Package it better unit overview

		SCIENCE OUTCOMES	LITERACY OUTCOMES	LESSON SUMMARY	ASSESSMENT OPPORTUNITIES
		Students will be able to	Students will be able to	Students	
ENGAGE	**Lesson 1** Packaging pandemonium	represent their current understanding about • reasons for failure of a package • packages and the properties of materials used to make them • what they will need to do and find out in order to design an effective package.	• identify the purpose and features of a design portfolio • record ideas and questions to investigate • contribute to the class learning centre to represent their understanding of materials, properties and packages.	• respond to the delivery of a battered package • brainstorm ideas about packages, the materials used to make them, and the design and delivery of packages • engage with a design brief.	**Diagnostic assessment** Design portfolio entries
EXPLORE	**Lesson 2** Peering at packages	• identify and describe the characteristics of packages • describe the purpose, function and use of packages • identify materials that packages are made of.	• participate in whole class and small group discussions • use oral and written language to clarify and represent ideas about designs and materials of packages • identify the purpose and features of a summary.	• work in teams to explore the characteristics and uses of packages • record observations of packages and the materials used to make them • share and discuss findings.	**Formative assessment** Design portfolio entries Summaries

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EXPLORE	**Lesson 3** Plenty of properties	• construct simple tests to explore the properties of materials • identify how the properties of materials affect their use in packages • discuss the environmental impact of the use of packages and the materials used to make them.	• participate in whole class and small group discussions to compare the properties of different materials • use oral and written language to discuss and record test results.	• explore the properties of materials used to make packages • discuss the environmental impact of the materials used to make packages.	**Formative assessment** 'Observation record: Exploring materials' (Resource sheet 1)

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EXPLORE	**Lesson 4** Lumps, bumps and crumbs	• plan and conduct an investigation that is a fair test • make and record observations • interpret observations and draw conclusions to answer the investigation question.	• use oral and written language to discuss and record investigation results • discuss ideas to compare evidence from investigations • identify the purpose and features of a table.	• work in cooperative learning teams investigate the capacity of different materials to protect a biscuit from impact • make predictions, observe and record the results of their investigations • describe how the use of materials is determined by their properties.	**Formative assessment** Design portfolio entries 'Impact investigation planner' (Resource sheet 2)
	Lesson 5 Strong shapes	• identify shapes that add strength to materials • test their predictions • observe, record and interpret the results of their investigation.	• use oral, written and visual language to record and discuss investigation results • discuss ideas and relate evidence from an investigation • represent ideas about strengthening materials through shape.	• work in cooperative learning teams to investigate how to strengthen a sheet of paper by changing its shape • discuss their results.	**Formative assessment** Design portfolio entries

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EXPLAIN	**Lesson 6** Daring designs ***Session 1*** Guest speaker ***Session 2*** Package plan ***Session 3*** Prototype production	• discuss the function of different materials in package design • explain how properties of materials influence their use • select appropriate materials for a specific purpose and give reasons for their selection • plan a design for a package that will protect a fragile gift.	• use oral, written and visual language to develop a plan for the making of their package • represent their ideas by annotating a drawing • explain the purpose, structure and features of a procedural text • engage in discussion to compare ideas and generate explanations.	***Session 1*** Guest speaker • interview a guest speaker about effective package design and delivery • identify factors for consideration in package design. ***Session 2*** Package plan • review criteria for judging the success of packages • identify properties of materials and how these influence their use in packages • develop a procedural text plan for their design task. ***Session 3*** Prototype production • apply their plans to make a prototype package • amend their plan during the making of their package • develop explanations about materials science and the design process.	**Formative assessment** ***Session 1*** Design portfolio entries ***Session 2*** 'Procedure: Package plan' (Resource sheet 3) ***Session 3*** 'Procedure: Package plan' (Resource sheet 3) Each student's prototype package

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ELABORATE	**Lesson 7** Package performance ***Session 1*** Product evaluation ***Session 2*** Product review	• plan and conduct a product evaluation to determine the effectives of their prototype package • make and record observations • interpret observations and make a conclusion • provide evidence to support their conclusion.	• summarise findings • engage in discussion to compare ideas and identify factors that improve the effectives of their prototype package • develop a questionnaire to evaluate a package against functional, aesthetic and environmental performance criteria.	***Session 1*** Product evaluation • undertake product evaluation to determine the effectiveness of their prototype package to meet the design criteria. ***Session 2*** Product review • evaluate their prototype package and recommend changes to the design • modify their procedural text plan to reflect updated design features • make a revised package • develop an evaluation questionnaire to dispatch with the package.	**Summative assessment** ***Session 1*** Design portfolio entries 'Product evaluation planner' (Resource sheet 4) ***Session 2*** 'Procedure: Package plan' (Resource sheet 3)

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EVALUATE	**Lesson 8** All wrapped up	• analyse feedback to evaluate their package against design criteria • explain how properties of materials influence their use • evaluate the success of the design process • describe reasons for the performance of their package.	• represent their ideas about packages and materials in a presentation • present their learning about the design process to an audience.	• evaluate the performance of their package using feedback from a questionnaire • reflect on their learning about materials and their properties, and the design process • plan and make an oral presentation summarising findings about their design and the design process.	**Summative assessment** Design portfolio entries Student presentations 'Assessment check' (Resource sheet 5) Questionnaire results