St Bernadette's School

Inquiry Unit

Term 2, 2016

'Pack It'

St Bernadette's School
Technology Strand Overview

		Strand + Sub-Strand	Simplified Language
Technological Practice	**Planning for practice** *Level 1 Students will:* **Outline a general plan to support the development of an outcome, identifying appropriate steps and resources.** *Level 2 Students will:* **Develop a plan that identifies the key stages and the resources required to complete an outcome.** *Level 3 Students will:* **Undertake planning to identify the key stages and resources required to develop an outcome. Revisit planning to include reviews of progress and identify implications for subsequent decision making.**	**PP** **PRACTICE PLANNING**	. Have ideas . Make a plan . Choose resources . Identify steps . Review progress . Change plans . Make decisions
	Brief development *Level 1 Students will:* **Describe the outcome they are developing and identify the attributes it should have, taking account of the need or opportunity and the resources available.** *Level 2 students will:* **Explain the outcome they are developing and describe the attributes it should have, taking account of the need or opportunity and the resources available.** Level 3 Students will: **Describe the nature of an intended outcome, explaining how it addresses the need or opportunity. Describe the key attributes that enable development and evaluation of an outcome.**	**PB** **PRACTICE DEVELOPMENT**	. Describe their ideas . Explain the outcome . Consider the needs . Be aware of resources . List attributes
	Outcome development and evaluation *Level 1 Students will:* **Investigate a context to communicate potential outcomes. Evaluate these against attributes; select and develop an outcome in keeping with the identified attributes.** *Level 2 students will:* **Investigate a context to develop ideas for potential outcomes. Evaluate these against the identified attributes; select and develop an outcome. Evaluate the outcome in terms of the need or opportunity.** *Level 3 students will:* **Investigate a context to develop ideas for potential outcomes. Trial and evaluate these against key attributes to select and develop an outcome to address the need or opportunity. Evaluate this outcome against the key attributes and how it addresses the need or opportunity.**	**PO** **PRACTICE OUTCOMES**	. Investigate an idea . Evaluate the ideas . Trial various ideas . Evaluate the outcome
Technological Knowledge	**Technological modelling** *Level 1 Students will:* **Understand that functional models are used to represent reality and test design concepts and that prototypes are used to test technological outcomes.** *Level 2 Students will:* **Understand that functional models are used to explore, test, and evaluate design concepts for potential outcomes and that prototyping is used to test a technological outcome for fitness of purpose.** *Level 3 Students will:* **Understand that different forms of functional modelling are used to inform decision making in the development of technological possibilities and that prototypes can be used.**	**KM** **KNOWLWDGE MODELLING**	. Understand models . (explore and test) . Know about prototypes . (Test for fitness of purpose) . Evaluate concepts
	Technological products *Level 1 Students will:* **Understand that technological products are made from materials that have performance properties.** *Level 2 students will:* **Understand the a relationship between a material used and its performance properties in a technological product.** *Level 3 students will:* **Understand the relationship between the materials used and their performance properties in technological products.**	**KP** **KNOWLEDGE PROUCTS**	. Different materials different properties. . Different materials suit different products
	Technological systems *Level 1 Students will:* **Understand that technological systems have inputs, controlled transformations, and outputs.** *Level 2 students will:* **Understand that there are relationships between the inputs, controlled transformations, and outputs occurring within simple technological systems.** *Level 3 students will:* **Understand that technological systems are represented by symbolic language tools and understand the role played by the "black box" in technological systems.**	**KS** **KNOWLEDGE SYSTEMS**	. Systems change, alter and transform. . Understand inputs and outputs. . Understand the concept of 'black box' (What might be happening that you can see.)
Nature of Technology	**Characteristics of technology** *Level 1 Students will:* **Understand that technology is purposeful intervention through design.** *Level 2 students will:* **Understand that technology reflects changes in society and the environment and increases people's capability.** *Level 3 students will:* **Understand how society and environments impact on and are influenced by technology in historical and contemporary contexts and that technological knowledge is validated by successful function.**	**NC** **NATURE CHARACTERISITCS**	. Technology can improve, enhance, develop - through design. . Technology can help society. . Technology reflects society.
	Characteristics of technological outcomes *Level 1 Students will:* **Understand that technological outcomes are products or systems developed by people and have a physical nature and a functional nature.** *Level 2 students will:* **Understand that technological outcomes are developed through technological practice and have related physical and functional natures.** Level 3 students will: **Understand that technological outcomes are recognisable as fit for purpose by the relationship between their physical and functional natures.**	**NO** **NATURE OUTCOMES**	. Physical nature - structure and appearance. . Functional nature - purpose. . Fit for purpose is a mix of physical and functional.

