



YEAR
7-8

THINKING OUTSIDE THE BOX

THE SUSTAINABLE SEATING PROJECT

NAME

.....

CLASS

.....

TERM/YEAR

.....

This unit investigates the growing, manufacture and use of the wood fibre material, cardboard. Along the way you can experience a virtual excursion to an Australian pine plantation forest and paper mill to see how this versatile material is created, and explore the importance of sustainable forest management to produce wood fibre. You are then tasked with designing and producing your own sustainable seat made from upcycled cardboard.

.....

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ForestLearning, in partnership with the DATTAVic, respectfully acknowledges the Traditional Custodians of the land and their Elders past and present, for the important and enduring role that Aboriginal and Torres Strait Islander peoples play in Australia regarding the land, water and sky.

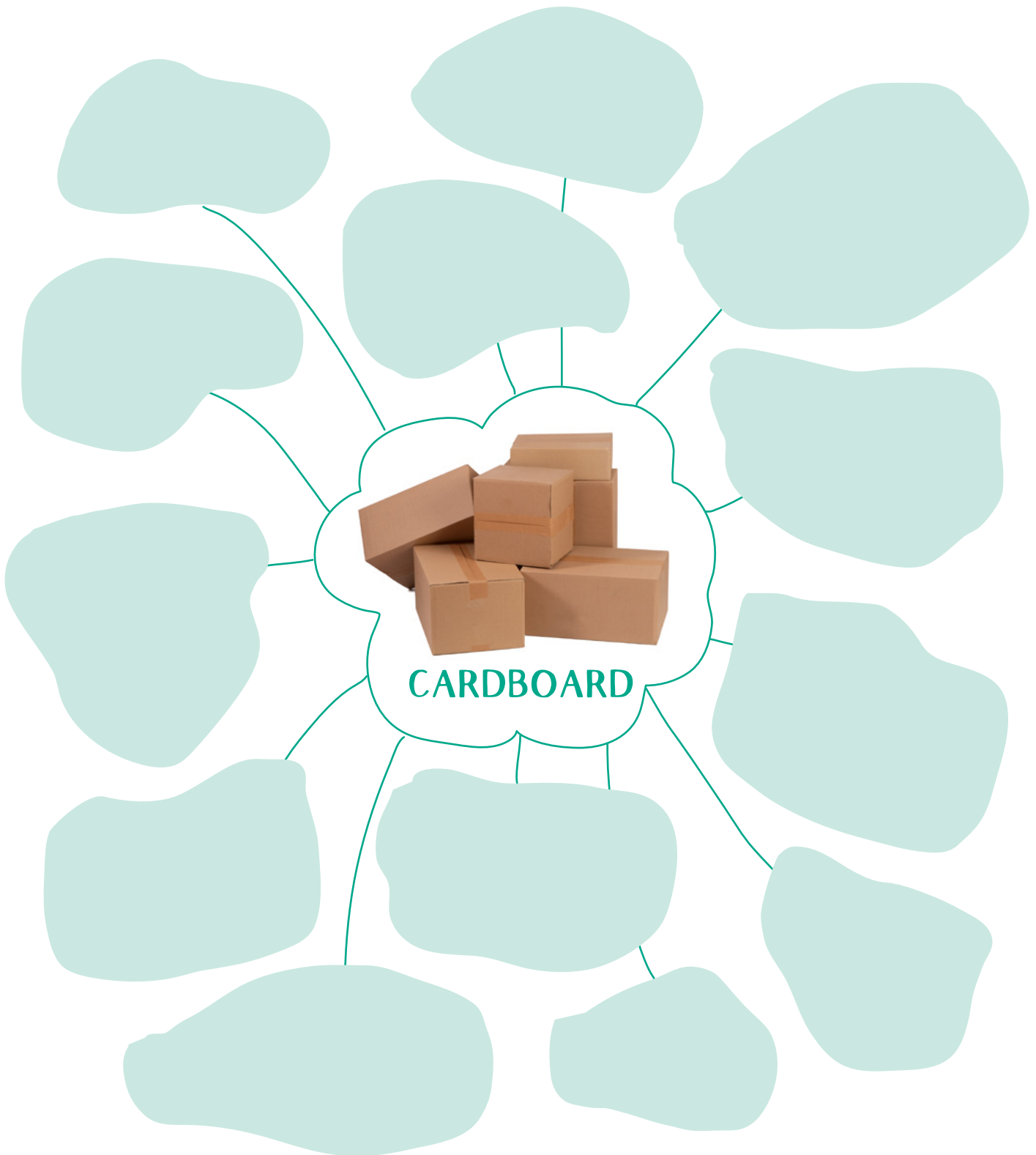
ACTIVITY 1

CARDBOARD, CARDBOARD EVERYWHERE!



