

# Year 3 Assessment Rubrics

## Year 3 Achievement Standard

By the end of Year 3, students use their understanding of the movement of the Earth, materials and the behaviour of heat to suggest explanations for everyday observations. They describe features common to living things. They describe how they can use science investigations to respond to questions and identify where people use science knowledge in their lives.

Students use their experiences to pose questions and predict the outcomes of investigations. They make formal measurements and follow procedures to collect and present observations in a way that helps to answer the investigations questions. Students suggest possible reasons for their findings. They describe how safety and fairness were considered in their investigations. They use diagrams and other representations to communicate their ideas.

Organisers	CONTENT DESCRIPTIONS	ACHIEVEMENT STANDARD	EVIDENCE	LEVEL OF ACHIEVEMENT		
				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
SCIENCE UNDERSTANDING						
Biological sciences	Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044)	Describes features common to living things	<i>Feathers, fur or leaves?</i>  ‘Lots of drawings’ (Resource sheet 9)	<ul style="list-style-type: none"><li>• Makes groups that show combining living and non-living things</li><li>• Makes groups that are arbitrary and not based on significant common features</li></ul>	<ul style="list-style-type: none"><li>• Identifies groups of things based on their observable features</li><li>• Identifies features that distinguish living from non-living things</li><li>• Makes groups with similar features but which may not correspond to key scientific features</li><li>• Labels groups using scientific names</li></ul>	<ul style="list-style-type: none"><li>• Identifies non-living things</li><li>• Identifies groups based their observable features</li><li>• Groups living things using observable features and scientific names</li></ul>

AC The Achievement standard and Content descriptions are sourced from the Australian Curriculum.

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				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
SCIENCE UNDERSTANDING						
Chemical sciences	A change of state between solid and liquid can be caused by adding or removing heat (ACSSU046)	Uses their understanding of materials to suggest explanations for everyday observations	Melting moments ‘Too hot!’ (Resource sheet 5)	<ul style="list-style-type: none"><li>• Uses vocabulary to describe the behaviour of heat that might not be key to the activity</li><li>• Discusses that the Sun is a source of heat</li></ul>	<ul style="list-style-type: none"><li>• Identifies that materials can change between a solid and a liquid when the temperature changes</li><li>• Identifies everyday objects that change between a solid and a liquid when the temperature changes</li><li>• Uses key vocabulary to describe the behaviour of heat</li></ul>	<ul style="list-style-type: none"><li>• Predicts the outcomes of investigations supported with detailed evidence based on experiences</li><li>• Makes a considered comparison of results with predictions and provides detailed reasons for findings</li><li>• Provides a detailed understanding of variables and how to conduct a fair test</li></ul>

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SCIENCE UNDERSTANDING						
Earth and space sciences	Earth’s rotation on its axis causes regular changes, including night and day (ACSSU048)	Uses their understanding of the movement of the Earth to suggest explanations for everyday observations	<i>Night and day</i> ‘Where’s the Sun?’ (Resource sheet 1) Annotated drawings	<ul style="list-style-type: none"><li>Describes how night is caused by being on the dark or shadow side of the Earth</li></ul>	<ul style="list-style-type: none"><li>Explains how night and day are caused by the Earth rotating on its axis</li><li>Describes the shape and relative sizes of the Sun, Moon and Earth</li></ul>	<ul style="list-style-type: none"><li>Provides extended information about how night and day are caused by the Earth rotating on its axis</li></ul>
Physical sciences	Heat can be produced in many ways and can move from one object to another (ACSSU049)	Uses their understanding the behaviour of heat to suggest explanations for everyday observations	<i>Heating up</i> ‘Where’s the heat?’ (Resource sheet 7) Annotated drawings	<ul style="list-style-type: none"><li>Locates heat sources</li><li>Discusses that heat can cause objects to melt</li></ul>	<ul style="list-style-type: none"><li>Identifies that heat can be produced in different ways by different heat sources</li><li>Explains that heat can move from one object to another.</li></ul>	<ul style="list-style-type: none"><li>Explains that heat moves from the hotter object to the colder object</li><li>Transfers knowledge of the behaviour of heat to explain everyday observations</li></ul>

