

Magnetic moves Assessment Rubrics

Year 4 Achievement Standard

By the end of Year 4, students apply the observable properties of materials to explain how objects and materials can be used. They **describe how contact and non-contact forces affect interactions between objects**. They discuss how natural processes and human activity cause changes to Earth's surface. They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal. They **identify when science is used to understand the effect of their actions**.

Students follow instructions to identify investigable questions about familiar contexts and make predictions based on prior knowledge. They describe ways to conduct investigations and safely use equipment to make and record observations with accuracy. They use provided tables and column graphs to organise data and identify patterns. They suggest reasons why a test was fair or not. They use formal and informal ways to communicate their methods and findings.

Note: The sections relevant to *Magnetic moves* are bolded above. The full rubrics for all year levels are available on the PrimaryConnections website.

Organisers	CONTENT DESCRIPTIONS	ACHIEVEMENT STANDARD	EVIDENCE	LEVEL OF ACHIEVEMENT		
				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
SCIENCE UNDERSTANDING						
Physical sciences	Forces can be exerted by one object on another through direct contact or from a distance (ACSSU076)	Uses contact and non-contact forces to describe interactions between objects	<ul style="list-style-type: none"><i>Magnetic moves</i> Annotated diagram	<ul style="list-style-type: none">Describes non-scientific ideas of different forces and motionDescribes simple ideas about forces and how they actRequires help with the representation of arrows in force-arrow diagrams	<ul style="list-style-type: none">Identifies and describes different forces and motionExplains that forces can act through direct contact or at a distanceRepresents different-sized forces using different arrow lengths	<ul style="list-style-type: none">Explains scientific ideas, with evidence, about different forces and motionHas a detailed understanding of forces and how they act in different situationsExplains and represents the use of force-arrow diagrams

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

Organisers	CONTENT DESCRIPTIONS	ACHIEVEMENT STANDARD	EVIDENCE	LEVEL OF ACHIEVEMENT		
				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
SCIENCE AS A HUMAN ENDEAVOUR						
Nature and development of science	Science involves making predictions and describing patterns and relationships (ACSHE061)	Identifies when science is used to ask questions and make predictions	<ul style="list-style-type: none"><i>Magnetic moves</i>	<ul style="list-style-type: none">Identifies that science involves asking questions and making predictions	<ul style="list-style-type: none">Identifies when science is used to ask questions and make predictions	<ul style="list-style-type: none">Provides a detailed understanding of when science is used to ask questions and make predictions
Use and influence of science	Science knowledge helps people to understand the effect of their actions (ACSHE062)	Identifies when science is used to understand the effect of their actions	<ul style="list-style-type: none"><i>Magnetic moves</i>	<ul style="list-style-type: none">Makes suggestions about where they use science knowledge to influence their own and others' actions	<ul style="list-style-type: none">Describes situations where science understanding can influence their own and others' actions	<ul style="list-style-type: none">Describes in detail where people use science understanding in their lives and in the wider world to influence their actions

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

Organisers	CONTENT DESCRIPTIONS	ACHIEVEMENT STANDARD	EVIDENCE	LEVEL OF ACHIEVEMENT		
				BELOW ACHIEVEMENT STANDARD	AT ACHIEVEMENT STANDARD	ABOVE ACHIEVEMENT STANDARD
SCIENCE INQUIRY SKILLS						
Planning and conducting	Suggest ways to plan and conduct investigations to find answers to questions (ACSIS065)	Discusses ways to conduct investigations	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><i>Magnetic moves</i>	<ul style="list-style-type: none">Suggests ways to conduct investigations	<ul style="list-style-type: none">Discusses ways to conduct investigations	<ul style="list-style-type: none">Demonstrates a detailed understanding of how they can conduct science investigations to respond to questions
	Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies, as appropriate (ACSIS066)	Safely uses equipment to make and record observations	<i>Elaborate</i> phase in: <ul style="list-style-type: none"><i>Magnetic moves</i>	<ul style="list-style-type: none">Follows guidelines on how to safely use equipment to make and record observations	<ul style="list-style-type: none">Safely uses equipment to make and record observationsUses formal measurements and digital technologies, as appropriate	<ul style="list-style-type: none">Independently uses equipment safely to make and record observations using formal measurements and digital technologies, as appropriate

 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.
Apply	Use, utilise or employ in a particular situation.
Explain	Provide additional information that demonstrates understanding of reasoning and/or application.
Sequence	Arrange in order.
Familiar	Previously encountered in prior learning activities.
Discuss	Talk or write about a topic, taking into account different issues and ideas.
Compare	Estimate, measure or note how things are similar or dissimilar.