STEP 1 Explore and touch the range of different cardboard products on display.

STEP 2 In small groups, discuss ways cardboard is used around your homes and in society. Create a mind map to show cardboard uses.





STEP 3 Follow Table 1 to explore and test the properties of 3 different cardboard products/packaging. Record your observations for each sample and rate them from 1 to 3, where 1 is the best performing and 3 is the worst, for each test.

Table 1. Different Cardboard Product Properties Test.

CARDBOARD PROPERTIES	OBSERVATION AND RATING					
	SAMPLE 1		SAMPLE 2		SAMPLE 3	
Strength - Fold test 						
Strength - Crush test 						
Durability - Tear test 						
Durability - Drop test 						
Water Repellent - Water test 						
Optional Other:						



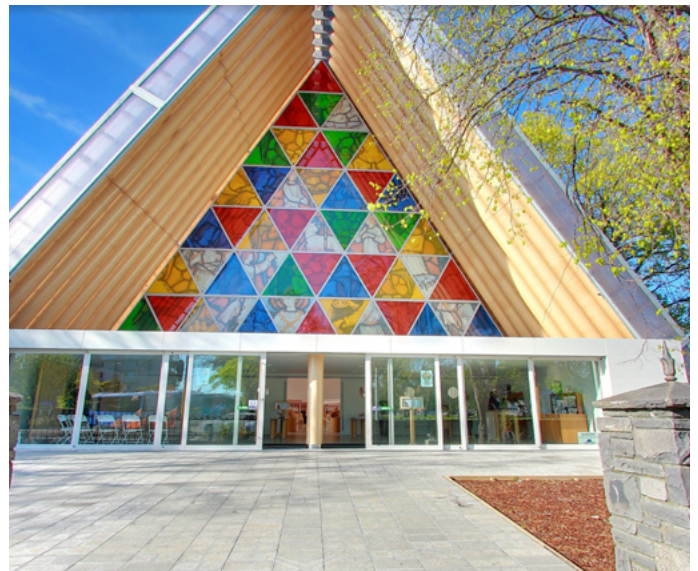
QUESTION 1 List 3 reasons cardboard is commonly used as a packaging material, based on the properties you have discovered in your samples.



STEP 4 In your small groups, brainstorm what other products cardboard could be used for (see some examples below). Add your innovative ideas to your mind map using another colour.



Cardboard for temporary housing



Cardboard cathedral in Christchurch



Cardboard furniture



STEP 3 As a class, read the information below about the sustainability stool. Discuss the 3 aspects of sustainability and how they can be applied in design and technology.

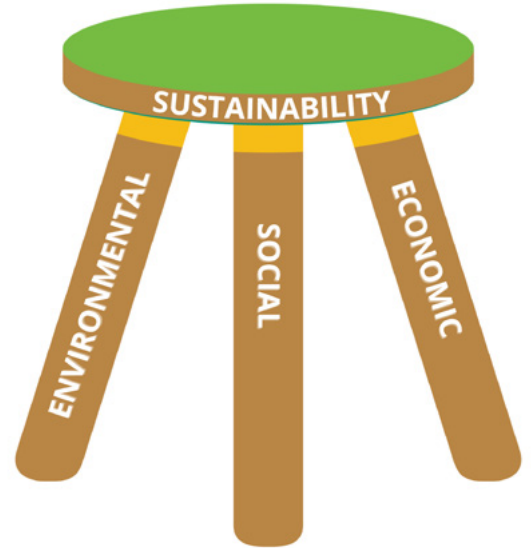
SUSTAINABILITY STOOL

In Design and Technologies, sustainability is about creating designed solutions for preferred futures. It is about solutions that will improve outcomes for people and the environment, that are cost effective, and support fair work and trade.

Sustainability in design rests on three pillars - environmental, social and economic. This is represented in the stool below. A designer needs to consider these pillars when designing new innovations and products.

For example, when in the process of designing products, designers may consider:

- Does my design fill a social need?
- Are the materials I use to produce the product ethically manufactured/ sourced?
- Can my designed product be made from environmentally-friendly / responsibly sourced materials?
- Will my designed product materials be accessible?
- How can I design my product so that it can be recycled or reused?
- Is it cost effective to manufacture and distribute?
- Will it create jobs within the local economy?



QUESTION 5 Define what sustainability means in your own words.

QUESTION 6 In the table below, write which aspect of sustainability you think each statement is most aligned with (multiple aspects of sustainability may apply to some statements).

