ENERGY	Energy Audit Lesson Plan - Upper Primary (3-6)
Curriculum Links	**Level 3 & 4:** • Heat can be produced in many ways and can move from one object to another; a change in the temperature of an object is related to the gain or loss of heat by the object (VCSSU063) • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (VCMMG165) **Level 5 & 6:** • Energy from a variety of sources can be used to generate electricity, electric circuits enable this energy to be transferred to another place and then transformed into another form of energy (VCSSU081) • Explore the concept of opportunity cost and explain how it involves choices about the alternative use of limited resources and the need to consider trade-offs. (VCEBR002) • Identify the types of resources (natural, human and capital) and explore the ways societies use them in order to satisfy the needs and wants of present and future generations. (VCEBR003) • Scientific understandings, discoveries and inventions are used to inform personal and community decisions and to solve problems that directly affect people's lives (VCSSU073)
Students	Approximately 25 students
Duration	90 minutes
Learning Intention	To investigate how energy is used at the school and identify where action can be taken to reduce energy use.
Success Criteria	• I can work collaboratively to identify and record energy usage around the school. • I can evaluate my school's energy use and suggest strategies to reduce energy consumption.
Lesson Resources / Equipment	*** Note – Please ask your CERES Facilitator for the Energy Audit Tool required to complete this learning activity *** • Thermometer - to record temperatures (check with your local council or library to borrow) • Lux meter - to record lighting levels (check with your local council or library to borrow) • Pens and clipboards

Lesson Overview	
Tuning in *(10 minutes)*	Use the CERES Yesterday and Today activity (or Charge My Phone activity for older students) to raise awareness about technology, energy transformations, materials and resource, energy use and dependence and energy efficiency. Facilitate a group discussion using the following questions to generate students' initial ideas and understandings of energy. • What is energy? • What are some different forms of energy? • Is energy natural or manmade? • Why is energy useful? • What type of energy do we use to power lights / mobile phones / computers • Where does electricity come from? Ensure that students have an understanding of what energy is, how it is measured in watts, efficiency, sources and relationship to climate change.
Explicit Instruction *(15 minutes)*	**Outline elements of the Energy Audit**: • Explain what we will be doing today (i.e. conducting an energy audit using tools such as a thermometer and lux meter). • Share what we are looking for and how to record this (i.e. lighting, heating and cooling, appliances/devices, and windows/doors). • Show students the Energy Audit tool and demonstrate how to use the lux meter/thermometer. • Discuss why conducting an energy audit is important (i.e. to establish current energy consumption and consider actions to reduce energy use and/or improve energy efficiency).
Learning Task (Audit) *(50 minutes)*	**In the classroom:** • Divide students into groups (based on areas of school to audit/facilities to audit). • Conduct a safety briefing (e.g. hot appliances, running inside, etc.) • Ensure all students understand responsibilities and timeframe to complete tasks. **During audit/investigation:** • Students head to assigned area and tally/record energy information as per the handout.

	• Teacher and Facilitator monitor and assist students.
Reflection *(15 minutes)*	As a group, discuss each group's findings using the following prompts: • Did you find any examples of energy inefficiency during your investigation? • Do you think the emissions at your school are high or low? • How could we save energy and reduce emissions? Action planning (in groups, pairs or as a group – depending on the number of students and time) • Create an action plan to improve energy conservation at the school. • Include the goal, strategies, who will be responsible, timeframe and achievement milestone. • Students may present ideas to the class (if time permits) *For example:* • Who: Student Green Team, Sustainability Coordinator • What: Organise a 'Turn It Off Campaign' • Where: Signs near lights, computers and other appliances. • When: By the end of Term 4, 2019 • How: Students make a list of devices/appliances to turn off at the end of a session or school the school day. Students can organise a roster to ensure all lights switched off and work with Sustainability Coordinator to ensure that computers have sleep times and are switched off each day. Students to create interpretive signage to remind school community.
Differentiation	For students that require support: • Use modified template with pictures • Create mixed ability student groups to enable peer support • Teacher/facilitator to work directly with student groups that require additional support For students that require extension: • Consolidate students' action plans and have them present to school leadership and/or the school community. • Students may calculate the greenhouse gas emissions for their school's electrical and gas appliances and explore the impact of their findings. Students may discuss this with the group or create a presentation to share this with the school community.

	• Students may like to investigate energy sources and types further using this website
Assessment questions	• Why is energy important? • What is the difference between renewable and non-renewable energy sources? • What are some things we can do to conserve energy at school?
Teacher/Facilitator Notes	• Scan copy of audit to upload to ResourceSmart Energy Module Action A1. • Collate students' action plans and use to inform energy action plan (Energy A2.1)