Acknowledgements

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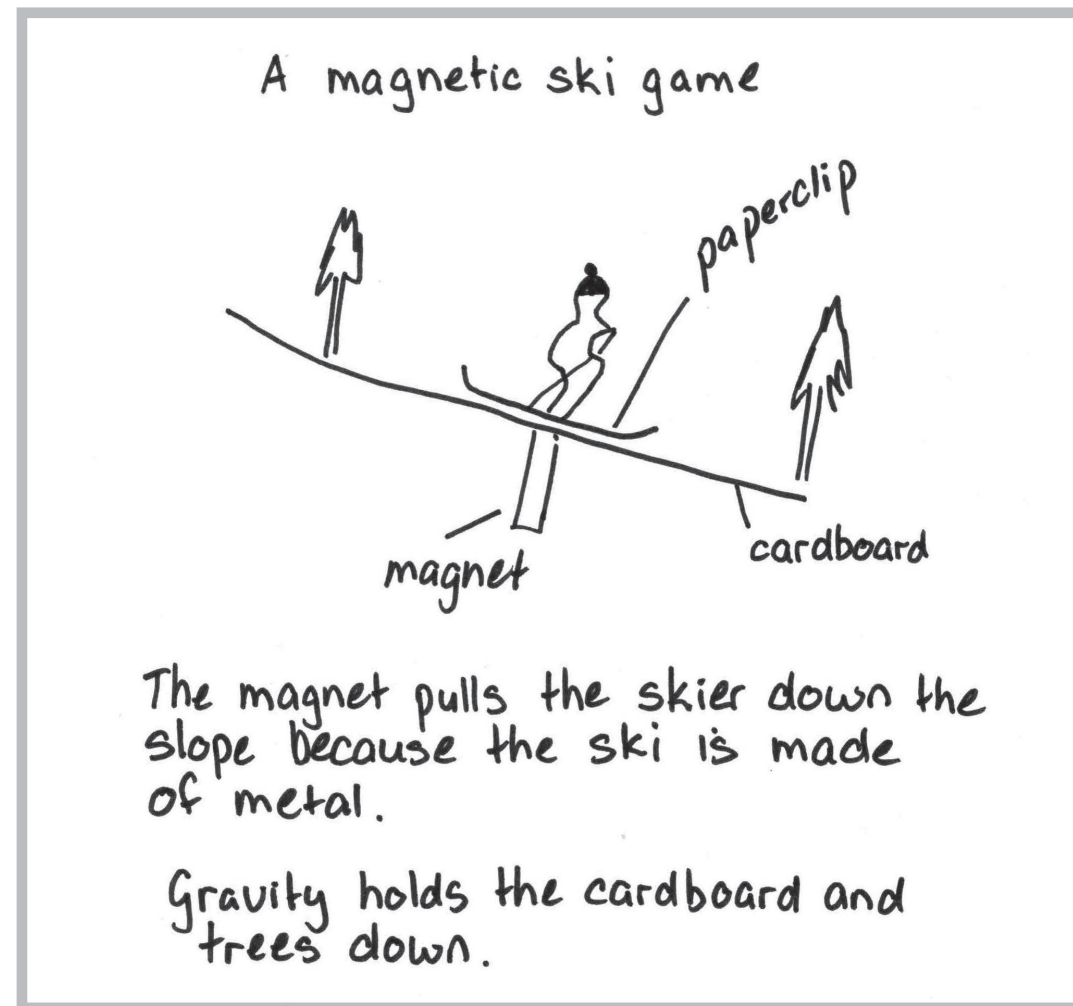
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The views expressed herein do not necessarily represent the views of the Australian Government.