	Strand + Sub-Strand	Simplified Language	**Learning Goals** for investigations
Technological Practice	**PP** PRACTICE PLANNING	. Have ideas . Make a plan . Choose resources . Identify steps . Review progress . Change plans . Make decisions	. **Consider why a particular object might be packaged.** • To hold • To contain • To keep safe • To present • To appeal • To label • To inform . **Consider how a particular object might be packaged.** • Cans/Tins • Does Cartons • Tubes • Jars/Bottles . **Consider the context of the packaging.** • Food- Kitchen, supermarket, dining, takeaway, distribution. • Bathroom / Cosmetic • IT - CD, DVD, Phones, Devices • Gift, novelty, toys • Preservation. Treasure, valuable/significant items . **Follow a plan from idea/plan/design/model/prototype.** . **Discuss the relationship between the material used and the performance properties.** . **Investigate traditional materials used in packaging.** . **Investigate how packages are made** . **Investigate the packaging process.** . **Consider the importance of stages in a process.** . **Discuss what might happen in 'black box' examples.** • Find out about systems for packaging. • Find out about templates and nets for packaging • Find out about machines to make packaging. • Find out about machines that package goods. . **Consider the performance properties of food packaging** • Impervious to moisture, gases, odours and micro-organisms • Protection from chemical, physical, mechanical damage. • Re-useable and recyclable, resealable - transparent - rigid • Light weight good portability, less expensive to distribute • Convenient for storage and presentation • Tamperproof • Fit closely to the shape of the food • Not affected by humidity, tough, stretchable • Maintains freshness during distribution and storage • Minimise the effort necessary to prepare and service foods • Resistant to corrosion, coloured for light sensitive products • Easy to decorate, meets legal requirements. . **Explain why materials that can be recycled make a more sustainable environment.** . **Consider why particular packages make it easy to use.** . **Explain why they appeal to members of society.** . **Describe how they help/assist the community.** . **Explain how examples of packaging have developed due to technology.** . **Examine how objects are packaged.** . **Describe physical attributes that enhance the product?** . **Explain functional attributes that enhance the product?**
	PB PRACTICE DEVELOPMENT	. Describe their ideas . Explain the outcome . Consider the needs . Be aware of resources . List attributes	
	PO PRACTICE OUTCOMES	. Investigate an idea . Evaluate the ideas . Trial various ideas . Evaluate the outcome	
Technological Knowledge	**KM** KNOWLWDGE MODELLING	. Understand models . (explore and test) . Know about prototypes . (Test for fitness of purpose) . Evaluate concepts	
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	Strand + Sub-Strand	Simplified Language	**Practical Contexts for investigations. Including integration ideas.** (*More info in Staff Zone)
Technological Practice	**PP** **PRACTICE PLANNING**	. Have ideas . Make a plan . Choose resources . Identify steps . Review progress . Change plans . Make decisions	**Packaging and the Environment *** *Unit. Plus web links* **Design a lunch box *** *Children design a school lunch box. Planning through to modelling.* *Technology On Line Unit* **Hamburger Box *** *Design your own consider all factors, physical, functional, information, appeal. - Cooking Room website.* **Time Capsule *** *History of time capsule. Make a personal time capsule.* *'Build a Time Capsule' Unit Hand On History* **Food Packaging** *Investigation of the different types of food packaging.* *Sorting, classifying, evaluating.* **3D cardboard/paper construction** *Maths. Geometry and Measuring Templates and Nets* **Gift wrapping and Novelty Packaging *** *Investigate way to enhance the appeal of an item through attractive packaging.* **What's happening inside? (Black box)** *Videos of input and output. What happens in between?* **Packaging to sell.** *Advertising and appeal. Attracting the buyer. Packaging covers* **Fit for purpose?** *Which material is best for a particular product?* **How has packaging changed over the years?** *Find out bout packaging over the years. Look at tradition form of packaging. Eg Poha (titi) Journal Story* **How will we package this?** *Unusual products and how they are packaged.* *Unusual shape, size, material.* **What's inside? (information)** *What can we learn about the product by reading the information on the package.* **How long will it last? Use by.** *Materials and their properties. Appropriate for product.* **Keeping it safe. Transporting and packaging. *** *'Shipping For Survival' Unit* *How can you transport cut flowers around the world keeping them fresh.* **Pack Your Wagon *** *What to take and what to leave. Unit.* **Boxes and Bags *** *Aunt Annie's Crafts - Web site* *MissPrintables - Template purchasing* **Treasure Chest** *Writing / Maths (Map directions)* ***Message in a Bottle **** *Lesson Plan. English*
	PB **PRACTICE DEVELOPMENT**	. Describe their ideas . Explain the outcome . Consider the needs . Be aware of resources . List attributes	
	PO **PRACTICE OUTCOMES**	. Investigate an idea . Evaluate the ideas . Trial various ideas . Evaluate the outcome	
Technological Knowledge	**KM** **KNOWLWDGE MODELLING**	. Understand models . (explore and test) . Know about prototypes . (Test for fitness of purpose) . Evaluate concepts	
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Nature of Technology	**NC** **NATURE CHARACTERISITCS**	. Technology can improve, enhance, develop - through design. . Technology can help society. . Technology reflects society.	
	NO **NATURE OUTCOMES**	. Physical nature - structure and appearance. . Functional nature - purpose. . Fit for purpose is a mix of physi-cal and functional.	

