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| **Australian Curriculum Year 6 Science | Physical Sciences – Energy**  | Name …... |

**Purpose of assessment:** To investigate the concept of using solar power to generate electricity and understand the concepts needed to optimise this process.

|  | **A**(Demonstrated at a very high level) | **B**(Demonstrated at a high level) | **C**(Demonstrated at a sound level) | **D**(Demonstrated at a limited level) | **E**(Demonstrated at a very limited level) |
| --- | --- | --- | --- | --- | --- |
| **Understanding dimension** | Science Understanding | Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources [(ACSSU097)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSSU097) | Constructed a complex solar water heater that heated 250ml to a temperature well above 50°C above outside ambient air temperature after one hour in the sun.Investigated thoroughly the concept of increased surface area and reduced depth when heating water and has utilised this concept in his/her water heater. | Constructed a solar water heater that heated 250ml to a temperature of 45°C above outside ambient air temperature after one hour in the sun.Investigated the concept of increased surface area and reduced depth when heating water and has utilised this concept in his/her water heater. | Constructed a solar water heater that heated 250ml to a temperature of approx. 40°C above outside ambient air temperature after one hour in the sun.Investigated the concept of increased surface area and reduced depth when heating water and has utilised this concept in his/her water heater. | Constructed a water heater that heated 250ml to a temperature considerably below 40°C above outside ambient air temperature after one hour in the sun.Displayed limited investigation into increased surface area and reduced depth when heating water. | Constructed an ineffective solar powered water heater which does not demonstrate any understandings of relevant conceptsOR solar powered water heater was not produced The device did not heat the water above outside ambient air temperature after one hour in the sun. |
| **Skills dimension** | **Planning and Conducting** | Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks [(ACSIS103)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS103)**(Part B, C, D)** | Developed a well-written hypothesis. **Part B**Planned a well-thought out design that displayed a thorough understanding of heat absorption, surface area, and reduced water depth. **Part C**Identified relevant products that would best be used to construct design. **Part D** | Developed a hypothesis. **Part B**Planned a well-thought out design that displayed understanding of heat absorption, surface area, and reduced water depth. **Part C**Identified relevant products that would best be used to construct design. **Part D** | Stated a generic hypothesis. **Part B**Planned a design that displayed understanding of heat absorption, surface area, and reduced water depth. **Part C**Identified products that would best be used to construct design. **Part D** | Attempted a hypothesis. **Part B**Attempt a design that displayed understanding of heat absorption, surface area, and reduced water depth. **Part C**Applied some relevant products to construct design. **Part D** | Missing hypothesis. **Part B**Attempted a design that displayed understanding of heat absorption, surface area, and reduced water depth. **Part C**Constructed design with minimal and irrelevant products for task. **Part D** |
| **Processing and Analysing** | Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in [data](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=data) using [digital technologies](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=digital+technologies) as appropriate [(ACSIS107)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS107) **(Part E)** | Included a detailed observation table pertaining to their design and classmates. | Included a detailed observation table pertaining to their design and classmates. | Included an observation table pertaining to their design and classmates. | Included an observation table pertaining to their design.  | Included an observation table but missing relevant information. |
| **Evaluating** | [Reflect on](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=reflect+on) and suggest improvements to scientific investigations (ACSIS108)**(Part F)** | Reflected on their design referring back to hypothesis and observations; demonstrating a comprehensive knowledge & understanding of the cause and effect of solar energy. Identified and justified insightful ways to improve their design. | Reflected on their design referring back to hypothesis and observations; demonstrating a thorough knowledge & understanding of the cause and effect of solar energy. Identified and justified ways to improve their design. | Reflected on their design referring back to hypothesis and observations; demonstrating a sound knowledge & understanding of the cause and effect of solar energy. Identified and justified ways to improve their design. | Reflected on their design referring back to hypothesis and observations; demonstrating a limited knowledge & understanding of the cause and effect of solar energy. Minimal improvements to the design were suggested but not justified. | Demonstrated a partial reflection on their design with minimal reference to hypothesis and observations. .Made statements about design improvement, but they were not valid. |
| **Communicating** | Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts[(ACSIS110)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACSIS110) | Produced multi‑modal texts to communicate methods and findings. Used highly and relevant scientific terminology when responding to questions. | Produced multi‑modal texts to communicate methods and findings.Used highly scientific terminology when responding to questions. | Produced multi‑modal texts to communicate methods and findings. Used relevant scientific terminology when responding to questions. | Produced multi‑modal texts to communicate methods and findings.Attempted to use some scientific terminology when responding to questions. | Produced multi‑modal texts to communicate methods and findings.Used everyday language. |