

# Year 5 Assessment Rubrics

## Year 5 Achievement Standard

By the end of Year 5, students classify substances according to their observable properties and behaviours. They explain everyday phenomena associated with the transfer of light. They describe the key features of our solar system. They analyse how the form of living things enables them to function in their environments. Students discuss how scientific developments have affected people's lives and how science knowledge develops from many people's contributions.

Students follow instructions to pose questions for investigation, predict what might happen when variables are changed, and plan investigation methods. They use equipment in ways that are safe and improve the accuracy of their observations. Students construct tables and graphs to organise data and identify patterns. They use patterns in their data to suggest explanations and refer to data when they report findings. They describe ways to improve the fairness of their methods and communicate their ideas, methods and findings using a range of text types.

Organisers	CONTENT DESCRIPTIONS	ACHIEVEMENT STANDARD	EVIDENCE	LEVEL OF ACHIEVEMENT		
				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
<b>SCIENCE UNDERSTANDING</b>						
Biological sciences	Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)	Analyses how the form of living things enables them to function in their environments	<i>Desert survivors</i> 'Choosing monkeys' (Resource sheet 11)	<ul style="list-style-type: none"> <li>Recalls simple observations of adaptations of different species living in desert environments</li> </ul>	<ul style="list-style-type: none"> <li>Identifies adaptations of different species living in desert environments</li> </ul>	<ul style="list-style-type: none"> <li>Uses claims and evidence to explain how the adaptations of different species enables them to survive in desert environments</li> </ul>

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				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
<b>SCIENCE UNDERSTANDING</b>						
<b>Chemical sciences</b>	Solids, liquids and gases have different observable properties and behave in different ways (ACSSU077)	Classifies substances according to their observable properties and behaviours	<i>What's the matter?</i> 'Matter cards' (Resource sheet 7)	<ul style="list-style-type: none"> <li>Lists the observable properties of solids, liquids and gases</li> </ul>	<ul style="list-style-type: none"> <li>Describes the observable properties of solids, liquids and gases</li> </ul>	<ul style="list-style-type: none"> <li>Explains in detail the observable properties and behaviours of solids, liquids and gases</li> </ul>

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				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
<b>SCIENCE UNDERSTANDING</b>						
<b>Earth and space sciences</b>	The Earth is part of a system of planets orbiting around a star (the sun) (ACSSU078)	Describes the key features of our solar system	<i>Earth's place in Space</i> Dialogue	<ul style="list-style-type: none"> <li>Describes simple ideas without supporting evidence that the Earth is part of a solar system</li> </ul>	<ul style="list-style-type: none"> <li>Identifies that the Earth is part of a solar system orbiting the Sun</li> </ul>	<ul style="list-style-type: none"> <li>Provides claims supported with evidence about the Earth and its place in the solar system</li> </ul>
<b>Physical sciences</b>	Light from a source forms shadows and can be absorbed, reflected and refracted (ACSSU080)	Explains everyday phenomena associated with the transfer of light	<i>Light shows</i> 'My thoughts' (Resource sheet 1)	<ul style="list-style-type: none"> <li>Displays non-scientific ideas about the behaviour of light</li> </ul>	<ul style="list-style-type: none"> <li>Describes how shadows are formed</li> <li>Describes that light can be absorbed, reflected and refracted</li> </ul>	<ul style="list-style-type: none"> <li>Uses scientific ideas about the behaviour of light with detailed explanations</li> </ul>

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				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
<b>SCIENCE AS A HUMAN ENDEAVOUR</b>						
Nature and development of science	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE081)	Discusses how science involves posing questions, organising data and using patterns in their data to suggest explanations	<ul style="list-style-type: none"> <li>• <i>Desert survivors</i></li> <li>• <i>What's the matter?</i></li> <li>• <i>Earth's place in space</i></li> <li>• <i>Light shows</i></li> </ul>	Recalls that science involves posing questions, organising data and suggesting explanations	Discusses how science involves posing questions, organising data and using patterns in their data to suggest explanations	Has a detailed Understanding of how science involves posing questions, organising data and using patterns in their data to suggest explanations
	Important contributions to the advancement of science have been made by people from a range of cultures (ACSHE082)	Discusses how science knowledge develops from many people's contributions	<ul style="list-style-type: none"> <li>• <i>Desert survivors</i></li> <li>• <i>What's the matter?</i></li> <li>• <i>Earth's place in space</i></li> <li>• <i>Light shows</i></li> </ul>	Suggests how different cultures have contributed to the development of science knowledge	Discusses how science knowledge develops from many people's contributions	Has a detailed Understanding of how different cultures have contributed to the development of science knowledge