ENV (Environmental)

S (Social)

EC (Economic)

Table 1. Aspects of sustainability in the cardboard industry.

STATEMENT	ANSWER
Wood fibre can be continually regrown, making it a renewable material.	
Cardboard can be easily recycled.	
Cardboard is grown using sustainable forestry practices in Australia.	
Cardboard is biodegradable and a good alternative for single-use products.	
Local pulp mills create sustainable local jobs.	
Cardboard is a cost effective material to produce and recycle.	
Cardboard can be flat-packed and transported cheaply before being assembled.	



STEP 4 Compare and discuss your answers with the person next to you. Did this discussion make either of you change your mind about any of your answers? Explain why.

STEP 5 Conduct research into the difference between paperboard (kraft paper) and corrugated cardboard using Table 2 matrix below.

Use the comment tool options to draw straight onto the pdf or upload an image.

Table 2. Corrugated cardboard and paperboard research activity.

CORRUGATED CARDBOARD		
IMAGES	PROPERTIES	USES
Find two images showing a product being wrapped in corrugated cardboard and a product packaged in corrugated cardboard.	Include a labeled drawing/image of the structure of corrugated cardboard.	Find 3 different uses of corrugated cardboard.
PAPERBOARD (SOMETIMES REFERRED TO AS CARDBOARD)		
IMAGES	PROPERTIES	USES
Find two images that show how paperboard is used in advertising.		Find 3 different uses of paperboard.

OPTIONAL EXTENSION

ACTIVITY 3

CARDBOARD AS A PART OF A CIRCULAR ECONOMY



STEP 1 Use the following resources to learn about circular design and circular economies:

- **Stora Enso website video – Circular design:** <https://www.storaenso.com/en/sustainability/circular-bioeconomy>
- **Renewable materials into the future made from wood - How we use a tree:** <https://youtu.be/rUEIPYaxgqs>

STEP 2 As a class, consider the following paragraph from the Government of the Netherlands website, then complete tasks A to C.

A circular economy can be an important instrument to tackle the current triple planetary crises on climate, biodiversity and pollution. By keeping resources in the loop for longer, we'll avoid emitting greenhouse gases caused by the energy needed to make products.

By 2050 the Dutch economy will run entirely on reusable materials. In this circular economy, there will be no more waste, as resources will be reused again and again.

Source: <https://tinyurl.com/4psv32rd>

Remember - something is not recycled until it is made into a new product!

Use the comment tool options to draw straight onto the pdf.

- a) **Draw the linear life cycle of a cardboard or timber product familiar to you, from raw material to end of life disposal, using a flow diagram.**

- b) **Reimagine how this product might be designed or reused differently in a circular economy, to reduce waste and maximise the use of the wood fibre material it is created from.**

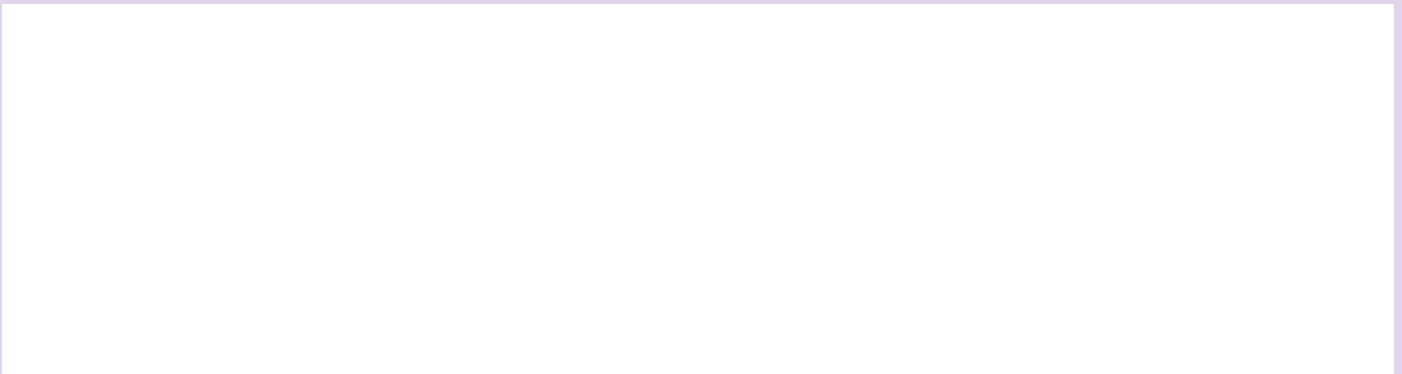
- c) **Draw a flow diagram that shows the changes and annotate it to explain where waste is reduced and resource use is maximised.**