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SCIENCE AS A HUMAN ENDEAVOUR						
Nature and development of science	Science involves making predictions and describing patterns and relationships (ACSHE050)	Describes how they can use science investigations to respond to questions	<ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li><li>• <i>Heating up</i></li></ul>	Identifies science investigations that relate to questions	Describes how they can use science investigations to respond to questions	Provides a detailed understanding of how they can use science investigations to respond to questions
Use and influence of science	Science knowledge helps people to understand the effect of their actions (ACSHE051)	Identifies where people use science knowledge in their lives	<ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li><li>• <i>Heating up</i></li></ul>	Makes suggestions about where people use science knowledge in their lives	Identifies where people use science knowledge in their lives	Provides a detailed understanding of where people use science knowledge in their lives and in the wider world

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SCIENCE INQUIRY SKILLS						
Questioning and predicting	With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS053)	Uses experiences to pose questions and predict the outcomes of investigations	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li><li>• <i>Heating up</i></li></ul>	Makes predictions without supporting evidence	Uses experiences to pose questions and predict the outcomes of investigations	Asks pertinent and investigable questions and predicts the outcomes of investigations supported with detailed evidence based on their knowledge and experiences
Planning and conducting	Suggest ways to plan and conduct investigations to find answers to questions (ACSIS054)	Describes how they can use science investigations to respond to questions	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li></ul>	Makes suggestions about planning or conducting science investigations	Describes how they can use science investigations to respond to questions	Demonstrates a detailed understanding of how they can plan and conduct science investigations to respond to questions

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SCIENCE INQUIRY SKILLS						
Planning and conducting	Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSIS054)	Makes formal measurements and follow procedures to collect and present observations  Describes how safety was considered in the investigation	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li><li>• <i>Heating up</i></li></ul>	Follows guidelines on making and recording observations and using materials safely	Makes formal measurements and follows procedures to collect and present observations  Describes how safety was considered in the investigation	Independently records and presents observations using formal measurements where appropriate  Describes in detail how and why safety was considered in the investigation
	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSIS057)	Presents observations in a way that helps to answer the investigation questions	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Melting moments</i></li><li>• <i>Night and day</i></li><li>• <i>Heating up</i></li></ul>	Follows simple procedures to represent observations	Presents observations in a way that helps to answer the investigation questions	Has knowledge of different ways to represent data and uses these to identify meaningful patterns and trends
Processing and analysing data and information	Compare results with predictions, suggesting possible reasons for findings (ACSIS215)	Suggests possible reasons for findings	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li>• <i>Feathers, fur or leaves?</i></li><li>• <i>Night and day</i></li></ul>	Suggests reasons for findings that are obvious and follow explicitly from given evidence	Suggests possible reasons for findings	Applies scientific concepts and knowledge and constructs claims based on evidence to explain phenomena

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SCIENCE INQUIRY SKILLS						
Evaluating	Reflect on the investigation, including whether a test was fair or not (ACSIS058)	Describes how fairness was considered in the investigation	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li><i>Feathers, fur or leaves?</i></li><li><i>Melting moments</i></li><li><i>Night and day</i></li><li><i>Heating up</i></li></ul>	Demonstrates a non-scientific idea of a fair investigation	Describes how fairness was considered in the investigation	Identifies variables and articulates why a test is fair or not, and suggests ways to improve the investigation
Communicating	Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSIS060)	Uses diagrams and other representations to communicate their ideas	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><li><i>Melting moments</i></li><li><i>Heating up</i></li></ul>	Chooses from a limited repertoire of ways to represent and communicate their ideas and findings	Uses diagrams and other representations to communicate their ideas	Considers a variety of representations to communicate their ideas and findings

 The Achievement standard and Content descriptions are sourced from the Australian Curriculum.

#### GLOSSARY

- Describe** Give an account of characteristics or features.
- Identify** Establish or indicate who or what someone or something is.
- Considered** Formed after careful thought.

#### Acknowledgements

PrimaryConnections is supported by the Australian Government.

#### Disclaimer

The views expressed herein do not necessarily represent the views of the Australian Government.

