

# Design & *TECHNOLOGIES:*

Years 3-4



- Section 1:**  
Design And Technologies In Our Community
- Section 2:**  
Investigating Materials And Forces
- Section 3:**  
Food And Fibre Technologies
- Section 4:**  
Designing Solutions
- Section 5:**  
Designing Safely

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# Teachers' Notes

## What is Design and Technologies?

Design and Technologies is an area that challenges students to draw upon their experience and imagination to develop designed solutions that can be ideated, constructed and enjoyed. The embedded use of digital technologies enables students to collaborate and communicate their solutions.

## How you can use this book:

*Design & Technologies: Year 3 – 4* has been organised into five sections.

### Section 1: Design And Technologies In Our Community

In this section, students will contemplate the role of designers in a community and the associated technology used in various occupations linked to design and technologies. They will discover how ideas for new products, services and environments are generated to meet the specific needs of users.

### Section 2: Investigating Materials And Forces

The focus in this section is investigating how materials behave under certain conditions and therefore their suitability for specific purposes. Students will explore properties such as elasticity and absorbency through conducting tests and create a domino topple to observe force and movement in action.

### Section 3: Food And Fibre Technologies

The remarkable properties of wool fibre and the fibre resources of Indigenous communities is approached through research activities. Students will also analyse food labels to explain in an oral report the nutrition information displayed.

### Section 4: Designing Solutions

Generating, communicating and critiquing designed solutions for a variety of everyday problems is featured in this section. Students will have the opportunity to build and test a model for a design challenge of their choice.

### Section 5: Designing Safely

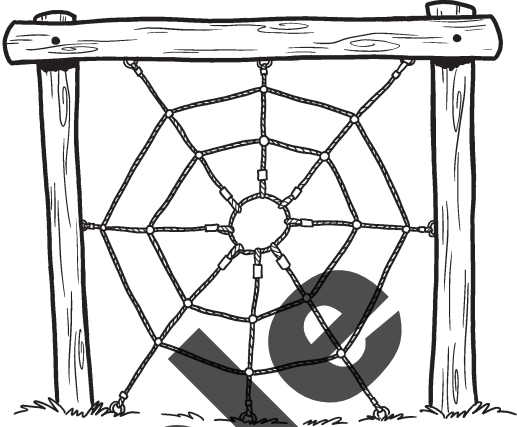
Activities include formulating good practice rules for working safely in Design and Technology lessons and the importance of working accurately to achieve design outcomes.



## Activity Design Inspiration 1

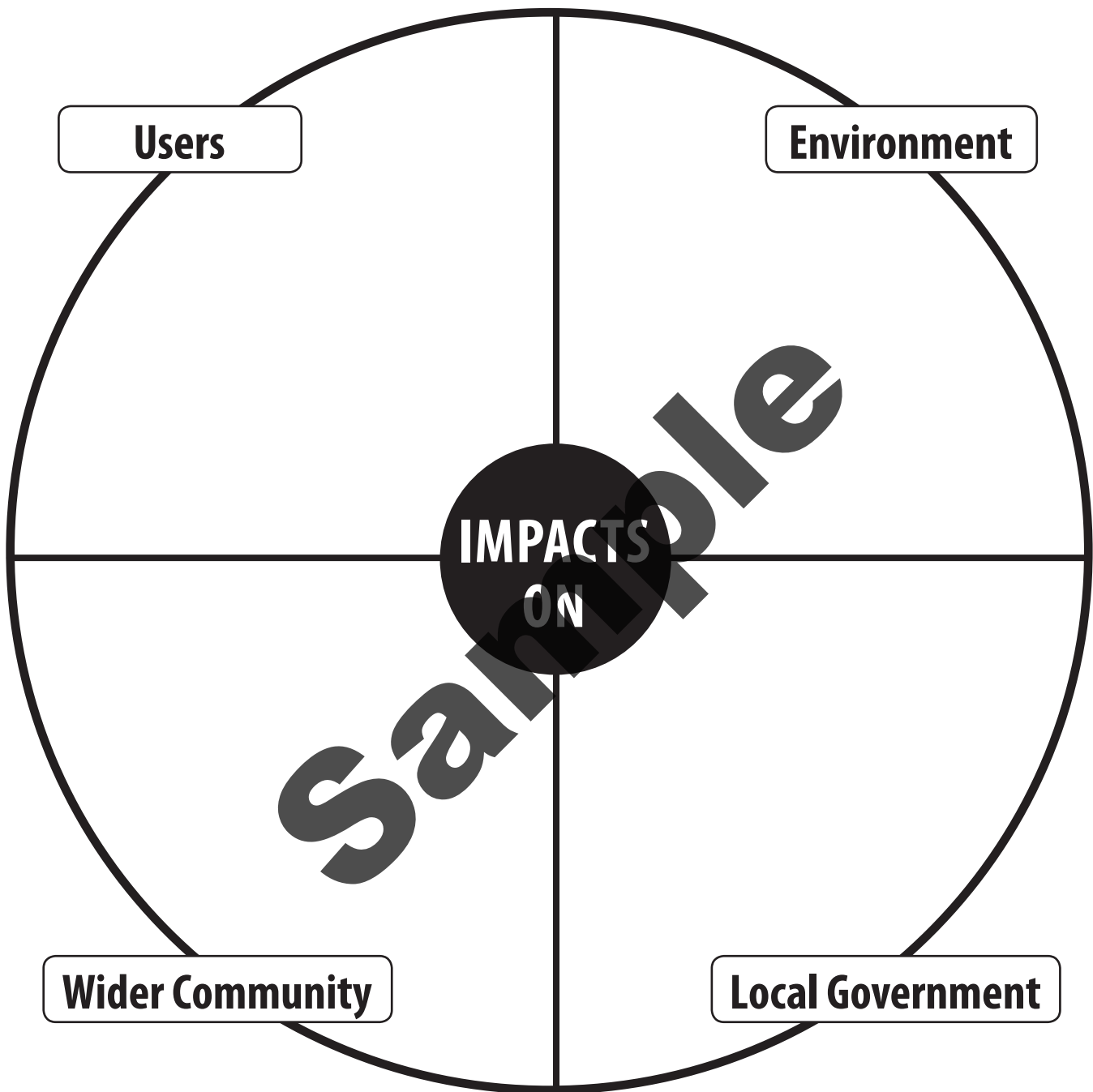
HOW DO PEOPLE COME UP WITH IDEAS FOR NEW PRODUCTS, SERVICES AND ENVIRONMENTS?  
MANY ASTONISHING IDEAS HAVE BEEN INSPIRED BY OBSERVING WHAT OCCURS IN THE  
NATURAL WORLD. THIS IS CALLED **BIOMIMICRY**.