ST BERNADETTE'S CHOOL - INQUIRY TOPIC CHECKLIST
2016 Term 2 - Packaging 'Pack It'

Curriculum Areas for Integration	English		
	Maths and Stats		
	Science		
	Social Sciences		
	Technology		HOST AREA
	The Arts		
	Health and PE		
	Learning Languages		

Technological Areas	Structural		
	Control		
	Food		
	Information / Communication		
	Biotechnology		

Contexts	Home		
	School		
	Recreational		
	Food		
	Industrial		
	Communication		
	Business		
	Biotechnology		

E-Learning Tools	Word Processing		
	Publisher/Excel/PowerPoint		
	e-mail/Fax/Phone/Scan		
	Internet-Research		
	Digital Camera/Video		
	Internet		
	Apps/iPad		

Key Competencies	Thinking		
	Using Language, symbols and texts		
	Managing Self		
	Relating to others		
	Participating and contributing		

Assessment Tools	Pre-test (Diagnostic)		
	Post-test (Summative)		
	Sample		
	Observation		
	Self/Peer Assessment		

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Activities and Strategies

Tuning In

- *Brainstorming*
- *Bundling*
- *Chatterboxes*
- *Cover Puzzles*
- *Finish the sentence*
- *Graffiti Board*
- *Mind Mapping*
- *Mystery Boxes*
- *Paired Interviews*
- *Pass the Ball*
- *People Bingo*
- *Picture Priorities*
- *Possible Sentences*
- *Post-A-Question*
- *Rocket Writing*
- *Silent Jigsaw*
- *Something From Home*
- *Startling Statements*
- *The Question Game*
- *Think Pair Share*
- *Think, Wink Decide*
- *Topic Wheels*
- *Visualisation & Prediction*
- *Visual Representation*

Finding Out

- *Ask an expert*
- *CD Rom*
- *Excursions*
- *Experiments*
- *Video and film*
- *Interviews and surveys*
- *Letter writing*
- *Newspaper and magazines.*
- *Paintings, photographs, drawings*
- *Picture books, novels*
- *Phone calls*
- *Shared book experiences*
- *Structured observations*
- *The Internet.*

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Activities and Strategies - Tuning In

- ***Bundling:*** *P14/15*
  8 Categories Vocabulary brainstorming and classifying into bundles.

- ***Mind Mapping*** *P20/21*
  Each child gets a picture of and aspect of technology.
  Tree chart style.

- ***Paired Interviews*** *P23/24*
  Find out what others know, or would like to know.
  Repeat procedure swapping roles.

- ***Picture Priorities*** *P26*
  Prioritise the bundling categories 1 to 8 in order of importance.

- ***Post A Question*** *P28*
  Anonymously post a question over the first week of the topic.

- ***5 The Alphabet.*** *'A to Z of Packaging*

- ***Blooms (Evaluating)***

- ***What's this about?*** *Can you explain these pictures?*

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Activities and Strategies

Sorting Out

- *Through dance and drama*
- *Through Media and Visual Arts*
- *Through Mathematics*
- *Through Music*
- *Through English*
- *Through Technology*

Going Further

- *Individual projects*
- *Contracts*
- *Expert Groups*
- *Seven at Once*

Making Conclusions

- *Board games*
- *Bloom's Box*
- *Concept Maps*
- *Connect-it*
- *Content-based cloze*
- *Consensus 1-3-6*
- *Cross Impact Grid*

Taking Action

- *Advertising Campaigns*
- *Annotated Exhibitions*
- *Visual Arts Display*
- *Develop and Action Plan for the School*
- *Global Links Letter Writing*
- *Personal Pledge*
- *Class Newsletter*
- *Fundraising*
- *Make Picture Books*