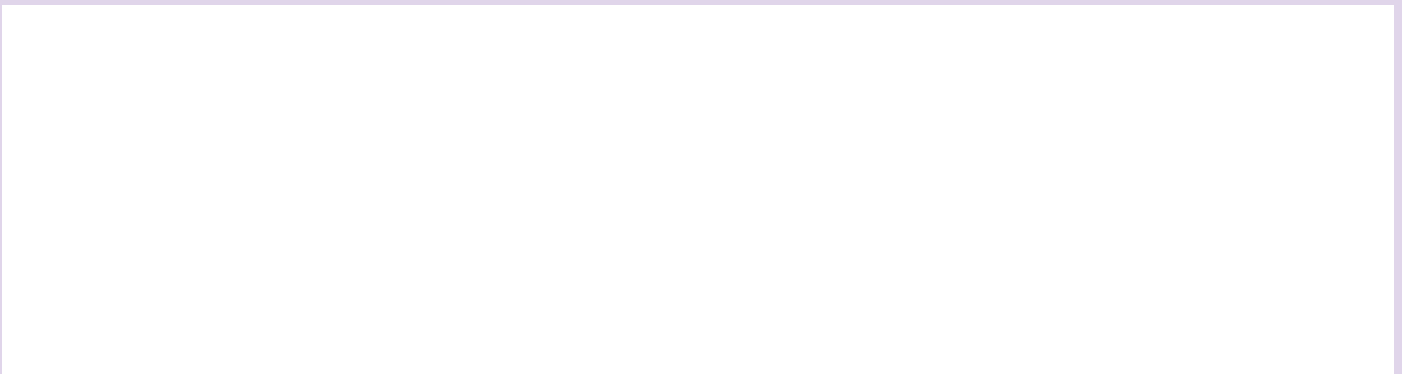
STEP 3 CLOSING THE LOOP - Where can you contribute to a circular economy?

Paper products in your school

1. Investigate the fate of paper products in your school and if they go to landfill (a linear economy). If no recycling is currently being done, think of ways your school could start to recycle, reuse and reduce paper waste.



2. Investigate the source of paper in the school by checking out the ream of paper's packaging. Is the paper made from recycled paper or virgin copy paper? Does the paper come from a sustainable forest source (that is, does it show a PEFC/Responsible Wood or FSC logo?).



LESSON 2



RESEARCH FOR A CARDBOARD SEAT

ACTIVITY 1

SURVEYS FOR SCHOOL AND HOME



STEP 1 In pairs or groups, use either survey A or survey B or create your own survey for a chosen target group.

STEP 2 Use your survey to gather responses from your target group.

Once the surveys are completed, in the next lesson, compile your results and collaboratively share and discuss your findings

EXAMPLE SURVEY ON THE USE OF A CARDBOARD SEAT

SURVEY A: FRIENDS AND FAMILY		NAME: <input type="text"/>		
QUESTIONS	ANSWERS (Circle your response)			
Have you ever sat on a cardboard seat?	Yes	No		
Do you like the idea of using an upcycled seat made from cardboard?	Yes	No	Don't know	
If you own a cardboard seat how often do you use it?	Regularly	Sometimes	Rarely	Never
What appeals to you most about an upcycled seat made from cardboard?	It is a sustainable option.	It is lightweight and easy to store.	It has a modern design aesthetic.	Other:

SURVEY B: SCHOOL PRINCIPAL, SCHOOL STAFF			NAME:	
QUESTIONS	ANSWERS (Circle your response)			
Would you consider encouraging students to use upcycled cardboard seats at school events or in areas such as the library?	Yes	No	Don't know	
Why would you consider using cardboard seats at school events or in areas such as the library?	Cardboard seats would be cost effective to use, easy to replace and could be stored flat-packed.	Upcycled seats are better for the environment than seats made from plastic and other materials.	We support sustainable practices at our school.	Other:
Why would you not encourage students to use cardboard seats in your school?	Seats may not last as long and need replacing more often.	They may not be as comfortable.	Seats may be more easily damaged if not handled with care.	Other:



ACTIVITY 2

SURVEY RESULTS



STEP 1 In your original survey groups or as a class, collate, share and discuss your survey findings

STEP 2 From your results, refine the need for a cardboard seat.

Questions that may help you to form conclusions include:

QUESTION 1 From the survey responses, do you think there is a strong need or interest for a seat made from cardboard? Why or why not?

QUESTION 2 List any needs for a cardboard seat identified from the surveys.

