


Heating up – Stage 2


Earth and Space Strand


Term	1	2	3	4	Weeks	1	2	3	4	5	6	7	8	9	10	11
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Outcome	Lesson Sequence – Overview	Resources	Word Wall
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p> <ul style="list-style-type: none"> discuss strategies animals have for keeping warm explain their existing ideas about how to stay warm identify heat sources discuss how heat moves. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> contribute to class discussions about how to keep warm use talk to their share ideas 	<p>Lesson 1</p> <p>Warming up – Lesson focus p10</p> <ul style="list-style-type: none"> To capture students' interest and find out what they think they know about how heat can be produced in many ways and can move from one object to another. To elicit students' questions about heat and keeping warm. <p><u>Students:</u></p> <ul style="list-style-type: none"> role-play the way they feel when they are hot or cold discuss the ways they would warm up if they felt cold explain the reasons they think different things help them to warm up experience and explain their ideas on how heat moves. 	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall ideas map (see 'Preparation') multimedia resources showing animals or humans trying to keep warm (see 'Preparation') <p>For each student</p> <ul style="list-style-type: none"> student science journal ice block 	<p><i>absorb</i></p> <p><i>boiling</i></p> <p><i>burning</i></p> <p><i>chemical</i></p> <p><i>clothing</i></p> <p><i>cold</i></p> <p><i>conductivity</i></p> <p><i>conductor</i></p> <p><i>cool</i></p> <p><i>electrical</i></p> <p><i>electricity</i></p> <p><i>energy</i></p> <p><i>fair test</i></p> <p><i>friction</i></p>


<ul style="list-style-type: none"> represent their ideas about how heat moves contribute to the class science journal and word wall. 			<i>heat</i> <i>hot</i> <i>ice</i>
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p> <ul style="list-style-type: none"> identify heat sources in the classroom sort heat sources into heat producers and things heated by heat producers identify heat sources at home. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> understand the purpose and features of a table and T-chart use oral, written and visual language to record and discuss their observations of heat sources 	<h2>Lesson 2</h2> <p><u>Hot spots – Lesson focus p15</u></p> <ul style="list-style-type: none"> To provide students with hands-on, shared experiences of identifying heat sources in the classroom and at home. <p>Session 1 Hot or not?</p> <p><u>Students:</u></p> <ul style="list-style-type: none"> <i>identify heat sources in the classroom</i> <i>identify primary and secondary heat sources</i> <i>record observations in a table.</i> <p>Session 2 Heat at home</p> <p><u>Students:</u></p> <ul style="list-style-type: none"> <i>identify primary and secondary heat sources at home</i> <i>take a photo or draw a heat source and bring to school.</i> 	<p>Session 1 For the class</p> <ul style="list-style-type: none"> class science journal word wall team roles chart team skills chart 1 enlarged copy of 'What's hot?' (Resource sheet 1) candle hot water bottle kettle containing warm water collection of heat sources or pictures of them (see 'Preparation') <p>For each team</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each team member's science journal 1 copy of 'What's hot?' (Resource sheet 1) per team member <p>Session 2 For the class</p> <ul style="list-style-type: none"> class science journal word wall 	<i>insulation</i> <i>insulator</i> <i>investigation</i> <i>journal</i> <i>kinetic</i> <i>mechanical</i> <i>nuclear</i> <i>observation</i> <i>record</i> <i>reflect</i> <i>safety</i> <i>science</i> <i>source</i> <i>sun</i> <i>temperature</i>

<ul style="list-style-type: none"> engage in discussion to compare ideas about heat sources. 		<ul style="list-style-type: none"> 'Heat collection' board 1 enlarged copy of 'Information note for families' (Resource sheet 2) <p>For each student</p> <ul style="list-style-type: none"> student science journal 1 copy of 'Information note for families' (Resource sheet 2) 	<i>thermal</i> <i>thermometer</i> <i>transfer</i> <i>warm</i>
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p> <ul style="list-style-type: none"> identify three of the ways in which heat can be produced classify heat sources according to how they produce heat. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> contribute to discussions about some ways in which heat is produced use questions to agree and disagree with teams' claims. 	<p>Lesson 3</p> <p><u>Energy explorers – Lesson focus p24</u></p> <ul style="list-style-type: none"> To provide students with hands-on, shared experiences of ways in which heat is produced. <p><u>Students:</u></p> <ul style="list-style-type: none"> sort pictures into three groups according to how they produce heat find objects and items to include in the groups. 	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall team roles chart team skills chart 'Heat collection' board from Lesson 2, Session 2 1 enlarged copy of 'Warming ways' (Resource sheet 3) objects, photos or pictures of heat sources (see 'Preparation') <p>For each team</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each team member's science journal 1 copy of 'Warming ways' (Resource sheet 3) per team member 	