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Wording Learning Outcomes

For Knowledge				
arrange	order	define	recognise	duplicate
label	recall	list	repeat	memorise
name	state	relate	reproduce	**

For Comprehension				
classify	locate	describe	recognise	discuss
report	explain	restate	express	review
identify	select	indicate	translate	**

For Application				
apply	operate	choose	practice	demonstrate
schedule	dramatise	sketch	employ	solve
illustrate	use	interpret	write	**

For Analysis				
analyse	differentiate	appraise	discriminate	calculate
distinguish	categorise	examine	compare	experiment
contrast	question	criticise	test	**

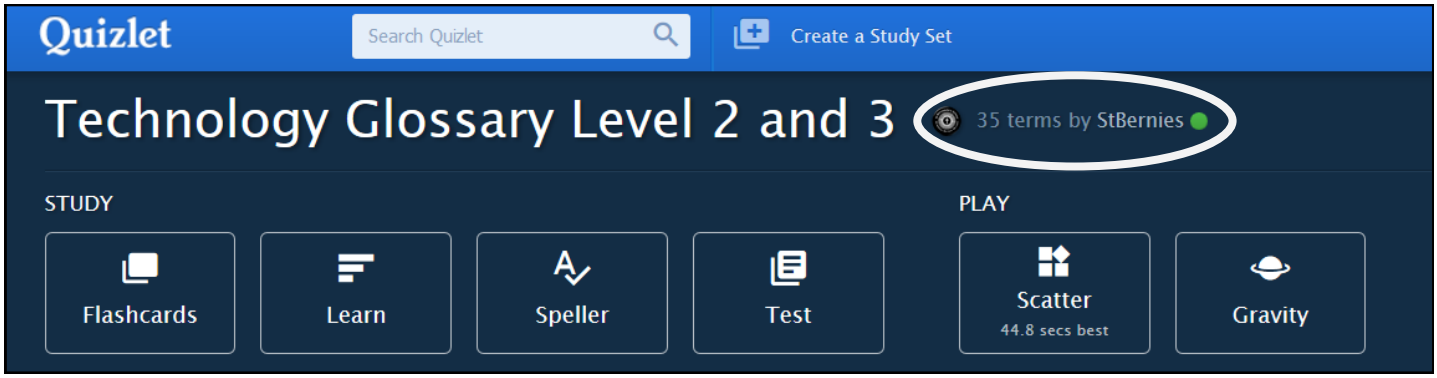
For Synthesis				
arrange	formulate	assemble	manage	collect
organise	compose	plan	construct	prepare
create	propose	design	write	**

For Evaluation				
appraise	judge	argue	predict	assess
rate	attach	score	choose	select
compare	support	estimate	evaluate	**

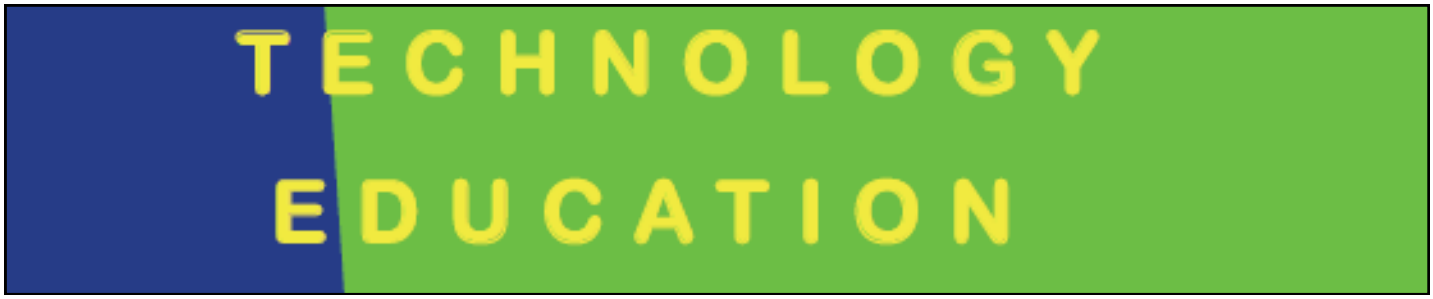
St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
The Vocabulary of the Technology Curriculum

Technology Glossary : Level 2 and 3 (StBernies)
Created at St Bernadette's School quizlet.com/_2868ag



Brochure designed at Heaton Intermediate School
Glossary and very good example of Brief Development
PDF in Staff Zone (StaffZone2016)
heaton_brochure.pdf