QUESTION 3 Based on the survey results, what considerations should you keep in mind and what problems or challenges might you encounter?

QUESTION 4 Do the survey results mention any desired features?

ACTIVITY 3

INVESTIGATION OF THE STYLE, FUNCTION AND MATERIAL OF DIFFERENT SEATS

BENEFITS AND DISADVANTAGES OF A SEAT'S STYLE, FUNCTION AND MATERIAL



STEP 1 Individually or in small groups, analyse 3 existing seats and explore the benefits and disadvantages of each one in relation to its material, how it functions and its style, using Table 1.

Image 1 - Metal seat: <https://classicwithatwist.com.au/products/bistro-metal-chair>

Image 2 - Plastic seat: <https://tinyurl.com/plasticseat>

Image 3 - Cardboard seat: <https://www.wired.com/2009/02/cardboard-chair/>



Metal Seat



Plastic Chair



Cardboard Seat

Table 1. Three seat benefits and disadvantages comparison of function, style and material.

WHAT ARE THE <u>BENEFITS</u> OF EACH CHAIR'S FUNCTION, STYLE AND MATERIAL?			
FUNCTION			
STYLE			
MATERIAL			
WHAT ARE THE <u>DISADVANTAGES</u> OF EACH CHAIR'S FUNCTION, STYLE AND MATERIAL?			
FUNCTION			
STYLE			
MATERIAL			



EXISTING CARDBOARD SEAT DESIGNS

STEP 2 Research and analyse two existing cardboard seat designs that might meet the needs of your targeted end user. Record your findings in Table 2.

STEP 3 Insert an image of each seat and annotate the features that may appeal to the target group you surveyed into Table 2.

Table 2. Existing cardboard seat design research.

CARDBOARD SEAT DESIGN 1	CARDBOARD SEAT DESIGN 2
SOURCE:	SOURCE:
APPEALING FEATURES:	APPEALING FEATURES:
TARGET END USER:	TARGET END USER:
IMAGE:	IMAGE:



SUSTAINABLE PROPERTIES OF DIFFERENT MATERIALS

Investigate the properties of 3 materials, their level of sustainability and if they are suitable for a sustainable seat.

STEP 4 In groups of 4, play a game where 3 materials, stainless steel, plastic and cardboard, are interviewed for the job of seat material by the designer.

- 1 person plays the designer. Their purpose is to find the best candidate to build their seat with.
- 3 people each play a material candidate. Their purpose is to 'sell' their material properties using the supplied CV (fact sheet) about these qualities.

STEP 5 The interviewer asks each 'material' the questions about their properties listed in column 1 of table 3 and fills in their answers below.

STEP 6 Based on all the answers given, decide on a sustainability ranking for each material from most sustainable (1) to least sustainable (3) and write it in the results summary.

Table 3. Interview scorecard for the sustainability of material properties for a seat.

Circle and annotate your answers to the following:

PROPERTIES	STAINLESS STEEL	PLASTIC	CARDBOARD
Source			
Energy used to create the material?	High / Medium / Low	High / Medium / Low	High / Medium / Low
Uses/roles			
Renewable?	YES / NO	YES / NO	YES / NO
Explain why or why not?			
Biodegradable?	YES / NO	YES / NO	YES / NO
Explain why or why not?			
Durability comparison	High / Medium / Low	High / Medium / Low	High / Medium / Low
Explain your choice.			
Results summary. Rank each material from 1 - 3, 1 being the most suitable and sustainable option for your seat design.			
Ranking:			

MATERIAL 1 - CARDBOARD

PERSONAL INFORMATION

SOURCE: I come from wood harvested from trees.

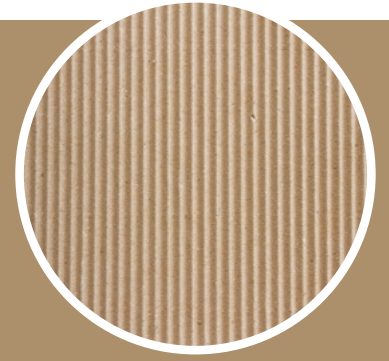
MANUFACTURE: I am made from mostly low-grade and waste wood that is chipped and pulped then reformed into flat paperboard in a paper mill. I am also made from recycled paper products that are mixed and pulped with wood.

EXPERIENCE

PRODUCT HISTORY / USES: I've had a starring role in packaging since the 1850s, from cereal boxes to textiles to fresh food products, and more recently, delivery of online goods. I have also had roles in the art and craft industry including picture framing and I'm branching out into furniture and construction.

