Program: Re-Energy

Grade 5 - Alberta Science Curriculum Connections

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	**Grade 7-12**	
Activity: What is Renewable Energy?	**Grade 7-12**	
Activity: Build a Solar Car	**Grade 7-12**	
Activity: Build a Solar Oven	**Grade 7-12**	
Activity: Construire un Four Solaire	**Grade 7-12**	
Activity: Introduction to Solar Electricity	**Grade 6-12**	
Activity: Introduction to Solar Heat Energy	**Grade 6-12**	
Activity: Solar Energy Transition with Six Nations of the Grand River	**Grade 7-12**	
Activity: Electrifying the Future of Transportation Guide	**Grade 9-12**	
Activity: Build an Electric Vehicle Model	Energy	Students investigate and compare how forces affect living things and objects in water and air.
	Energy	Students investigate and analyze various energy resources.
	Computer Science	Students apply design processes when creating artifacts that can be used by a human or machine to address a need.
	Scientific Methods	Students investigate how evidence is gathered and explain the importance of ethics in science.
Activity: Exploring Electric Vehicle Charging Stations	**Grade 7-12**	
Activity: History of the Electric Vehicle	**Grade 7-12**	
Activity: How is Your Community Adapting for Electric Vehicles?	**Grade 7-12**	
Activity: Planning a Trip in your Electric Vehicle	**Grade 7-12**	
Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River	**Grade 7-12**	

Activity: What EV Should You Buy?	**Grade 7-12**	
Activity: Build a Wind Turbine	**Grade 6-12**	
Activity: Introduction to Wind Energy	**Grade 6-12**	
Activity: Wind Turbine Simulator	**Grade 7-12**	
Activity: Build a Hydroelectric Generator	**Grade 6-12**	
Activity: Introduction to Hydro Energy	**Grade 6-12**	
Activity: Pumped Hydro Storage	**Grade 7-12**	
Activity: Build a Biogas Generator	**Grade 7-12**	
Activity: Introduction to Biomass Energy	**Grade 7-12**	
Activity: Build a Flywheel Model	Energy	Students investigate and compare how forces affect living things and objects in water and air.
	Scientific Methods	Students investigate how evidence is gathered and explain the importance of ethics in science.
Activity: Build a Penny Battery	Energy	Students investigate and compare how forces affect living things and objects in water and air.
	Scientific Methods	Students investigate how evidence is gathered and explain the importance of ethics in science.
Activity: Endothermic and Exothermic Reactions	**Grade 7-12**	
Activity: Energy Storage Match	**Grade 7-12**	
Activity: Exploring Energy Storage in Your Community	**Grade 7-12**	
Activity: Exploring How to Make a Battery	**Grade 7-12**	
Activity: Heat Transfer Lab	**Grade 7-12**	
Activity: Pumped Hydro Storage	**Grade 7-12**	
Activity: The Electrostatic Effect	**Grade 7-12**	

Program: Re-Energy

Grade 6 - Alberta Science Curriculum Connections

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	**Grade 7-12**	
Activity: What is Renewable Energy?	**Grade 7-12**	
Activity: Build a Solar Car	**Grade 7-12**	
Activity: Build a Solar Oven	**Grade 7-12**	
Activity: Construire un Four Solaire	**Grade 7-12**	
Activity: Introduction to Solar Electricity	Energy	Students investigate energy resources and explain factors that influence their use.
	Space	Students analyze and represent celestial bodies of the solar system.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Introduction to Solar Heat Energy	Energy	Students investigate energy resources and explain factors that influence their use.
	Space	Students analyze and represent celestial bodies of the solar system.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Solar Energy Transition with Six Nations of the Grand River	**Grade 7-12**	
Activity: Electrifying the Future of Transportation Guide	**Grade 9-12**	
Activity: Build an Electric Vehicle Model	Energy	Students analyze forces and relate them to interactions between objects.
	Energy	Students investigate energy resources and explain factors that influence their use.
	Computer Science	Students examine abstraction in relation to design and coding and describe impacts of technologies.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Exploring Electric Vehicle Charging Stations	**Grade 7-12**	
Activity: History of the Electric Vehicle	**Grade 7-12**	
Activity: How is Your Community Adapting for Electric Vehicles?	**Grade 7-12**	