Year 4 Work samples

Summative Assessment of Science Understanding

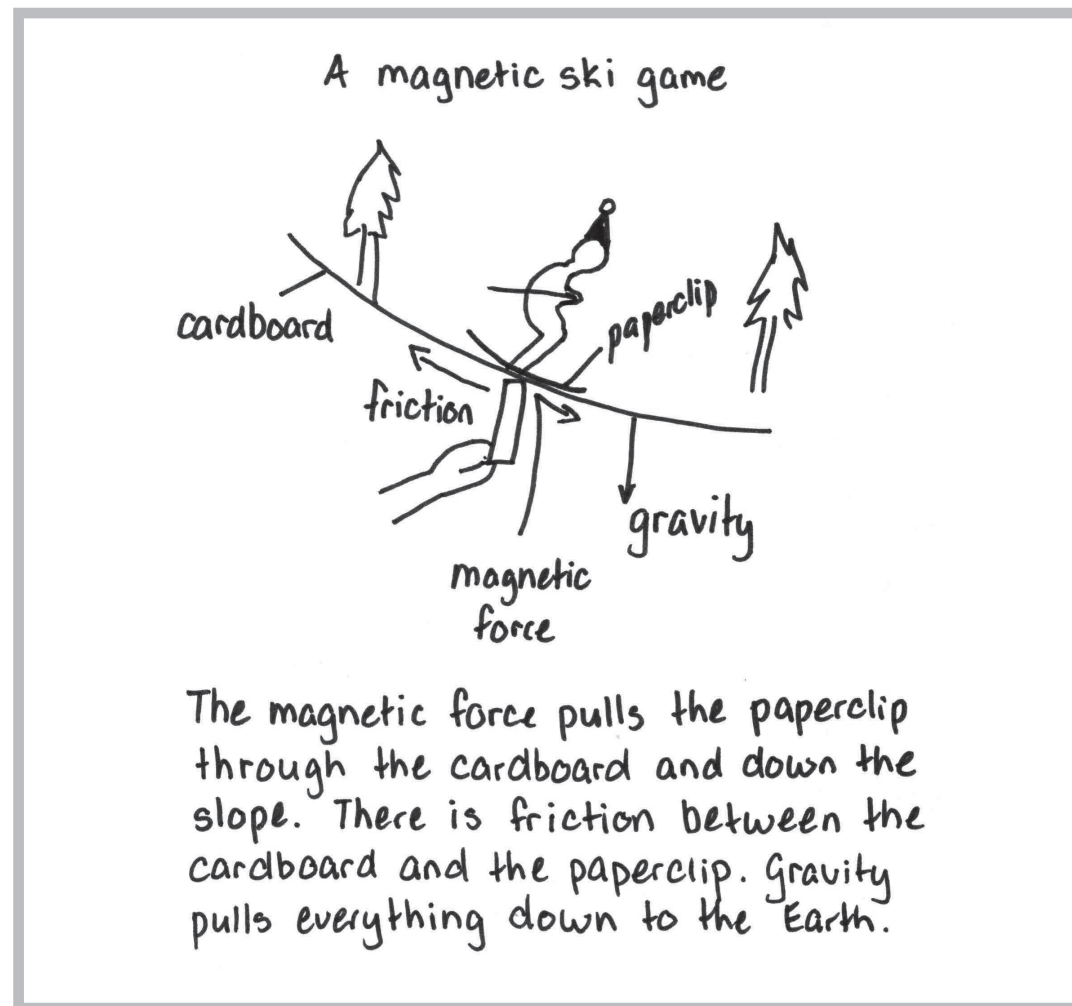
Below Achievement Standard



Year 4 Work samples

Summative Assessment of Science Understanding

At Achievement Standard

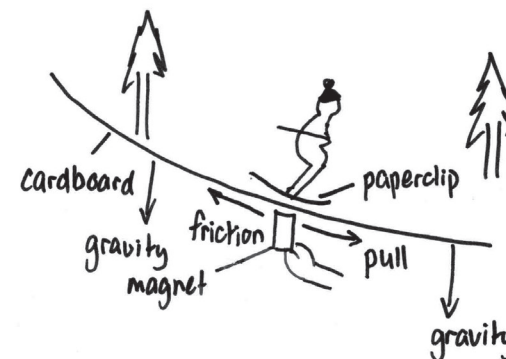


Year 4 Work samples

Summative Assessment of Science Understanding

Above Achievement Standard

A magnetic ski game



The magnet attracts the paperclip because the paperclip has iron in it. The magnetic force goes through the cardboard and it doesn't have to touch the paperclip to work. Friction force happens between the cardboard and the paperclip as the magnet pulls the paperclip down the slope. Gravity pulls everything down towards the Earth and that's why they don't float away!

Year 4 Work samples

Summative Assessment of Science Inquiry Skills

Below Achievement Standard

Planning and conducting

PrimaryConnections® Linking science with literacy		Magnetic moves								
<h3>Making plans</h3> <p>Name: _____ Date: _____</p> <p>What are you trying to find out? <i>What game can we make that uses</i></p> <p>Aim: To make a game that uses magnetic force to work <i>magnetic force?</i></p> <p>Procedure:</p> <table border="1"> <thead> <tr> <th>Equipment</th> <th>Reasons for selecting this equipment</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> • cardboard • paperclips • magnet • box </td> <td> <p>We will make the fish out of the cardboard and use the magnet to catch the fish.</p> </td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Production steps</th> <th>Illustrations for the steps</th> </tr> </thead> <tbody> <tr> <td> <ol style="list-style-type: none"> 1. Make the fish 2. Make the fishing rod 3. Play the game. </td> <td> </td> </tr> </tbody> </table>			Equipment	Reasons for selecting this equipment	<ul style="list-style-type: none"> • cardboard • paperclips • magnet • box 	<p>We will make the fish out of the cardboard and use the magnet to catch the fish.</p>	Production steps	Illustrations for the steps	<ol style="list-style-type: none"> 1. Make the fish 2. Make the fishing rod 3. Play the game. 	
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<ul style="list-style-type: none"> • cardboard • paperclips • magnet • box 	<p>We will make the fish out of the cardboard and use the magnet to catch the fish.</p>									
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Year 4

