

CURRICULUM CONNECTIONS

This section is for educators who want more specific information regarding the Grade 7 Science curriculum connections for each activity in the *Heat and Temperature, Journey to the Centre of the Reservoir* crate.

Grade 7: Table of Knowledge Outcomes¹

Activity	Unit	STS-Knowledge Outcomes
Temperature Tattles on Hurrying Heat	Heat and Temperature	Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models <ul style="list-style-type: none"> • Compare heat transmission in different materials • Heat transfer by conduction, convection, and radiation • Difference between heat and temperature Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices. <ul style="list-style-type: none"> • Describe ways in which thermal energy is produced naturally • Explain the operation of technological devices and systems that respond to temperature change
	Planet Earth	Describe and demonstrate methods used in the scientific study of Earth and in observing and interpreting its component materials <ul style="list-style-type: none"> • Identify the purpose of different tools and techniques used in the study of Earth.
Pushy Particles	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 <ul style="list-style-type: none"> • Trace linkages between human purposes and the development of heat-related technologies Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models <ul style="list-style-type: none"> • Describe the effect of heat on the motion of particles and explain changes of state using the Particle Model of Matter • Investigate and describe the effects of heating and cooling on the volume of different materials
	Planet Earth	Describe and demonstrate methods used in the scientific study of Earth and in observing and interpreting its component materials <ul style="list-style-type: none"> • Identify the purpose of different tools and techniques used in the study of Earth.

¹ Alberta Education Programs of Study

Activity	Unit	STS-Knowledge Outcomes
Heat Round Up	Heat and Temperature	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources</p> <ul style="list-style-type: none"> Trace linkages between human purposes and the development of heat-related technologies <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> Explain how heat is transmitted by conduction, convection, and radiation in solids, liquids, and gases Describe the effect of heat on the motion of particles and explain changes of state using the Particle Model of Matter <p>Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices</p> <ul style="list-style-type: none"> Describe examples of passive and active solar heating, and explain the principles that underlie them.
Through Thick and Thin	Heat and Temperature Planet Earth	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources</p> <ul style="list-style-type: none"> Trace linkages between human purposes and the development of heat-related technologies <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> Describe the effect of heat on the motion of particles and explain changes of state using the Particle Model of Matter <p>Describe and demonstrate methods used in the scientific study of Earth and in observing and interpreting its component materials</p> <ul style="list-style-type: none"> Identify the purpose of different tools and techniques used in the study of Earth.

Activity	Unit	STS-Knowledge Outcomes
Bar Wars	Heat and Temperature	<p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> • Compare heat transmission in different materials • Explain how heat is transmitted by conduction, convection, and radiation in solids, liquids and gases • Investigate and describe the effects of heating and cooling on the volume of different materials, and identify applications of the effects <p>Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices</p> <ul style="list-style-type: none"> • Explain the operation of technological devices and systems that respond to temperature change • Investigate and describe practical problems in controlling and using thermal energy
Heat Ambush	Heat and Temperature	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources</p> <ul style="list-style-type: none"> • Trace linkages between human purposes and the development of heat-related technologies • Identify and explain uses of devices and systems to generate, transfer, remove or control thermal energy <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> • Compare heat transmission in different materials • Explain how heat is transmitted by conduction, convection and radiation in solids, liquids and gases <p>Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices</p> <ul style="list-style-type: none"> • Compare and evaluate materials and designs that maximize or minimize heat energy transfer

Activity	Unit	STS-Knowledge Outcomes
Cool Trucks	Heat and Temperature	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to increased use of energy resources</p> <ul style="list-style-type: none"> • Trace linkages between human purposes and the development of heat-related technologies • Identify and explain uses of devices and systems to generate, transfer, remove, or control thermal energy <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> • Compare heat transmission in different materials • Explain how heat is transmitted by conduction, convection, and radiation in solids, liquids, and gases <p>Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices</p> <ul style="list-style-type: none"> • Compare and evaluate materials and designs that maximize or minimize heat energy transfer
Thermometer Mittens (additional activity)	Heat and Temperature	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy</p> <ul style="list-style-type: none"> • Trace linkages between human purposes and the development of heat-related technologies • Identify and explain uses of devices and systems to generate, transfer, remove, or control thermal energy <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence, and models</p> <ul style="list-style-type: none"> • Compare heat transmission in different materials • Explain how heat is transmitted by conduction, convection, and radiation in solids, liquids, and gases <p>Apply an understanding of heat and temperature in interpreting natural phenomena and technological devices</p> <ul style="list-style-type: none"> • Compare and evaluate materials and designs that maximize or minimize heat energy transfer • Investigate and describe practical problems in controlling and using thermal energy