## Too hot!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Someone has left their shopping in the car on a very hot day!  
What will happen to the items?

### Shopping items:

block of chocolate  
ice cream  
fizzy drink  
magazine  
frozen peas



What will happen to each item in the hot car? Here are some words to use:

runny	not runny	solid	liquid	melt
change	hot	cold	shape	same

block of chocolate	I think <u>it will melt</u> because <u>it is hot</u>
ice cream	I think <u>it will melt</u> because <u>it is runny</u>
soft drink	I think <u>it will go hot</u> because <u>of the sun</u>
magazine	I think <u>it will stay the same</u> because <u>of the sun is hot</u>
frozen peas	I think <u>they will melt and go soft</u> because <u>of the sun</u>

Resource sheet 5

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Understanding

### Below Achievement Standard

Melting moments 'Too hot!' (Resource sheet 5)



## Too hot!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Someone has left their shopping in the car on a very hot day!  
What will happen to the items?

### Shopping items:

- block of chocolate
- ice cream
- fizzy drink
- magazine
- frozen peas



What will happen to each item in the hot car? Here are some words to use:

runny ✓	not runny	solid ✓	liquid ✓	melt ✓
change ✓	hot ✓	cold	shape ✓	same ✓

block of chocolate	I think <u>it will melt and turn into a liquid</u> because <u>the hot sun will make it hot and it will go runny</u>
ice cream	I think <u>it will melt and change into liquid</u> because <u>the hot sun will make it hot and it will be very runny</u>
soft drink	I think <u>it will go hot but will stay a liquid</u> because <u>the hot sun will heat it up</u>
magazine	I think <u>it will be hot but will stay the same shape</u> because <u>it is a solid that doesn't change shape</u>
frozen peas	I think <u>they will melt but will stay the same shape</u> because <u>they are solid and stay solid</u>

Resource sheet 5

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Understanding

### At Achievement Standard

## Too hot!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Someone has left their shopping in the car on a very hot day!  
What will happen to the items?

Shopping items:

- block of chocolate
- ice cream
- fizzy drink
- magazine
- frozen peas



What will happen to each item in the hot car? Here are some words to use:

runny ✓	not runny	solid ✓	liquid ✓	melt ✓
change ✓	hot ✓	cold ✓	shape ✓	same ✓

block of chocolate	I think <u>it will change from a solid to a liquid</u> because <u>the Sun will heat it up and it will go runny and change its shape.</u>
ice cream	I think <u>it will change from a solid to a liquid</u> because <u>the Sun will heat it up and it won't be cold anymore and will change shape.</u>
soft drink	I think <u>it will heat up but will stay the same</u> because <u>it is already a liquid.</u>
magazine	I think <u>it will be hot to touch but will stay the same</u> because <u>it is a solid shape and can't become a liquid</u>
frozen peas	I think <u>the peas will stay the same but the ice around the will melt and become runny</u> because <u>the Sun will heat the ice which melts and the peas will go soft.</u>

Resource sheet 5

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Understanding

Above Achievement Standard

Melting moments 'Too hot!' (Resource sheet 5)

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Inquiry Skills

#### Below Achievement Standard

Questioning and predicting

PrimaryConnections® Melting moments

**Melting investigation planner**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Other members of your team: \_\_\_\_\_

<p><b>What are you going to investigate?</b></p> <p>What happens to <i>the time</i></p> <p>when we change <i>the chocolate size?</i></p>	<p><b>What do you think will happen?</b> Explain why.</p> <p><i>it will melt</i></p>
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To make the test fair, what things (variables) are you going to:

<p><b>Change?</b></p> <p><i>size</i></p>	<p><b>Measure /Observe?</b></p> <p><i>time</i></p>	<p><b>Keep the same?</b></p> <p><i>the bag</i></p>
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**What equipment does the team need?**

- role wristbands or badges for Director, Manager, Speaker
- each team member's science journal
- \_\_\_\_\_g of the full piece of chocolate
- \_\_\_\_\_g of the broken chocolate
- 2 plastic resealable bags
- pen
- access to a warm place or heat source