Technology Glossary Level 4/5
Tech Glossary.pdf *Staff Zone

Word/s	Definition/Meaning
acceptable practice	Doing everything to the highest standard
adapt	To change and improve. To make something suitable for another purpose.
aesthetics	If something is 'aesthetically pleasing' then it looks good.
analyse	Examine something and ask questions about such as who, what, where, why
attributes	Desirable features your project should have. Characteristics required.
brainstorm	A way of thinking around a subject.
brainstorm	To quickly come up with many initial ideas

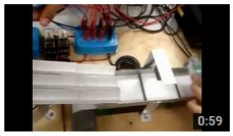
St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Eggstra Special Packaging

Natures own technology

The remarkable design of the egg.

Protecting the Chick.



Automatic egg packaging project
shahimi kama
3 years ago • 559 views
This is an automatic egg packaging machine prototype controlled by using PLC. The lower conveyor will run when the start button ...

Moba Prima 2000 egg grading and packing machine
MobaGroup Barneveld
6 years ago • 94,339 views
Moba Prima 2000 egg grading machine.

Egg packaging test
petr zudin
3 years ago • 138 views

Egg Packaging

Don't break that shell

Protecting the Egg

Stages

- **Collecting and sorting the eggs**
- **Transporting the eggs**
- **Shelving the eggs**
- **Getting the eggs home**
- **Storing the eggs**

Thermoformer for jam
Ad by Pharmaceutical & Food packaging-Jornen Machinery
85,036 views
Thermoformer and Blister machine for cheese, jam, butter, chocolate

How It's Made Eggs Packaging
documentaryholics
5 years ago • 67,535 views
This video explores how the eggs are treated and packaged in high technology before they come into market.

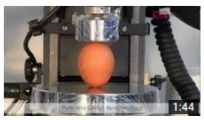
48 Hour Repack Egg Carton Packaging Design by SASD students
Jeff Wiiken
2 years ago • 3,159 views
SASD school competition.

Egg Grading and Packing Machine - Ardenta 300
SANOVO TECHNOLOGY GROUP
1 year ago • 8,406 views
Ardenta 300 is a high capacity egg grading and packing machine produced by SANOVO TECHNOLOGY GROUP to meet the ...

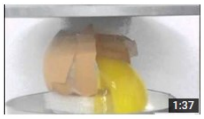
Good resources on YouTube!

Egg Strength Test
LIVEGONG67
3 years ago • 21,682 views
This demo consisted of an egg platform, an egg, half a J-cloth, and weights. Working on a demonstration for a class. The platform ...

Eggs strong enough to hold a car! - Richard Hammond's Engineering Connections - BBC Two
BBC
5 years ago • 120,582 views
More about this episode: http://www.bbc.co.uk/programmes/b00snkxs Richard Hammond demonstrates the strength of a curved ...



Strong Like an Egg?
Instron
3 years ago • 5,891 views
Working with Ken Zuckerman of Pete & Gerry's Organic Eggs, we tested the compression strength of various eggs.



How Strong are Eggs? Compression Strength Test
ADMET Testing Systems
5 years ago • 63,115 views
We've all attempted to break an egg by squeezing it with our hands and failed miserably. In an attempt to have a little fun we ...

Egg drop experiment
Intenseheat
3 years ago • 367,893 views
I was asked to find a way to build a structure around an egg that would protect it from shattering when dropped from 10 feet in the ...

Psychic Protection Tip #22 - Egg Protection with Sandy Anas
Sandy Anastasi
1 year ago • 460 views
Sandy Anastasi gives her psychic protection tip #22 - Egg Protection. Go to http:www.sandyanastasi.com for more information on ...

Egg Drop Science Project
Dan Gilbert
5 years ago • 346,797 views
Prototype tests for Megan's science camp competition. They need to create the lightest protection for an egg dropped from about ...

Egg Protection Device (EPD)- New Record
mojtaba bagh beheshti
5 years ago • 3,297 views
American Concrete Institute (ACI) Iran Chapter Competition - Spring 2008 In this tournament, structure from Yazd university gets 6 ...

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Little Shop

Food Packaging (Box Containers)
Buying and Selling Levels 1 and 2

Technology - Design Properties
Maths - Geometry 3D shapes, construction. Money - Shops
English - Viewing, Presenting, Reading, and Writing.
Could be extended to:
Social Sciences - Informing, Persuading, Selling, Choosing Buying

Resource
Missprintables

The templates for these 11 containers are in the StaffZone
FoodpackagingA.pdf

St Bernadette's School
Inquiry Learning Unit
Term 2, 2016

'Pack It'
Design Unit - Level 1,2 and 3

'Pack It' Focus on Design

The following unit is an adaptation of a Technology Design Project that we have rewritten at St Bernadette's for our Packaging unit targeted at Levels 2 and 3.

