


What's the matter – Stage 3


Material World 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>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> vote on whether they think materials are solids, liquids and/or gases explain what they think solids, liquids and gases are contribute to discussions about solids, liquids and gases identify questions about solids, liquids and gases and how they are classified <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> identify the purpose and features of a science chat-board and word wall record their reasoning about 	<p>Lesson 1 Mysterious matter – Lesson focus p11</p> <ul style="list-style-type: none"> To capture students' interest and find out what they think they know about how solids, liquids and gases have different observable properties and behave in different ways. To elicit students' questions about how to identify solids, liquids and gases. <p>Students:</p> <ul style="list-style-type: none"> explore different materials vote and explain their ideas on whether they think the materials are solids, liquids or gases contribute to the start of a class science chat-board. 	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall 5 large sheets of paper science chat-board (see 'Preparation') 8 transparent containers with lids materials to place in containers: stones, icing sugar, play-doh, elastic bands, cooking oil, honey 200 g of psyllium husks 200 mL water 1 enlarged copy of 'Voting matters' (Resource sheet 1) self-adhesive notes <p>For each student</p> <ul style="list-style-type: none"> science journal 1 copy of 'Voting matters' (Resource sheet 1) 	<p><i>break</i></p> <p><i>brittleness</i></p> <p><i>change</i></p> <p><i>classify</i></p> <p><i>compressed</i></p> <p><i>conductors</i></p> <p><i>container</i></p> <p><i>cool</i></p> <p><i>density</i></p> <p><i>description</i></p> <p><i>different</i></p> <p><i>elasticity</i></p> <p><i>float</i></p> <p><i>force</i></p> <p><i>gas</i></p>

<p>solids, liquids and gases</p> <ul style="list-style-type: none"> review the results of tallies understand the purpose and features of the class science chat-board and word wall. 			<p>heat hardness investigation liquid malleability mass materials matter metallic observe opaque plasma properties pour powder reshape scratch soft</p>
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> observe the properties of liquids identify that liquid materials flow and take the shape of their container identify the features of a fair test and predict which liquid is the most viscous work in teams to explore the viscosity of liquid materials review the investigation. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> understand the purpose and features of a science journal 	<p>Lesson 2 <u>See how they run – Lesson focus p18</u></p> <ul style="list-style-type: none"> To provide students with hands-on, shared experiences of the observable properties of liquids. <p>Session 1 Looking at liquids</p> <p><u>Students:</u></p> <ul style="list-style-type: none"> explore and record in a table the properties of different liquids identify properties that are shared by liquids discuss how liquids flow and take the shape of their containers. <p>Session 2 (Optional) Runny races</p> <p><u>Students:</u></p> <ul style="list-style-type: none"> discuss how to set up an investigation of the viscosity of liquids work in teams to explore the viscosity of materials. 	<p>Session 1 For the class</p> <ul style="list-style-type: none"> class science journal class science chat-board team skills chart team roles chart word wall <p>For each team</p> <ul style="list-style-type: none"> each team member's science journal role wristbands or badges for Director, Manager and Speaker ½ cup of liquids (eg, lemonade, fruit juice, water, milk, washing up liquid) (see 'Preparation') ½ cup of powdered laundry detergent 1 spoon 10 plastic transparent cups 1 timing device (eg, a stopwatch or a watch with a second hand) <p>Session 2 For the class</p>	

<ul style="list-style-type: none"> record their observations of the properties in a table discuss and compare results to form common understandings. 		<ul style="list-style-type: none"> class science journal class science chat-board team skills chart team roles chart word wall 1 enlarged copy of 'Runny investigation planner' (Resource sheet 2) containers of cooking oil and honey from Lesson 1 container of water <p>For each team</p> <ul style="list-style-type: none"> each team member's science journal role wristbands or badges for Director, Manager and Speaker 1 copy of 'Runny investigation planner' (Resource sheet 2) 2 tablespoons cooking oil 2 tablespoons water 2 tablespoons honey 3 tablespoons 3 cups 1 timing device (eg, a stopwatch or a watch with a second hand) 	<i>solid</i> <i>space</i> <i>squash</i> <i>state</i> <i>stir</i> <i>strength</i> <i>stretch</i> <i>substance</i> <i>temperature</i> <i>transparent</i> <i>vapour</i> <i>variables</i> <i>viscosity</i> <i>volume</i> <i>weight</i>
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> observe the properties of solids 	<p>Lesson 3 Solid studies – Lesson focus p25</p> <ul style="list-style-type: none"> To provide students with hands-on, shared experiences of the observable properties of solids. <p><u>Students:</u></p>	<p>For the class</p> <ul style="list-style-type: none"> class science journal class science chat-board team skills chart team roles chart word wall 	