<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p> <ul style="list-style-type: none"> • explore objects that do not produce heat • identify heat sources inside and outside the classroom • explore that some objects heat up when in contact with a heat source. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> • use oral, written and visual language to record and discuss investigation results • engage in discussion to compare results. 	<h2>Lesson 4</h2> <p>Sharing the warmth – Lesson focus p29</p> <ul style="list-style-type: none"> • To provide students with hands-on, shared experiences of heat moving from one object to another. <p><u>Students:</u></p> <ul style="list-style-type: none"> • <i>observe that many objects do not produce heat</i> • <i>explore how objects obtain heat by being in contact with a heat source.</i> 	<p>For the class</p> <ul style="list-style-type: none"> • class science journal • word wall • team roles chart • team skills chart • metal teaspoon • heat pack • 1 enlarged copy of 'Warm me up!' (Resource sheet 4) <p>For each team</p> <ul style="list-style-type: none"> • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • 1 enlarged copy of 'Warm me up!' (Resource sheet 4) • 1 timing device (eg, a stopwatch) • metal teaspoon 	
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p>	<h2>Lesson 5</h2> <p><u>Too hot to handle – Lesson focus p34</u></p> <ul style="list-style-type: none"> • To support students to represent and explain their understanding of how heat can be produced and can move from object to object, and to introduce current scientific views. 	<p>Session 1</p> <p>For the class</p> <ul style="list-style-type: none"> • class science journal • team roles chart • team skills chart • word wall 	

<ul style="list-style-type: none"> explain that heat transfers from hot objects to cooler ones review their understanding of heat sources and the production of heat. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> use written and oral language to demonstrate their understanding of heat transfer create a poster to explain heat and how heat moves use scientific language to describe heat sources contribute to discussions about everyday scenarios involving heat transfer. 	<p>Students:</p> <ul style="list-style-type: none"> <i>represent their understanding of heat sources and the movement of heat using everyday scenarios</i> <i>create a poster warning others about the dangers of heat.</i> 	<ul style="list-style-type: none"> 1 enlarged copy of 'Moving heat' (Resource sheet 5) <p>For each team</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each team member's science journal 1 copy of 'Moving heat' (Resource sheet 5) per team member materials to create a poster 	
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy, such as light and heat</p>	<p>Lesson 6 <u>Getting warmer – Lesson focus p39</u></p> <ul style="list-style-type: none"> To support students to plan and conduct an investigation to compare the conductivity of different materials. <p>Students:</p>	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall team roles chart team skills chart 	

<ul style="list-style-type: none"> conduct an investigation of the conduction of heat through different materials make predictions about what will happen to different materials placed in hot water observe, record and interpret the results of their investigation identify the differences in conductivity of different materials. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> use oral, written and visual language to record and discuss investigation results record data in a table discuss findings and compare results. 	<ul style="list-style-type: none"> <i>work in teams to investigate the conductivity of different materials when heated by hot water</i> <i>record and represent their findings in a table</i> <i>discuss and compare their results from the investigation.</i> 	<ul style="list-style-type: none"> 1 enlarged copy of 'Hot water investigation planner' (Resource sheet 6). 1 timing device (eg, a stopwatch) 1 measuring jug hot water (<50°C) towel <p>For each student</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each team member's science journal 1 copy of 'Hot water investigation planner' (Resource sheet 6) 3 sticks or 3 spoons made of different materials (see 'Preparation') <i>optional:</i> 1 timing device (eg, a stopwatch) sturdy cup or mug (see 'Preparation') 	
<p>ST2-8PW – ST describes the characteristics and effects of common forms of energy,</p>	<p>Lesson 7 <u>Finding the heat – Lesson focus p46</u></p>	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall 	

<p>such as light and heat</p> <ul style="list-style-type: none"> • identify that heat can be produced in different ways by different heat sources • explain heat can move from one object to another • discuss and compare their ideas. <p>ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations</p> <ul style="list-style-type: none"> • use oral, written and visual forms to present their understanding of heat production and transfer • reflect on their learning in a science journal entry. 	<ul style="list-style-type: none"> • To provide opportunities for students to represent what they know about how heat can be produced in many ways and can move from one object to another, and to reflect on their learning during the unit. <p>Students:</p> <ul style="list-style-type: none"> • <i>review the class ideas map</i> • <i>find, list and categorise things that produce heat</i> • <i>create a drawing to show how heat moves from one object to another</i> • <i>participate in a class discussion to reflect on their learning during the unit.</i> 	<ul style="list-style-type: none"> • ideas map from Lesson 1 • 1 enlarged copy of 'Where's the heat?' (Resource sheet 7) <p>For each student</p> <ul style="list-style-type: none"> • student science journal • 1 copy of 'Where's the heat?' (Resource sheet 7) 	
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