- ☐ Work with a partner. Make labelled sketches of designs that could be inspired by biomimicry. Look at the example to help you.

Inspired by Nature	My Design Sketch
<p>1.</p> <p><i>E.g. The basic pattern of a spider web has inspired a lot of playground equipment, such as climbing frames and rope structures.</i></p>	
<p>2.</p>	
<p>3.</p>	
<p>4.</p>	

## Activity Urban Gardens 2

1. Brainstorm in a small group how urban gardens can have an impact on their users and the wider community. Use ideas from the article on page 15 and your own ideas to make notes under the headings below. .



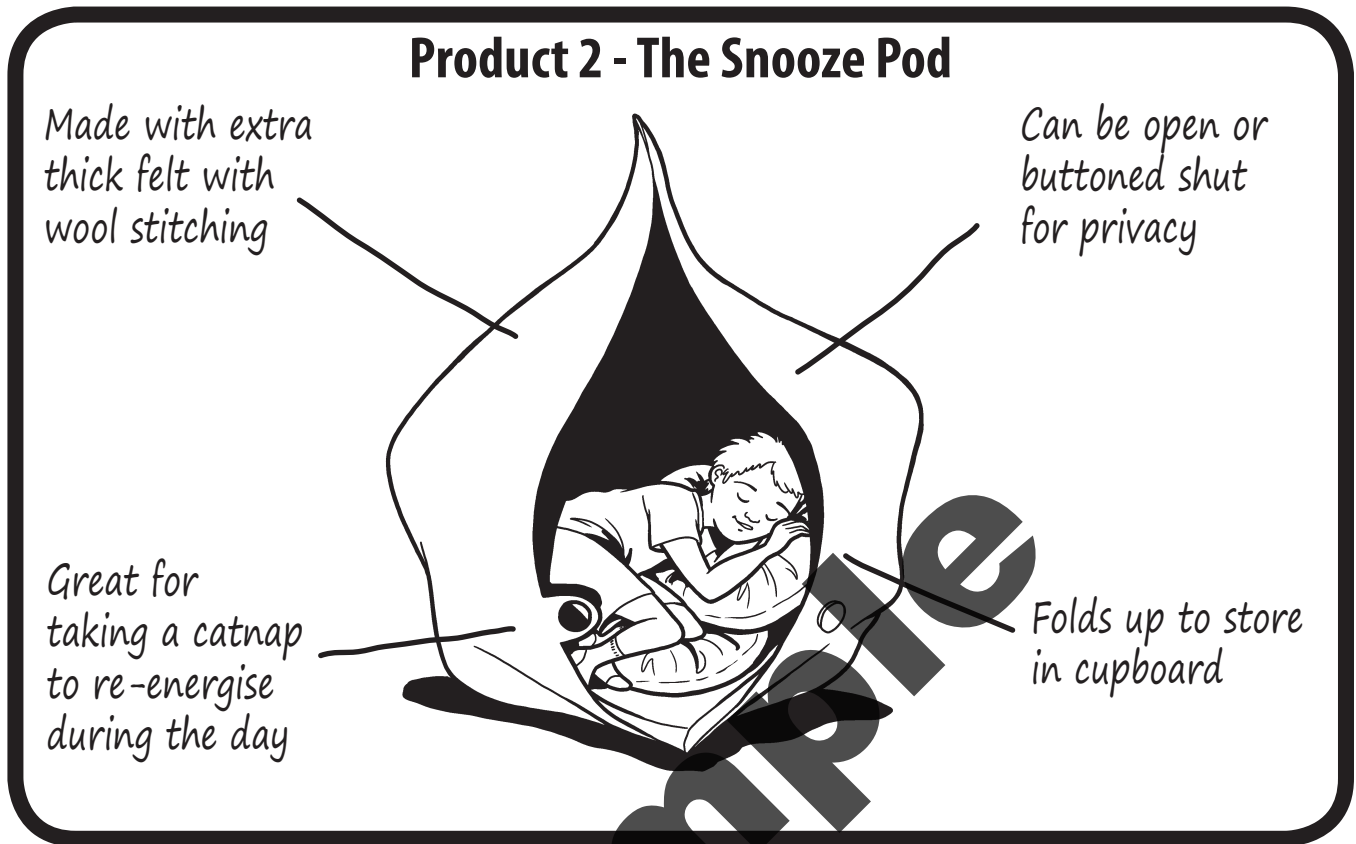
2. **S-t-r-e-t-c-h task!** Sum up the food system created in an urban garden. Use these terms in the correct order:

**COMPOST    GROW    EAT    SHARE**

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1. Study the product below and read the information about its materials and use (function).



2. Work with another peer who has been given a "Student B" sheet. Look at the criteria in the table below that asks you to comment on the design of "The Snooze Pod". Discuss this product with your partner and fill in the table.

How suitable are the product's materials for its function?	
How does the product work?	
Who would most likely use this product?	
Can you identify any problems with the product?	

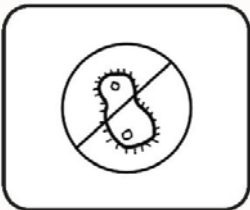

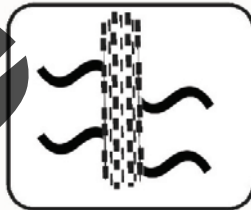
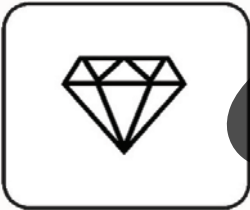


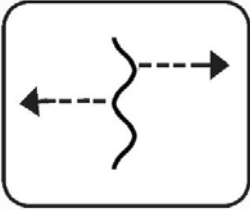


3. With your partner, give an oral presentation of your critique of "The Snooze Pod" to peers with the "Student A" sheet. Give this designed product a star rating from 1 (poor) to 5 (excellent).



## Activity Material Properties 2

MATERIALS USED IN D&T HAVE VARIOUS PROPERTIES THAT WORK TO MAKE A PRODUCT OR SERVICE. HAVE YOU EVER SEEN ICONS LIKE THE ONES BELOW ON THE LABELS OR PACKAGING OF PRODUCTS IN YOUR HOME?

- Match the icons with the words from the text box below. Only use one word for each icon. An example has been done for you.
- Underneath each icon, name a product that has this property.

breathable material		durable	shatter-proof	water resistant
bacteria resistant ✓	elastic	fragile	non-stick surface	scratch resistant
		easy-to-clean	absorbent material	
<p>A.</p>  <p><i>e.g. bacteria resistant kitchen cutting board</i></p>		<p>B.</p> 		<p>C.</p> 
<p>D.</p> 		<p>E.</p> 		<p>F.</p> 
<p>G.</p> 		<p>H.</p> 		<p>I.</p> 

The information on food labels can give you guidance on how to maintain a balanced diet. You can also compare one food item with another to make a healthy choice. In this task, you will analyse the information about a frozen mango yoghurt and give an oral report about it to your partner.

- ☐ Study this food label (nutrition panel) and use the STUDENT INFORMATION PAGE on page 37 to analyse the nutrients in this food to make notes for your report below. Would you recommend this food as a healthy choice? Why/Why not?

## FROZEN MANGO YOGHURT

### NUTRITION PANEL

*Serving size 100g*

Calories 123 cal

Protein 4.3g

Fat 3.0g

Saturated fats 1.9g

Carbohydrates 20.0g

Sugars 18.0g

Sodium 0.5g

Fibre 0.0g



### *My Analysis*

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## Activity Designing Solutions 1

For the task on this page, you will be challenged to come up with a solution for the situation described.

- ☐ Write notes, doodle and describe your solutions under the headings in the boxes.

*The Situation:*

*A herb garden in the backyard is also being enjoyed by the native birds. How can the herb garden be protected from being nibbled?*

*Have I experienced or seen a situation like this before?*

*Doodles:*



*My Solution:*

- ☐ Discuss your solutions with a peer. After this discussion, is there anything you would like to add, remove or adapt in your design?

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