Activity: Planning a Trip in your Electric Vehicle	**Grade 7-12**	
Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River	**Grade 7-12**	
Activity: What EV Should You Buy?	**Grade 7-12**	
Activity: Build a Wind Turbine	Energy	Students analyze forces and relate them to interactions between objects.
	Energy	Students investigate energy resources and explain factors that influence their use.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Introduction to Wind Energy	Energy	Students analyze forces and relate them to interactions between objects.
	Energy	Students investigate energy resources and explain factors that influence their use.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Wind Turbine Simulator	**Grade 7-12**	
Activity: Build a Hydroelectric Generator	Energy	Students analyze forces and relate them to interactions between objects.
	Energy	Students investigate energy resources and explain factors that influence their use.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Introduction to Hydro Energy	Energy	Students analyze forces and relate them to interactions between objects.
	Energy	Students investigate energy resources and explain factors that influence their use.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Pumped Hydro Storage	**Grade 7-12**	
Activity: Build a Biogas Generator	**Grade 7-12**	
Activity: Introduction to Biomass Energy	**Grade 7-12**	
Activity: Build a Flywheel Model	Energy	Students analyze forces and relate them to interactions between objects.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Build a Penny Battery	Energy	Students analyze forces and relate them to interactions between objects.
	Scientific Methods	Students investigate and describe the role of explanation in science.
Activity: Endothermic and Exothermic Reactions	**Grade 7-12**	

Activity: Energy Storage Match	Grade 7-12	
Activity: Exploring Energy Storage in Your Community	Grade 7-12	
Activity: Exploring How to Make a Battery	Grade 7-12	
Activity: Heat Transfer Lab	Grade 7-12	
Activity: Pumped Hydro Storage	Grade 7-12	
Activity: The Electrostatic Effect	Grade 7-12	

Program: Re-Energy

Grade 7 - Alberta Science Curriculum Connections

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: What is Renewable Energy?	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Build a Solar Car	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Build a Solar Oven	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Construire un Four Solaire	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Introduction to Solar Electricity	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Introduction to Solar Heat Energy	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

[Activity: Solar Energy Transition with Six Nations of the Grand River]	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Electrifying the Future of Transportation Guide]	**Grade 9-12**	
[Activity: Build an Electric Vehicle Model]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Exploring Electric Vehicle Charging Stations]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

[Activity: History of the Electric Vehicle]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: How is Your Community Adapting For Electric Vehicles?]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Planning a Trip in Your Electric Vehicle]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: What EV Should You Buy?	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Build a Wind Turbine	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Introduction to Wind Energy	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Wind Turbine Simulator	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Build a Hydroelectric Generator	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Introduction to Hydro Energy	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Pumped Hydro Storage	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Build a Biogas Generator	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Introduction to Biomass Energy	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

[Activity: Build a Flywheel Model]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Build a Penny Battery]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: Endothermic and Exothermic Reactions]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
		Analyze issues related to the selection and use of thermal technologies, and explain decisions in terms of advantages and disadvantages for sustainability
	Structures and Forces	Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made
		Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Energy Storage Match	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Exploring Energy Storage in Your Community	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Activity: Exploring How To make a Battery	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
Activity: Heat Transfer Lab	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
		Analyze issues related to the selection and use of thermal technologies, and explain decisions in terms of advantages and disadvantages for sustainability
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

[Activity: Pumped Hydro Storage]	Interactions and Ecosystems	Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
		Trace and interpret the flow of energy and materials within an ecosystem
	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures
[Activity: The Electrostatic Effect]	Heat and Temperature	Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources
		Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models
		Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices
	Structures and Forces	Investigate and analyze forces within structures, and forces applied to them
		Investigate and analyze the properties of materials used in structures

Program: Re-Energy	Grade 8 - Alberta Science Curriculum Connections	

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
Activity: What is Renewable Energy?	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
Activity: Build a Solar Car	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Activity: Build a Solar Oven	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Construire un Four Solaire	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Introduction to Solar Electricity	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Introduction to Solar Heat Energy	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

[Activity: Solar Energy Transition with Six Nations of the Grand River]	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
[Activity: Electrifying the Future of Transportation Guide]	**Grade 9-12**	
[Activity: Build an Electric Vehicle Model]	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
[Activity: Exploring Electric Vehicle Charging Stations]	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
[Activity: History of the Electric Vehicle]	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Activity: How is Your Community Adapting For Electric Vehicles?	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Planning a Trip in Your Electric Vehicle	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: What EV Should You Buy?	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Activity: Build a Wind Turbine	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Introduction to Wind Energy	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Wind Turbine Simulator	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Build a Hydroelectric Generator	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues

Activity: Introduction to Hydro Energy	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues
Activity: Pumped Hydro Storage	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues
Activity: Build a Biogas Generator	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues

Activity: Introduction to Biomass Energy	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues
Activity: Build a Flywheel Model	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Build a Penny Battery	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Endothermic and Exothermic Reactions	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Activity: Energy Storage Match	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Exploring Energy Storage in Your Community	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Exploring How To make a Battery	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
Activity: Heat Transfer Lab	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Activity: Pumped Hydro Storage	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices
	Freshwater and Saltwater Systems	Investigate and interpret linkages among landforms, water and climate
		Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues
Activity: The Electrostatic Effect	Mechanical Systems	Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time
		Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts
		Investigate and describe the transmission of force and energy between parts of a mechanical system
		Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices

Program: Re-Energy

Grade 9 - Alberta Science Curriculum Connections

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: What is Renewable Energy?	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Build a Solar Car	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Build a Solar Oven	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Construire un Four Solaire	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy

Activity: Introduction to Solar Electricity	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Introduction to Solar Heat Energy	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Solar Energy Transition with Six Nations of the Grand River	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Electrifying the Future of Transportation Guide		**N/A**
Activity: Build an Electric Vehicle Model	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
Activity: Exploring Electric Vehicle Charging Stations	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy

Activity: History of the Electric Vehicle	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
Activity: How is Your Community Adapting For Electric Vehicles?	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Planning a Trip in Your Electric Vehicle	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: What EV Should You Buy?	Electrical Principles and Technologies	Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Build a Wind Turbine	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Introduction to Wind Energy	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
Activity: Wind Turbine Simulator	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe and discuss the societal and environmental implications of the use of electrical energy

Activity: Build a Hydroelectric Generator	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Introduction to Hydro Energy	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Pumped Hydro Storage	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Build a Biogas Generator	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Introduction to Biomass Energy	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Build a Flywheel Model	Electrical Principles and Technologies	Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions

Activity: Build a Penny Battery	Electrical Principles and Technologies	Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
Activity: Endothermic and Exothermic Reactions	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
	Matter and Chemical Change	Describe and interpret patterns in chemical reactions
Activity: Energy Storage Match	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Exploring Energy Storage in Your Community	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Exploring How To make a Battery	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Describe and discuss the societal and environmental implications of the use of electrical energy
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: Heat Transfer Lab	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Describe and discuss the societal and environmental implications of the use of electrical energy

Activity: Pumped Hydro Storage	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions
	Matter and Chemical Change	Investigate materials, and describe them in terms of their physical and chemical properties
Activity: The Electrostatic Effect	Electrical Principles and Technologies	Investigate and interpret the use of devices to convert various forms of energy to electrical energy and electrical energy to other forms of energy
		Describe technologies for transfer and control of electrical energy
		Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions

Program: Re-Energy

Grade 10 - Alberta Science Curriculum Connections

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Activity Name	Organizing Idea	Learning Outcome
Activity: Renewable Energy Sources	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: What is Renewable Energy?	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Build a Solar Car	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Build a Solar Oven	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Construire un Four Solaire	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Introduction to Solar Electricity	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.

Activity: Introduction to Solar Heat Energy	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Solar Energy Transition with Six Nations of the Grand River	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
Activity: Electrifying the Future of Transportation Guide		**N/A**
Activity: Build an Electric Vehicle Model	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Exploring Electric Vehicle Charging Stations	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances

Activity: History of the Electric Vehicle	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: How is Your Community Adapting For Electric Vehicles?	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Planning a Trip in Your Electric Vehicle	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Electric Vehicles and Charging Stations with Six Nations of the Grand River	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances

[Activity: What EV Should You Buy?]	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
[Activity: Build a Wind Turbine]	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
[Activity: Introduction to Wind Energy]	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: Wind Turbine Simulator]	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: Build a Hydroelectric Generator	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Introduction to Hydro Energy	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: Pumped Hydro Storage	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: Build a Biogas Generator	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances

Activity: Introduction to Biomass Energy	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Build a Flywheel Model	10 - Unit B: Energy Flow in Technological Systems	Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems
	14 - Unit B: Understanding Energy Transfer Technologies	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Build a Penny Battery	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances
Activity: Endothermic and Exothermic Reactions	10 - Unit A: Energy & Matter in Chemical Change	Describe the basic particles that make up the underlying structure of matter, and investigate related technologies
		Identify and classify chemical changes, and write word and balanced chemical equations for significant chemical reactions, as applications of Lavoisier's law of conservation of mass
	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: Energy Storage Match	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
		Investigate and interpret the role of environmental factors on global energy transfer and climate change
Activity: Exploring Energy Storage in Your Community	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
		Investigate and interpret the role of environmental factors on global energy transfer and climate change
Activity: Exploring How To make a Battery	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	Explain the functioning of common methods and devices designed to control the transfer of thermal energy
		Describe and compare simple machines as devices that transfer energy and multiply forces or distances

Activity: Heat Transfer Lab	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: Pumped Hydro Storage	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: The Electrostatic Effect	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
		Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.
		Investigate and interpret the role of environmental factors on global energy transfer and climate change