Processing and analysing data and information

*I think the smaller pieces melted faster because they are small.*

Evaluating

*It was a fair test because nobody cheated.*

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Inquiry Skills

#### At Achievement Standard

#### Questioning and predicting

PrimaryConnections® Melting moments  
Linking science with literacy

Melting investigation planner

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Other members of your team: \_\_\_\_\_

<p>What are you going to investigate?</p> <p>What happens to the time it takes to melt when we change the size of the chocolate?</p>	<p>What do you think will happen? Explain why.</p> <p>I think the small pieces will melt the fastest. because they are small.</p>
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To make the test fair, what things (variables) are you going to:

<p>Change?</p> <p>the size of the pieces of chocolate</p>	<p>Measure /Observe?</p> <p>the time it takes to melt</p>	<p>Keep the same?</p> <p>-the amount of chocolate -the type of bag (plastic)</p>
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What equipment does the team need?

- role wristbands or badges for Director, Manager, Speaker
- each team member's science journal
- 20 g of the full piece of chocolate
- 20 g of the broken chocolate
- 2 plastic resealable bags
- pen
- access to a warm place or heat source

#### Processing and analysing data and information

I think smaller pieces of chocolate melt faster because they heat up quicker because they are smaller.

#### Evaluating

It was a fair test because we kept everything the same except the size of the chocolate.

## Year 3 Work samples

### Melting moments

### Summative Assessment of Science Inquiry Skills

#### Above Achievement Standard

#### Questioning and predicting

PrimaryConnections® Melting moments  
Linking science with literacy

Melting investigation planner

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Other members of your team: \_\_\_\_\_

<p>What are you going to investigate?</p> <p>What happens to <u>the melting time of</u> when we change <u>chocolate</u> <u>the size of the chocolate?</u></p>	<p>What do you think will happen? Explain why.</p> <p><u>The smaller pieces will melt faster because there are more places or sides for the heat to get in.</u></p>
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To make the test fair, what things (variables) are you going to:

<p>Change?</p> <p><u>the sizes of the pieces of chocolate</u></p>	<p>Measure / Observe?</p> <p><u>the time it takes the chocolate to melt</u></p>	<p>Keep the same?</p> <ul style="list-style-type: none"> <li><u>the amount of chocolate</u></li> <li><u>the heat</u></li> <li><u>the bag type</u></li> </ul>
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What equipment does the team need?

- role wristbands or badges for Director, Manager, Speaker
- each team member's science journal
- 20 g of the full piece of chocolate
- 20 g of the broken chocolate
- 2 plastic resealable bags
- pen
- access to a warm place or heat source

#### Processing and analysing data and information

I think the smaller pieces of chocolate melted faster than the large piece of chocolate because the smaller pieces have more areas and surfaces for the heat to get into.

#### Evaluating

It was a fair test because we kept all the variables the same and changed one variable which was the size of the chocolate. We measured the time it took to melt.

# Student Self-Assessment

## Melting moments Year 3 Chemical sciences

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Strand	What I can do	I need help to do this	I can do this	I can do this very well
Science Understanding	I can say how a solid can change to a liquid can be caused by heat.			
Science as a Human Endeavour	I can say how we can use science to help us understand about heat.			
	I can say where we use what we have learnt in science in our lives.			
Science Inquiry Skills	I can predict what will happen to things when they get hot.			
	I can follow directions to do an investigation about heating up chocolate.			
	I can make a column graph of the results of the chocolate investigation.			
	I can explain why we got the results we did from the investigation.			
	I can say how we made the chocolate investigation a fair test.			
	I can discuss my ideas with others.			



## Melting moments Year 3 Chemical sciences

(This checklist is designed to be used in conjunction with the *Assessment Rubric* for the *Melting moments* unit)

Date: \_\_\_\_\_

[illegible]

<b>BAS – Below Achievement Standard</b>	This indicates that the student has a limited understanding of the concept and/or skill
<b>AS – At Achievement Standard</b>	This indicates that the student has a good understanding of the concept and/or skill
<b>AAS – Above Achievement Standard</b>	This indicates that the student has a detailed understanding of the concept and/or skill

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