PERSONAL QUALITIES

- I am renewable because wood fibre comes from sustainably managed trees that are replanted after harvesting.
- I am biodegradable and compostable. I'm also recyclable if I'm not contaminated by food.
- I am flexible, lightweight and love to wear advertising and decorative finishes.
- I am durable. As packaging I need to survive the rigours of whatever delivery method you throw at me! When I'm corrugated cardboard I have excellent strength due to my fluted layers and do a great job of protecting my contents from damage in transportation. Whilst I am water resistant, I'm not weatherproof and prefer indoor or dry weather jobs.



MATERIAL 2 - PLASTIC

PERSONAL INFORMATION

SOURCE: I can be made from a variety of source materials including crude oil, natural gas, cellulose, coal and salt.

MANUFACTURE: I am energy intensive to create. To begin with, fossil fuels must be refined using high temperatures to isolate the building blocks needed to make plastic, called monomers, such as ethylene and propylene (Plastics Europe, 2022). Inside a reactor using heat, light and enzymes, monomers such as ethylene and propylene are linked into long polymer chains through a process called polymerisation, creating polyethylene and polypropylene ('mono' meaning one, 'poly' meaning many) (Polyplastics, n.d.).

PERSONAL QUALITIES

- For the most part, I am not renewable because fossil fuels such as crude oil, which I am largely made of, are non-renewable materials. However bioplastics that use cellulose monomers from plants are partially renewable.
- Most of my plastic forms are not biodegradable, including the most widely used petroleum-based plastics such as thermoplastics (plastic bottles, packaging, toys, Teflon polyester fabric and more). The breakdown of most plastics releases toxins into the environment, however bioplastics are biodegradable and compostable when disposed of correctly (ABA, 2019).
- I am very durable, being generally tough and corrosion and chemical resistant. However, I degrade in the sun under UV light, becoming brittle and breaking into smaller pieces after long exposure.
- I am easy to make and less expensive compared to metal and I can be coloured and moulded into any shape.
- I am flexible, lightweight and love to wear advertising and decorative finishes.

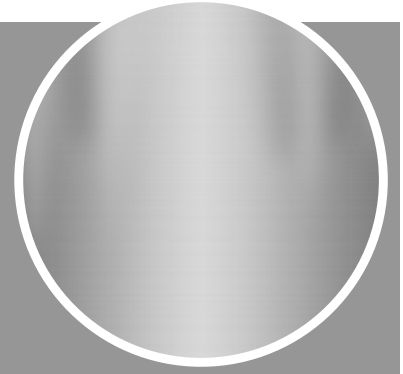
EXPERIENCE

PRODUCT HISTORY / USES:

My modern synthetic plastics were first made in 1906 but bioplastics were made by the Aztecs (1500 BCE) who mixed latex from the rubber tree with plant juice to create different products like sandals and rubber balls used in ceremonious games (Bhanoo, 2010). I've been wildly popular over the past 100 years due to my versatility, with roles in packaging, the medical, textile, automotive, electronic, furniture and toy industries and more.



MATERIAL 3 - STAINLESS STEEL



PERSONAL INFORMATION

SOURCE: I come from the ground; steel is made from iron ore rock that is smelted at high temperatures, to isolate the metal from the rock.

DEVELOPMENT: Whilst my steel ancestors have been around since the iron age, stainless steel has only been used for the last 100 years after it was created to stop erosion within gun barrels and prolong their use (BSSA, 2022). I am created within a furnace, where steel is mixed with chromium (and other metals may be added such as manganese and nickel) to form the alloy of stainless steel, which is then cast into moulds and ready to be used to make different products.

EXPERIENCE

PRODUCT HISTORY / USES: I am commonly used in the food and medical industry due to the ease of keeping me clean and sterile. I have been used in aerospace engineering, architecture and construction, and transport/automotive industries for many uses.

PERSONAL QUALITIES

- I am not renewable because I come from metals, which are non-renewable resources, however I am 100% recyclable.
- I am not biodegradable, I take 100 to 1000 years to break down into organic compounds.
- I am highly durable, as I am resistant to corrosion and rust, I'm strong and robust under weight and extreme conditions.
- I am lightweight, attractive and require very little maintenance.
- I am the most expensive material on offer in this activity.





STEP 7 Select and justify which material you think is best suited to a sustainable seat in your own words by completing Table 4. My material selection justification.

Table 4. My material selection justification.

THE MATERIAL I CHOSE AS BEST SUITED TO A SEAT IS:

JUSTIFICATION

I chose this material because...

