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|  | Australian Curriculum Year 8 Science sample assessment ׀ Task-specific standards — continua  Energy test | Name |

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**Purpose of assessment:** To demonstrate understanding of different forms of energy and the changes they cause within systems.

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| Understanding dimension | | | Skills dimension |  |
| Science Understanding | | Science as a Human Endeavour | Science Inquiry Skills |  |
| **Section A: Questions 1, 2, 5, 6, 7**  Analysis of data and information to identify types of energy, describe energy transfers, transformations, efficiency and develop explanations | **Section A: Questions 3, 4, 9, 10**  Application of science knowledge to generate solutions about:   * kinetic energy * gravitational potential energy * percentage efficiency | **Section B: Questions 11, 13**  Explanation of how evidence has improved understanding of science ideas and informed the collaboration of scientists to generate solutions to contemporary problems | **Sections A and B: Questions 8, 12**   * Use of patterns and trends in graphs to explain relationships and justify conclusions * Construction of graphs to reveal patterns and trends about greenhouse gas emissions in cars vs. trains |  |
| * Integration of analysis of diagrammatic or graphical data with science knowledge to develop justified explanations about:   the quantitative comparison of energy efficiency of light bulbs and describe the safety advantages (Q6)  how the relationship between KE and GPE represents the position of a skateboard rider (Q7) | * Accurate interpretation of  text/diagrams to:   compare KE and GPE (Q9)  convert units and substitute values into the appropriate equation to solve energy efficiency multistep, sequential problems (Q10) | * Links to the background information and use of the data about total greenhouse gas emissions from  1990–2020 to explain why the initial development of the UltraBatteryTM targeted cars rather than trains (Q13) | * Use of data from the graph to compare the cooling rates of the different methods when drawing a justified decision about the accuracy of the claim (Q8)   Following of conventions to systematically construct accurate graphs to reveal patterns and trends about greenhouse gas emissions (Q12) | A |
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|  |  |  |  | B |
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| * Identification of different types of energy and description of energy transfers and transformations (Q1,2)   Identification of the:  point where GPE is greatest (Q5)  energy transformation in light bulbs (Q6)  graph that represents the PE and GPE of a skateboard rider at particular positions (Q7) | * Substitution of values into the appropriate equation to solve simple word problems (Q3, 4) | * Explanation about total greenhouse gas emissions from 1990–2020 (Q11)   Description of why the UltraBatteryTM was developed (Q13) | * Use of data from the graph to draw justified decisions about gaining a food safety certificate (Q8)   Construction of graphs to reveal and analyse patterns and trends about greenhouse gas emissions (Q12) | C |
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|  |  |  |  | D |
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| * Recall of science facts about energy | * Recall of energy equations | * Statements about greenhouse gas emissions and the UltraBatteryTM | * Restatement of data (Q8)   Partial construction of graphs (Q12) | E |
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