LESSONS

- **Source of Information - 'Back Pack'**
- **The Design Process - 'Lunch Box'**
- **The Design Brief**
- **Design Specifications**
- **Evaluating Design A**
- **Evaluating Design B**
- **Design Change**
- **Comparing products**
- **Comparing Products**
- **SCAMPER (acronym)**
- **<u>S</u>ubstitute**
- **<u>C</u>ombine**
- **<u>A</u>daptation**
- **<u>M</u>odify**
- **<u>P</u>ut to other uses**
- **<u>E</u>valuate**
- **<u>R</u>everse**

'Pack It' Focus on Design

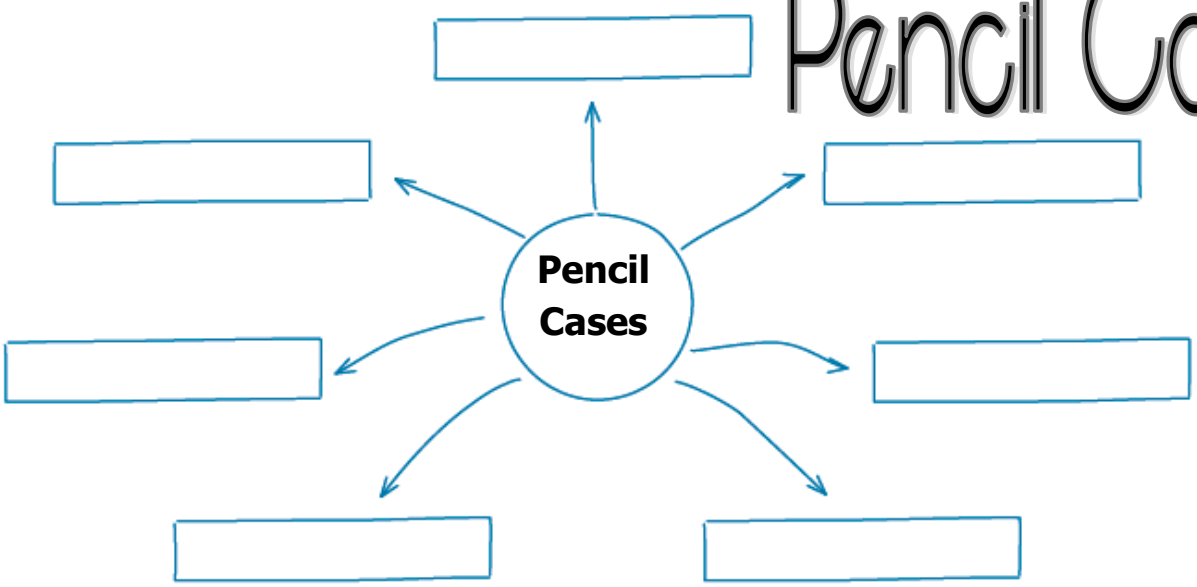
When designing in school, you usually work by yourself, so you have to get all the information you need to make your design. Think about designing a **school back pack.** . List all the types of information you might need, and where you could get the information from.

Back pack

INFORMATION	SOURCE OF INFORMATION
Different fabric/material	
Styles	
Sizes	
Printing	
Buckles/Fasteners	

Another school project could be designing and making **a pencil case**
Fill in the boxes in the diagram below with the types of information you would need in order to do this project, and where you may be able to get the information from.

Pencil Case



'Pack It' Focus on Design

Here is an example of a design process that is used in schools.

A design could start with any activity. Each of the activities can be repeated when there is a need until the design is finished. You can go from any activity to any other activity at any time.