 **TIP:** Refer to your results from the materials table and other research.





LESSON 3



DEFINING THE NEED AND GENERATING AN IDEA

ACTIVITY 1

DESIGN BRIEF



STEP 1 Respond to the questions below to formulate a design brief. You can also refer to the Cardboard Seat Help Sheet below to assist you with your design.



QUESTION 1 Who are you designing and creating your upcycled cardboard seat for?

QUESTION 2 Why do they need an upcycled cardboard seat and where will it be used?

QUESTION 3 What materials will the upcycled cardboard seat be made from?

QUESTION 4 What aspects will make it comfortable?



TIP: Refer to your survey outcomes from lesson 2, to help you respond to these questions.

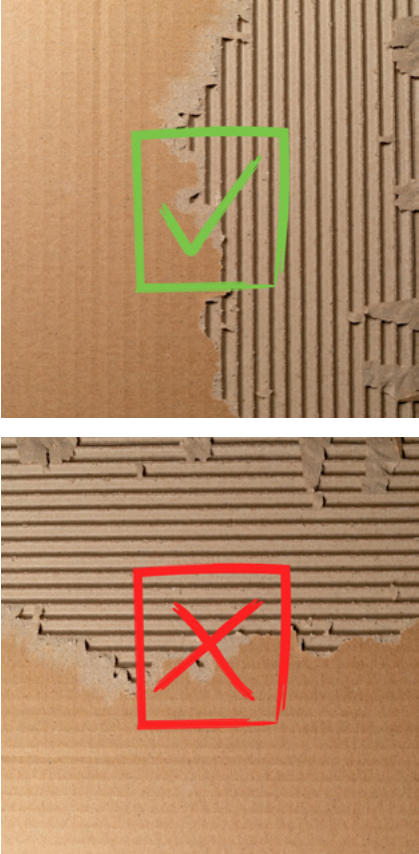
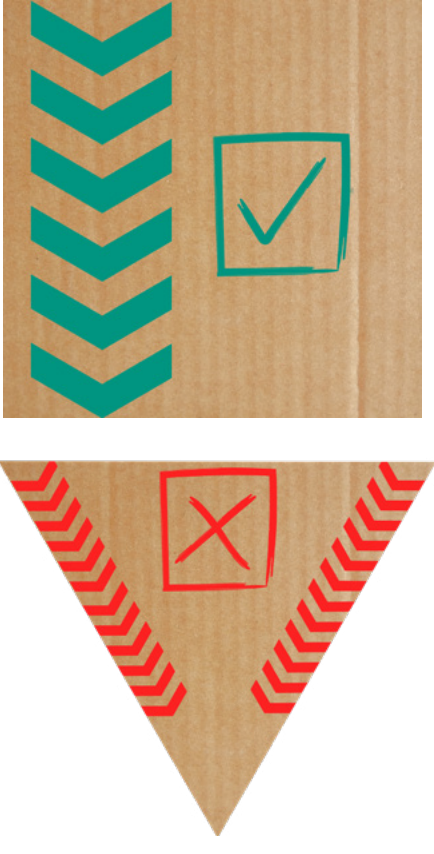
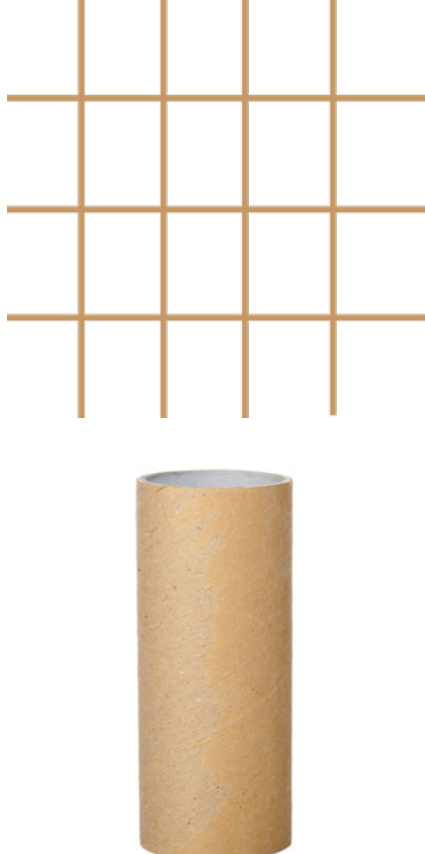


QUESTION 5 How will you make sure it is safe and sturdy?

QUESTION 6 Will it have any additional features?