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<b>SCIENCE AS A HUMAN ENDEAVOUR</b>						
<b>Use and influence of science</b>	<p>Scientific Understandings, discoveries and inventions are used to solve problems that directly affect people's lives (ACSHE083)</p> <p>Scientific knowledge is used to inform personal and community decisions (ACSHE217)</p>	Discusses how scientific developments have affected people's lives	<ul style="list-style-type: none"> <li>• <i>Desert survivors</i></li> <li>• <i>What's the matter?</i></li> <li>• <i>Earth's place in space</i></li> <li>• <i>Light shows</i></li> </ul>	Makes suggestions about how scientific developments have affected people's lives	Discusses how scientific developments have affected people's lives	Describes in detail where scientific developments have affected people's lives and in the wider world to influence their actions

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<b>SCIENCE INQUIRY SKILLS</b>						
<b>Questioning and predicting</b>	With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be (AC SIS231)	Follows instructions to pose questions for investigation and predicts what might happen when variables are changed	<p><i>Elaborate</i> phase in:</p> <ul style="list-style-type: none"> <li><i>What's the matter?</i></li> </ul>	Suggests questions for investigation and predicts what might happen in an investigation, without supporting evidence	Follows instructions to pose questions for investigation and predicts what might happen when variables are changed	Asks pertinent and investigable questions and predicts the outcomes of investigations, supported with detailed evidence based on their knowledge and experiences

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<b>SCIENCE INQUIRY SKILLS</b>						
Planning and conducting	With guidance, plan appropriate investigation methods to answer questions or solve problems (ACSIS086)	Plans investigation methods	<i>Elaborate</i> phase in: <ul style="list-style-type: none"> <li>• <i>Light shows</i></li> <li>• <i>What's the matter?</i></li> </ul>	Follows procedures to plan an investigation	Plans investigation methods	Demonstrates a detailed Understanding of how to conduct science investigations to respond to questions
	Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate (ACSIS087)	Predicts what might happen when variables are changed	<i>Elaborate</i> phase in: <ul style="list-style-type: none"> <li>• <i>Light shows</i></li> <li>• <i>What's the matter?</i></li> </ul>	Lists ideas on variables in fair tests	Predicts what might happen when variables are changed	Identifies variables, articulates why a test is fair or not and predicts what might happen when variables are changed
	Use equipment and materials safely, identifying potential risks (ACSIS088)	Uses equipment in ways that are safe and improve the accuracy of their observations	<i>Elaborate</i> phase in: <ul style="list-style-type: none"> <li>• <i>What's the matter?</i></li> <li>• <i>Desert survivors</i></li> </ul>	Follows guidelines on how to safely use equipment to make and record observations	Uses equipment in ways that are safe and improve the accuracy of their observations	Independently uses equipment safely to accurately record their observations

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<b>SCIENCE INQUIRY SKILLS</b>						
Processing and analysing data and information	Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS090)	Constructs tables and graphs to organise data and identify patterns	<p><i>Elaborate</i> phase in:</p> <ul style="list-style-type: none"> <li>• <i>What's the matter?</i></li> <li>• <i>Desert survivors</i></li> </ul>	Follows simple procedures to use provided tables and simple column graphs	Constructs tables and graphs to organise data and identify patterns	Independently constructs tables and simple column graphs to organise data and identify and analyse patterns
	Compare data with predictions and use as evidence in developing explanations (ACSIS218)	Uses patterns in their data to suggest explanations and refer to data when they report findings	<p><i>Elaborate</i> phase in:</p> <ul style="list-style-type: none"> <li>• <i>What's the matter?</i></li> <li>• <i>Desert survivors</i></li> </ul>	Suggests reasons for findings that are obvious and follow explicitly from evidence	Uses patterns in their data to suggest explanations and refer to data when they report findings	Applies scientific concepts and knowledge and constructs claims based on evidence to explain findings and compare findings with predictions

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<b>SCIENCE INQUIRY SKILLS</b>						
<b>Evaluating</b>	Suggest improvements to the methods used to investigate a question or solve a problem (AC SIS091)	Describes ways to improve the fairness of their methods	<i>Elaborate</i> phase in: <ul style="list-style-type: none"> <li>• <i>Light shows</i></li> <li>• <i>Desert survivors</i></li> </ul>	Demonstrates non-scientific ideas of a fair investigation	Describes ways to improve the fairness of their methods	Articulates why a test is fair or not and suggests ways to improve the investigation
<b>Communicating</b>	Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts (AC SIS093)	Communicates ideas, methods and findings using a range of text types	<i>Elaborate</i> phase in: <ul style="list-style-type: none"> <li>• <i>Earth's place in Space</i></li> </ul>	Presents a limited report on findings	Communicates ideas, methods and findings using a range of text types	Completes extended reports using claims and evidence to communicate their methods and findings

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#### GLOSSARY

<b>Describe</b>	Give an account of characteristics or features.
<b>Identify</b>	Establish or indicate who or what someone or something is.
<b>Considered</b>	Formed after careful thought.
<b>Apply</b>	Use, utilise or employ in a particular situation.
<b>Explain</b>	Provide additional information that demonstrates Understanding of reasoning and/or application.
<b>Sequence</b>	Arrange in order.
<b>Familiar</b>	Previously encountered in prior learning activities.
<b>Discuss</b>	Talk or write about a topic, taking into account different issues and ideas.
<b>Compare</b>	Estimate, measure or note how things are similar or dissimilar.