<ul style="list-style-type: none"> review the investigation and identify further questions for investigation work in teams to safely use appropriate equipment identify that powders are solids using evidence-based claims. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> record their observations of the properties of solids in a table discuss and compare results. 	<ul style="list-style-type: none"> <i>explore the properties of different solid materials</i> <i>record their observations in a table</i> <i>identify properties that are shared by solids</i> <i>identify that powders are solids based on their observable properties.</i> 	<ul style="list-style-type: none"> 1 enlarged copy of 'Solid science' (Resource sheet 3) <p>For each team</p> <ul style="list-style-type: none"> each team member's science journal role wristbands or badges for Director, Manager and Speaker 1 copy of 'Solid science' (Resource sheet 3) magnifying glass selection of solids (eg, soap, chalk, play-doh, a stone, a block of wood, a sponge, jelly snake, elastic band, marbles, flour, laundry powder, rice) (see 'Preparation') 	
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> make predictions, provide evidence for their predictions and compare them with results identify the features of a fair test and choose which variable to change 	<p>Lesson 4 <u>What a gas! – Lesson focus p31</u></p> <ul style="list-style-type: none"> To provide students with hands-on, shared experiences of the observable properties of gases. <p><u>Students:</u></p> <ul style="list-style-type: none"> <i>identify that air is made up of gases and that it takes up space</i> <i>work in collaborative learning teams to change one variable in a fair test investigation about air</i> 	<p>For the class</p> <ul style="list-style-type: none"> class science journal class science chat-board team skills chart team roles chart word wall 1 enlarged copy of 'Tissues in a cup' (Resource sheet 4) 1 plastic transparent cup 1 balloon filled with air 1 balloon filled with water 	

<ul style="list-style-type: none"> work in teams to safely use appropriate equipment to complete an investigation identify that gases take up space and fill the container they are in using evidence-based claims. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> discuss and compare results to form common understandings. 	<ul style="list-style-type: none"> <i>compare air and water and discuss how gases spread out to fill their container.</i> 	<p>For each team</p> <ul style="list-style-type: none"> each team member's science journal role wristbands or badges for Director, Manager and Speaker 1 copy of 'Tissues in a cup' (Resource sheet 4) 2 plastic transparent cups 2 tissues 1 deep container water to fill the container 	
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> make and discuss evidence-based claims about solids, liquids and gases work in teams to sort materials according to their properties identify how to distinguish solids, liquids and gases. <p>ST3-1WS-S plans and conducts scientific investigations</p>	<p>Lesson 5 <u>Sort it out – Lesson focus p36</u></p> <ul style="list-style-type: none"> To support students to represent and explain their understanding of the observable properties of solids, liquids and gases, and how they behave in different ways. To introduce current scientific views. <p>Students:</p> <ul style="list-style-type: none"> <i>discuss claims about solids, liquids and gases</i> <i>work in teams to sort materials according to what they have learned about solids, liquids and gases</i> <i>read and discuss a text about solids, liquids and gases.</i> 	<p>For the class</p> <ul style="list-style-type: none"> class science journal class science chat-board team skills chart team roles chart word wall <p>For each team</p> <ul style="list-style-type: none"> each team member's science journal role wristbands or badges for Director, Manager and Speaker 	

<p>to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> • discuss and compare results • read and discuss a text about solids, liquids and gases • discuss how to find answers to questions that they might have. 		<ul style="list-style-type: none"> • 1 copy of 'States of matter' (Resource sheet 5) 	
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> • make predictions, provide evidence for their predictions and compare them with results • identify the features of a fair test and choose which variable to change • work in teams to safely use appropriate equipment to complete an investigation • review the investigation and identify further questions for investigation <p>ST3-6MW-S explains the effects of heat on the properties</p>	<p>Lesson 6 Hot stuff – Lesson focus p41</p> <ul style="list-style-type: none"> • To support students to plan and conduct an investigation of whether the observable properties of gas change with temperature. <p>Students:</p> <ul style="list-style-type: none"> • <i>identify that air is a gas and that it takes up space</i> • <i>work in collaborative learning teams to change one variable in a fair test investigation about air</i> • <i>discuss how the volume of a gas depends on the temperature.</i> 	<p>For the class</p> <ul style="list-style-type: none"> • class science journal • class science chat-board • team skills chart • team roles chart • word wall • 1 enlarged copy of 'Balloon investigation planner' (Resource sheet 6) • 2 x 500 mL bottles • 2 balloons • 1 bucket • water (~50°C) to ¾ fill the bucket • extra equipment for conducting fair tests (eg, different-sized bottles, different-shaped balloons, different-shaped containers) (see 'Preparation') <p>For each team</p> <ul style="list-style-type: none"> • each team member's science journal 	

<p>and behaviour of materials</p> <ul style="list-style-type: none"> identify that the volume of gases depends on their temperature. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> discuss and compare results. 		<ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker 1 copy of 'Balloon investigation planner' (Resource sheet 6) 2 x 250 mL bottles 2 balloons 1 container deep enough to submerge a 250 mL bottle water (~50°C) to $\frac{3}{4}$ fill the container 	
<p>ST3-7MW explains how the properties of materials determine their use for a range of purposes</p> <ul style="list-style-type: none"> participate in a class discussion about the properties of solids, liquids and gases identify the observable properties of chosen solids, liquids and gases. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> create game cards about solids, liquids and gases using text and illustrations 	<p>Lesson 7 <u>Mind your matters – Lesson focus p48</u></p> <ul style="list-style-type: none"> To provide opportunities for students to represent what they know about how solids, liquids and gases have different observable properties and behave in different ways, and to reflect on their learning during the unit. <p><u>Students:</u></p> <ul style="list-style-type: none"> <i>create cards to use in a card game about solids, liquids and gases</i> <i>reflect on their learning during the unit.</i> 	<p>For the class</p> <ul style="list-style-type: none"> class science journal class science chat-board word wall 1 enlarged copy of 'Matter cards' (Resource sheet 7) <p>For each student</p> <ul style="list-style-type: none"> science journal 2 copies of 'Matter cards' (Resource sheet 7) optional: 2 A4 cardboard sheets to paste 'Matter cards' onto 	

- express their thoughts about their learning journey.