For example in designing a game for a child, Sam followed this sequence:

A.	**Identify needs:**	*Observe children to see what games they like to use.*
B.	**Research:**	*Visit some game shops to see what is available.*
C.	**Evaluate:**	*Decide what the common elements are in the popular games.*
D.	**Generate ideas:**	*Decide on some new games.*
E.	**Evaluate:**	*Choose which one would be best.*
F.	**Research:**	*Decide which materials would be best for this design.*
G.	**Develop solution:**	*Make a foam model of the game.*
H.	**Evaluate:**	*Have some children play with it to see if they like it.*
I.	**Develop solution:**	*Draw a dimensioned sketch of the game.*
J.	**Realise solution:**	*Make a prototype.*
K.	**Evaluate:**	*Have some children play with it to identify any problems.*
L.	**Final solution:**	*Make the final prototype.*

Lunch Box

Explain what you would for each step if you were designing a new lunch box for school.	
A. Identify needs:	
B. Research:	
C. Evaluate:	
D. Generate ideas:	
E. Evaluate:	
F. Research:	
G. Develop solution:	
H. Evaluate:	
I. Develop solution:	
J. Realise solution:	
K. Evaluate:	
L. Final solution:	

'Pack It' Focus on Design

The Design Brief

A design brief is a summary of facts that tells you what you are hoping to do, who it is for and where it might be used; or it could be a statement of the problem you want to solve. It has no needless details. It is short and concise, in other words, brief. It forms the instructions for moving ahead. It may contain some limitations related to time, cost or materials.

For example:

a) *I have been investigating different forms of book covers and bindings. When my family were looking at an old family photo album I noticed how worn it was and that it needed a new cover.*

b) *I would like to design a new cover for the old family photo album.*

c) *I am going to make the album cover.*

d) *I have to complete all my work by 24 October.*

e) *I would like to be able to clean the album cover easily. I would like to decorate my album cover. I do not want to spend more than $20.00.*

In order to make this into a brief the above information can be reduced to a summary of key words: design, cover, family photo album, make, 24 October, easily cleaned, decorated, $20.00

These words can now be arranged into a concise sentence which will be the brief:

By 24 October, design and make an easily cleaned and decorated cover for an old family photograph album costing no more than $20.00.

Write a design brief from the following information:

Sports Bag

- I play a lot of winter sports
- I usually shower and change at the clubhouse
- My boots are often muddy
- I need a bag to carry my things home
- I usually have other things in my bags as well as sports gear.

Design Brief:

'Pack It' Focus on Design

Design Specifications

Design specifications answer these 5 questions.

- Who would use it? Who would buy it? Who needs it? Who would appreciate it?
- What does it do? What is it made of? What does it look like? What does it cost?
- When would you use it?
- Where would it be used? Where would you find it?
- Why is it useful? Why would you want one?

If you were a designer what would be the answers to the 5 W's for these products?

BRIEF	SPECIFICATIONS A Gift Box
1.	Who: What: When: Where: Why:
2.	Who: What: When: Where: Why:

A Time Capsule

'Pack It' Focus on Design

Design Skills

A. Assume you are working for a client who wants you to design a new light-weight form of baby pusher for 6–12 month old children. What are some methods you could use to find out what the needs are for this type of pusher?

Factors	What do I need to think about and consider?
Size	
Weight	
Colour	
Fabric	
Shape	

Sketch you initial ideas. Remember to label if you need to.

'Pack It' Focus on Design

Evaluating Design - A

Consider how technology has changed products overtime and how it has improved features and corrected faults in these packaging products.

A.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
	- All metal - Cutter wore out quickly - Not ergonomic handle		- Plastic included - Cutter replaced with cutting wheel - Plastic shaped handle

B.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
			

C.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
			

'Pack It' Focus on Design

Evaluating Design - B

Consider how technology has changed products overtime and how it has improved features and corrected faults in these packaging products.

A.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
	- All metal - Cutter wore out quickly - Not ergonomic handle		- Plastic included - Cutter replaced with cutting wheel - Plastic shaped handle

B.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
			

C.

OLD PRODUCT	PROBLEMS	NEW PRODUCT	CHARACTERTICS
			

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Design change

Attribute modification is a way of coming up with new ideas by listing all the main features of a product and then thinking of ways to change each feature.

PRODUCT	FEATURE	CHANGE
T.V. Remote Control	Usually black	Bright Colours
	On/off switch	Squeeze to turn on/off
	Lots of buttons	Touch screen
	Rectangle-shaped	Shaped to fit in hand

Choose one of the products below and list some features of the product, and then ways each feature can be changed.

PRODUCT	FEATURE	CHANGE
Shoe Box		

Draw a sketch of what your new product might look like:

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Comparing Products

1. **Many more people are now packing and carrying their grocery shopping in their own re-usable cloth bags rather than the plastic bags that the supermarkets supply.**

   Decide on what factors are important in comparing these two products (write in the Factors column) and then under each product write a judgement about each factor.

FACTORS	PLASTIC BAG	CLOTH BAG
Cost	Usually free to the customer, but the cost would be added into the products. Later costs to the environment.	Customer has to purchase initially, but it can be used for other things and can be reused many times.
Environmentally friendly		
Convenience		

Based on these judgements you have made, describe how the values of the manufacturer and customer would be different.

