# Program: Energy Revealed

## Grade 10 - Alberta Science Curriculum Connections

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| Activity Name | Organizing Idea | Learning Outcome |
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| Activity: Knowing Energy: Stair Climb | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Knowing Energy: Tea at Home | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| | 14 - Unit B: Understanding Energy Transfer Technologies | Describe how natural and technological cooling and heating systems are based upon the transfer of thermal energy (heat) from hot to cold objects |
| | | Explain the functioning of common methods and devices designed to control the transfer of thermal energy |
| Activity: Knowing Energy: Race to a kWh | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Knowing Energy: How Intense is Your Electricity Usage? | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |

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| Activity: Knowing Energy: The Electricity Grid | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Knowing Energy: Renewables | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| | 10 - Unit D: Energy Flow in Global Systems | Describe how the relationships among input solar energy, output terrestrial energy and energy flow within the biosphere affect the lives of humans and other species |
| | | Investigate and interpret the role of environmental factors on global energy transfer and climate change |
| Activity: Knowing Energy: The Big Picture | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: All About the Baseline | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Can You Observe How You Conserve? | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |

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| **Activity: Energy Hogs** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| **Activity: Electronic Overload** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| **Activity: Extra Energy Investigation** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| **Activity: How Smart is Your Smart Board?** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| **Activity: Imagination Station** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |

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| Activity: Small Appliance Energy Reliance | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| | 14 - Unit B: Understanding Energy Transfer Technologies | Describe how natural and technological cooling and heating systems are based upon the transfer of thermal energy (heat) from hot to cold objects |
| | | Explain the functioning of common methods and devices designed to control the transfer of thermal energy |
| Activity: Start Me Up! | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Total Energy vs. Total Cost | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Understanding Energy Efficiency in Your School | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Community Walk | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |

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| Activity: School Energy Audit | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Find the Phantom Load | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Home Energy Audit | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Watchers and Seekers | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| Activity: Science Slam | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |

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| **Activity: Speak for the Trees** | 10 - Unit B: Energy Flow in Technological Systems | Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated |
| | | Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems |
| | | Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems |
| | 10 - Unit D: Energy Flow in Global Systems | Describe how the relationships among input solar energy, output terrestrial energy and energy flow within the biosphere affect the lives of humans and other species |
| | | Investigate and interpret the role of environmental factors on global energy transfer and climate change |