#### Acknowledgements

PrimaryConnections is supported by the Australian Government.

#### Disclaimer

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

## Year 5 **Work samples**

### *Earth's place in Space*

### **Summative Assessment of Science Understanding**

**Below Achievement Standard**

**Claim:** The Earth is part of a system of planets orbiting the Sun.

**What we know:**

Even though we can't feel the Earth moving it is moving very fast and orbiting the Sun.

The Sun seems to move across the sky but it isn't - it's the Earth that is moving.

The Moon revolves around the Earth and we see the Sun shining on it.

## Year 5 **Work samples**

### *Earth's place in Space*

### **Summative Assessment of Science Understanding**

#### **At Achievement Standard**

**Claim:** The Earth is part of a system of planets orbiting the Sun.

**What we know:**

A long time ago everyone thought that the Sun circled the Earth because they couldn't feel the Earth moving.

The Earth is revolving as the Sun, Moon and stars all moving in the same direction.

It is an optical illusion that the Sun is moving and not the Earth.

The phases of the Moon are what we see as the Moon revolves around the Earth.

The constellations in the sky help us to understand that the Earth rotates on its axis and that the Earth moves around the Sun.

## Year 5 **Work samples**

### ***Earth's place in Space***

### **Summative Assessment of Science Understanding**

#### **Above Achievement Standard**

**Claim:** The Earth is part of a system of planets orbiting the Sun.

**What we know:**

People believed that the Sun circled the Earth because they couldn't feel the Earth moving.

The Earth is revolving as the Sun, Moon and stars all moving in the same direction. We know this by observing the path of the Sun, Moon and stars.

We know that it is an optical illusion that the Sun is moving and not the Earth.

The Moon reflects the light of the Sun so the phases of the Moon are what we see as the Moon revolves around the Earth and reflects the Sun's light.

Galileo built a telescope and observed objects in space. His observations of moons orbiting Jupiter when everyone thought that everything in space orbited the Earth made him realise that all the planets orbited the Sun rather than the Earth.

The constellations in the sky and when we can see them help us to understand that the Earth rotates on its axis and that the Earth moves around the Sun.

# Student Self-Assessment

## Earth's place in Space Year 5 Earth and Space sciences

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

Strand	What I can do	I need help to do this	I can do this	I can do this very well
<b>Science Understanding</b>	I can describe how we know that the Earth is part of a solar system orbiting the Sun			
<b>Science as a Human Endeavour</b>	I can describe how different cultures have contributed to the development of science knowledge			
	I can describe where my science knowledge helps me make changes in my actions			
	I can describe situations where scientific developments have affected people's lives			
<b>Science Inquiry Skills</b>	I can predict what might happen in an investigation			
	I can suggest ways to do an investigation			
	I can identify the variables in an investigation			
	I can use equipment safely			
	I can record my observations in a table			
	I can make a column or line graph			
	I can find patterns in my graph			
	I can make claims based on my evidence			
	I can compare my results with my predictions			
	I can explain why a test is fair or not			
	I can make a report about my claims and evidence from my investigation and share it with others			

# Achievement Standard Class Checklist

## Earth's place in Space Year 5 Earth and Space sciences

(This checklist is designed to be used in conjunction with the Assessment Rubric for the *Earth's place in Space* unit)

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

	Science Understanding	Science as a Human Endeavour			Science Inquiry Skills							
	Describes the key features of our solar system	Identifies when science is used to ask questions and make predictions	Discusses how science develops from many people's contributions	Discusses how scientific developments have affected people's lives	Follows instructions to pose questions for investigation and predicts what might happen when variables are changed	Plans investigation methods	Predicts what might happen when variables are changed	Uses equipment in ways that are safe and improve the accuracy of their observations	Constructs tables and graphs to organise data and identify patterns	Uses patterns in their data to suggest explanations and refer to data when they report findings	Describes ways to improve the fairness of their methods	Communicates ideas, methods and findings using a range of text types
Example: Student A	AAS		AS		AS		AAS	AS		AS		

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

# Achievement Standard Class Checklist

## Earth's place in Space Year 5 Earth and Space sciences

(This checklist is designed to be used in conjunction with the Assessment Rubric for the *Earth's place in Space* unit)

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

	Science Understanding	Science as a Human Endeavour			Science Inquiry Skills							
	Describes the key features of our solar system	Identifies when science is used to ask questions and make predictions	Discusses how science knowledge develops from many people's contributions	Discusses how scientific developments have affected people's lives	Follows instructions to pose questions for investigation and predicts what might happen when variables are changed	Plans investigation methods	Predicts what might happen when variables are changed	Uses equipment in ways that are safe and improve the accuracy of their observations	Constructs tables and graphs to organise data and identify patterns	Uses patterns in their data to suggest explanations and refer to data when they report findings	Describes ways to improve the fairness of their methods	Communicates ideas, methods and findings using a range of text types
Example: Student A	AAS		AS		AS		AAS	AS		AS		

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