Manufacturer	Consumer

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Comparing Products

COMPARING PRODUCTS

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Scamper

SCAMPER is a way of developing creative, divergent and original thinking and to encourage imagination. The **SCAMPER** letters stand for:

S	**Substitute**	*To have a person or thing act in place of another.*
C	**Combine**	*To bring together, unite.*
A	**Adapt**	*To adjust for the purpose of suiting a condition or purpose.*
M	**Modify**	*To alter, to change the form or quality.*
	Magnify	*To enlarge, to make greater in form or quality.*
	Minify	*To make smaller, lighter, slower, less frequent.*
P	**Put to other uses**	*To be used for purposes other than originally intended.*
E	**Eliminate**	*To remove, omit or get rid of a quality, part or whole.*
R	**Reverse**	*To place opposite or contrary, to turn around.*
	Re-arrange	*To change order or adjust, different plan, layout or scheme.*

The activities on the following pages are examples of what you can do with **SCAMPER**.

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Subsitution

Substitution (SCAMPER)

A substitution is to have something act or serve in the place of something else.

Choose one of the following products and break it down into its parts then consider good and bad points of each part.

Backpack

Supermarket Trolley

Suitcase

Hint: Think about materials

PRODUCT: _____

PARTS	GOOD POINTS	BAD POINTS

As you have done above, focus on the parts of the object again. Fill in the sentences below, thinking about what changes (substitutions) could be done and what effect would this have?

If I change _____ then (effect) _____

If I change _____ then (effect) _____

If I change _____ then (effect) _____

If I change _____ then (effect) _____

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Combine

Combine Ideas (sCAMPER)

Many great ideas combine two or more single ideas. For example, clock-radio, fridge-freezer, sofa-bed, pencil-rubber.

Choose four of these packages and put them in list B. Or choose items of your own.
Imagine how A and B could work together to make a new product.

Torch, phone, ipad, book, computer, tv, heater, coffee machine, table, clock, camera.

LIST A	LIST B
Shopping Trolley	
Hand bag / Brief case	
Book shelf	
Pencil Case	

1. By combining a _____ and a _____ we created a _____ which _____

2. By combining a _____ and a _____ we created a _____ which _____

3. By combining a _____ and a _____ we created a _____ which _____

4. By combining a _____ and a _____ we created a _____ which _____

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Adaptation

Adaptation (SCAMPER)

Adaptation involves changing or adapting a product to meet a new set of needs.

Choose one of the following products to adapt:

A lunchbox for picky eaters
A shopping trolley for a handicapped person
A backpack for a dog

PRODUCT: _____

SPECIAL NEEDS TO BE MET:

Draw your invention

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Modify

Thank about any product you use and suggest how you could make it better.

Magnify / Modify / Minify (SCAMPER)

This involves altering or changing the form or quality. To make smaller, lighter, less frequent, etc.

By modifying one feature of a product new inventions can be created. For example, by magnifying we have larger TV screens, by minifying we have smaller computers, radios and telephones.

If you could make changes, what would you:

Make larger _____

Make smaller _____

Make lighter _____

Make sweeter _____

Make faster _____

Make louder _____

Make quieter _____

Make softer _____

Make harder _____

Make longer-lasting _____

Make slower _____

Make stickier _____

Make more colourful _____

Make less breakable _____

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Put to Other Uses (SCAMPER)

Put to other uses

Thank about any product you use and suggest how you could make it better.

May products are used for purposes other than originally intended. Screw drivers, for example, are used to take the lids off paint tins. We throw out many things that could be put to other uses.

Think of as many ways as possible to use the following discards.

Empty Milk Carton

Plastic Drink Bottle

Can

Shoe Box

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Eliminate

Eliminate (SCAMPER)

To eliminate something is to remove, omit or get rid of a quality, a part or the whole lot. Many inventions occur when someone gets so frustrated with a problem that they decide to do something about it.

Explain ways that you might be able to eliminate these problems.

PRODUCT	PROBLEM	ELIMINATE
Plastic Shopping Bags	Often break	
Rubbish Bags	Cats break into them	
Milk Bottles	Hard to open	
Cans of spaghetti	Hard to open	

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Reverse

Reverse / Rearrange (SCAMPER)

In this technique you rearrange aspects of a product and reverse or turn it around. For example, a microwave freezer, an "uncopy"machine to take print off paper.

See if you can come up with four reversals and put them in the boxes below.

INVENTION	USE
1.	
2.	
3.	
4.	