flow of electricity • Students investigate different conductors and insulators • Students explore the features of a breadboard circuit including, wires, resistors, LED lights and battery packs	• Revise Computational Thinking • Learn the components of a circuit • Describe how an electrical circuit works and safety considerations • Assemble a breadboard circuit with resistor and LED lights • Work collaboratively to complete the tasks

Australian Curriculum Content Descriptors	Australian Curriculum General Capabilities
Science Understanding Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources (ACSSU097)	**Critical and creative thinking** – generating ideas, possibilities and actions **Critical and creative thinking** – reflecting on thinking and processes **Personal and social capability** – Social management

Assessment
Formative assessment Observations and feedback on understanding of electrical circuits

Phase/Slide	Learning Activity	Resources
Slide 1 - 3	• Greetings • Introduction • Acknowledgement of Traditional Custodians • Lesson outcomes	PowerPoint
Slide 4 -5 Engage	• Why programming is important • View the video	PowerPoint and video
Slide 6-8 Explore	• Revise Computational thinking • Discuss the concepts and approaches they will use in the lesson today	PowerPoint

Phase/Slide	Learning Activity	Resources
Slide 9 Explore	• What makes the light go on? • Show students an example of a circuit created on the breadboard • Ask students to use their logic to share their thoughts on what makes the light go on	Example circuit on a breadboard with resistor and RGB LED red light
Slide 10 – 12 Explain	• Explain electrical energy • Explain what makes a circuit work • Explain voltage flow	PowerPoint
Slide 13 – 16 Elaborate	• Explain a basic circuit – include information on symbols for resistor and LED • Explain a short circuit • Explain an open circuit • Describe the difference between conductors and insulators	PowerPoint
Slide 17 Engage	• Show students the initial breadboard circuit they will make using RGB LED and battery pack	Example circuit on a breadboard with resistor and RGB LED red light
Slide 18 – 23 Explain	• Discuss safety issues with the activity • Explain what a breadboard is and its functions • Explain what a resistor is and its functions • Explain what an LED and RGB LED is and its functions • Describe and model how to wire up the circuit	Example circuit on a breadboard with resistor and RGB LED red light
Slide 24 Explore	• Ask students to look at the circuit and hypothesise what colour the RBG LED will light up • Ask students to explain their decision	Example circuit on a breadboard with resistor and RGB LED green light
Slide 25 - 27 Explore	• Assist students to wire up the board using the diagram • 1 x RGB LED wired to be Red • 1 x RGB LED wired to be Green • 1 x RGB LED wired to be Blue • Set challenges for the students to solve in groups	PowerPoint Arduino kits for students

Phase/Slide	Learning Activity	Resources
Slide 28 - 29 Evaluate	• Electrical circuits activity • What are some everyday uses for RGB LEDs? • What was the most difficult step in creating the circuit? • What strategies did you use when a circuit would not work? What was the best thing about working with your partner?	PowerPoint
Slide 30 - 33 Evaluate	• Working in a group of 4, you have 5 minutes to make a list of anything you learnt today. • Pack up the kits • Any questions	PowerPoint