Work samples

Summative Assessment of Science Inquiry Skills

At Achievement Standard

Planning and conducting


Magnetic moves

Making plans





Name: _____ Date: _____

What are you trying to find out? *What game can we make that uses magnetic force?*

Aim: To make a game that uses magnetic force to work *magnetic force?*

Procedure:

Equipment	Reasons for selecting this equipment
• cardboard	- to make the fish
• paperclips	- they are attracted to a magnet
• ring magnet	- to attract the paperclips
• crepe paper	- for the water
• box	- to hold the fish

Production steps	Illustrations for the steps
1. Make the fish	
2. Add paperclips to the fish.	
3. Put in a box	
4. Add crepe paper	
5. Play the game.	






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Year 4 Work samples

Summative Assessment of Science Inquiry Skills

Above Achievement Standard

Planning and conducting

PrimaryConnections® Linking science with literacy		Magnetic moves														
<h3>Making plans</h3> <p>Name: _____ Date: _____</p> <p>What are you trying to find out? <u>What game can we make that uses magnetic force to work?</u></p> <p>Aim: To make a game that uses magnetic force to work</p> <p>Procedure: <u>A Fishing Game</u></p> <table border="1"> <thead> <tr> <th>Equipment</th> <th>Reasons for selecting this equipment</th> </tr> </thead> <tbody> <tr> <td>• cardboard</td> <td>- magnetic force goes through it + to make</td> </tr> <tr> <td>• paperclips</td> <td>- are attracted to a magnet</td> </tr> <tr> <td>• cotton</td> <td>- to join ring magnet to stick + cotton</td> </tr> <tr> <td>• crepe paper (water)</td> <td>- magnetic force goes through it.</td> </tr> <tr> <td>• ring magnet</td> <td>- to attract paperclips with magnetic force</td> </tr> <tr> <td>• box</td> <td>- to be the 'pond'.</td> </tr> </tbody> </table>			Equipment	Reasons for selecting this equipment	• cardboard	- magnetic force goes through it + to make	• paperclips	- are attracted to a magnet	• cotton	- to join ring magnet to stick + cotton	• crepe paper (water)	- magnetic force goes through it.	• ring magnet	- to attract paperclips with magnetic force	• box	- to be the 'pond'.
Equipment	Reasons for selecting this equipment															
• cardboard	- magnetic force goes through it + to make															
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• cotton	- to join ring magnet to stick + cotton															
• crepe paper (water)	- magnetic force goes through it.															
• ring magnet	- to attract paperclips with magnetic force															
• box	- to be the 'pond'.															
<h3>Production steps</h3> <ol style="list-style-type: none"> 1. Make fish out of cardboard. Add numbers 2. Attach paperclips to mouth of fish. 3. Tie cotton to ring magnet + stick 4. Place fish in box + cover with crepe paper strips (water) 5. Ready to play! <p>2 people take turns to catch the highest number in total of fish.</p>		<h3>Illustrations for the steps</h3> <ol style="list-style-type: none"> 1.  2.  3.  4.  														
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Student Self-Assessment

Magnetic moves Student checklist Year 4

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 describe forces that work at a distance (magnetic force and gravity) and a force that works in direct contact (friction).			
Science as a Human Endeavour	I can see that science is about asking questions and making predictions.			
	I can see where my science knowledge helps me make changes in my actions.			
Science Inquiry Skills	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 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

Year 4 Physical sciences

(This checklist is designed to be used in conjunction with the Assessment Rubric for the *Magnetic moves* unit.)

	Science Understanding	Science as a Human Endeavour		Science Inquiry Skills						
	Uses contact and non-contact forces to describe interactions between objects	Identifies when science is used to ask questions and make predictions	Describes situations where science understanding can influence their own and others' actions	Follows instructions to identify investigable questions about familiar contexts and predict likely outcomes from investigations	Discusses ways to conduct investigations	Safely uses equipment to make and record observations	Uses provided tables and simple column graphs to organise their data and identify patterns in data	Suggests explanations for observations and compares their findings with their predictions	Suggests reasons why their methods were fair or not	Completes simple reports to communicate their methods and findings
Example: Student A	AAS	AS	AS		AAS	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.