

# Change detectives

## Level 3 and 4 investigating outcomes

Student	Stage	Key Learning Area	Date
		Science	

<b>Task</b>	Students investigate factors that affect the rate of reactions.
-------------	---

	Investigating unit outcomes	Beginning	Developing	Achieving
<b>Level 3</b>	Formulate a question for investigation and make a prediction.	Students formulate a question for investigation and make a prediction with limited accuracy. Students formulate an inappropriate question for investigation.	Students formulate a question for investigation and make a prediction with some accuracy. Students formulate a question for investigation.	Students formulate a question for investigation and make an accurate prediction.
	Plan investigations showing an awareness of the need for fair testing.	Students show limited understanding of the investigation process.	Students plan investigations with some awareness for fair testing.	Students plan investigations showing an awareness of the need for fair testing.
	Record results as a table and plot results as a column graph.	Students record results in a table and plot results as a column graph with limited accuracy	Students record results in a table and plot results as a column graph with some accuracy Students record results in a table and construct an incomplete column graph.	Students record results as a table and accurately plot results as a column graph.
	Make and record observations, and identify patterns in results.	Students make observations.	Students make and record observations.	Students make and record observations, and identify patterns in results.

	Investigating unit outcomes	Beginning	Developing	Achieving
<b>Level 4</b>	Plan investigations involving a control, and repeat trials or replicates.	Students plan an investigation showing limited understanding of the investigation process.	Students plan investigations involving a controlled variable.	Students plan investigations involving a controlled variable, and repeat trials or replicates.
	Plot results from an investigation as a line graph.	Students record results from an investigation.	Students plot results from an investigation as an inaccurate line graph.	Students accurately plot results from an investigation as a line graph.
	Analyse and explain patterns in results from an investigation.	Students identify patterns in investigation results.	Students identify and attempt to analyse patterns in investigation results.	Students analyse and explain patterns in results from an investigation.
	Make suggestions for improving the investigation.	Students observe an investigation.	Students suggest limited or inappropriate ways of improving an investigation.	Students make appropriate suggestions for improving the investigation.

# Change detectives

## Level 3 and 4 conceptual outcomes

Student	Stage	Key Learning Area	Date
		Science	

<b>Task</b>	Students represent what they know about the needs of animals, including humans, and reflect on their learning during the unit.
-------------	--

	Conceptual unit outcomes	Beginning	Developing	Achieving
<b>Level 3</b>	Explain that changes of state involve physical changes.	Students observe changes to everyday materials.	Students sometimes describe a material changing state.	Students explain that changes of state involve physical changes.
	Explain that physical changes do not produce new substances.	Students identify changes to materials.	Students sometimes identify and describe a physical change occurring.	Students explain that physical changes do not produce new substances.
	Explain that chemical changes produce new substances and consume the original substances.	Students identify changes to materials.	Students sometimes identify and describe a chemical change occurring.	Students explain that chemical changes produce new substances and consume the original substances.
	Identify physical and chemical changes.	Students observe changes to materials.	Students sometimes identify physical changes.	Students identify physical and chemical changes.
	Identify reversible and irreversible changes.	Students identify changes to materials.	Students sometimes identify reversible and irreversible changes.	Students identify reversible and irreversible changes.

	Conceptual unit outcomes	Beginning	Developing	Achieving
<b>Level 4</b>	Explain that physical changes involve changes in the movement and spacing of particles of a substance.	Students identify physical changes to materials.	Students observe and describe what happens to a material during a physical change.	Students explain that physical changes involve changes in the movement and spacing of particles of a substance.
	Explain that substances produced by chemical changes have different properties from those used in the reaction.	Students observe the properties of materials.	Students describe the properties of a substance involved in a reaction.	Students explain that substances produced by chemical changes have different properties from those used in the reaction.
	Explain the importance of classification for identifying differences and similarities between things.	Students identify the similarities and differences between things.	Students sort materials according to similarities and differences.	Students explain the importance of classification for identifying differences and similarities between things.