CARDBOARD CHAIR HELP SHEET

If you are not sure about how to make your chair strong enough, try using the help tips below:

TIP 1	TIP 2	TIP 3
<p>The grain of the cardboard should always run vertically, this increases the materials strength.</p> 	<p>Even weight distribution prevents the chair from collapsing.</p> 	<p>Using "criss-cross", "X" shapes or cylinders will support more load than other shapes.</p> 

ACTIVITY 2

GENERATING A CARDBOARD SEAT DESIGN



STEP 1 Generate and sketch 2 seat ideas, guided by your design brief, and annotate the key features of each one, using Table 1.

Table 1. Annotated seat idea drawings.

SEAT DESIGN #1

SEAT DESIGN #2



STEP 2 Choose one seat design and draw its front view, top view and end view using Table 2. This way you can visualise the seat's separate parts in preparation for marking out the material and construction.

When designing a product, 2-dimensional views are created in an orthographic drawing to record all the information necessary to produce a product, including the top view, front view and end view.

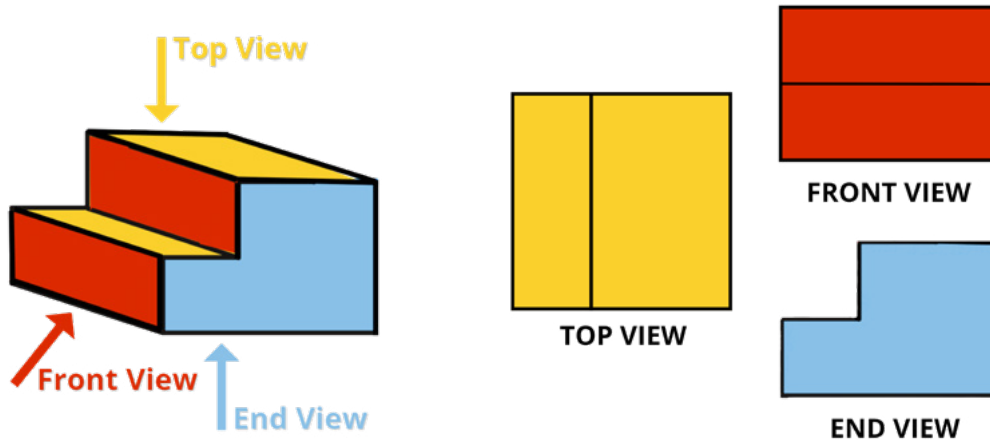


Figure 1. Orthographic drawing.

STEP 3 Use these four prompts to annotate your drawing and add any additional sketches:

1. What features (if any) have you added to your seat to meet the user's needs?
2. How have you made sure your design will be comfortable?
3. How have you made sure your design will be sturdy?
4. How is corrugated cardboard a suitable material to use for this seat?

Table 2. Orthographic projection of my sustainable seat.

FRONT VIEW

TOP VIEW

END VIEW



STEP 4 Using isometric paper or a computer program, draw a final idea in isometric view, following the instructions below.

Table 3. Isometric projection of my sustainable seat.

INSTRUCTIONS	ISOMETRIC PROJECTION
<p>Draw your preferred idea in isometric projection using grid paper or appropriate computer software.</p> <p>Your drawing needs to be at least 10cm x 10cm and include the dimensions of the design.</p> <p>To make sure your dimensions are accurate, measure an existing stool or chair.</p> <p>Colour your idea to show the colour and texture of the cardboard.</p> <p>Annotate your idea by discussing its design in detail.</p> <p>For example:</p> <ul style="list-style-type: none"> • Does it have 3 or 4 legs? • Does it have a back or arm rests? • Is it stackable? • Have you added any special features? 	



STEP 5 Create a list of the materials you will need to produce the cardboard seat.

Table 4. List of Materials needed to produce my cardboard seat.

WHERE WILL MY MATERIALS BE SOURCED?

WHAT SIZE CARDBOARD DO I NEED?

DO I NEED ADDITIONAL MATERIALS E.G. PAINT, FASTENERS, LASER CUTTER, GLUE ETC?

LESSON 4



RISK ASSESSMENT AND PRODUCTION OF A PROTOTYPE

ACTIVITY 1

REVIEW OF CARDBOARD



STEP 1 Fill in Table 1 below, either by yourself or with a friend.

STEP 2 Share your ideas in a class discussion.

Table 1. Review of the properties of cardboard.

MATERIAL PROPERTIES	CARDBOARD
Source	
How was it created?	
What is it used for?	
Renewable	YES or NO
How is it or is it not renewable?	
Biodegradable	YES or NO
How is it or is it not biodegradable?	
Carbon emissions in manufacturing	LOW or HIGH
Why are the emissions low/high?	
Durability	LOW or HIGH
Why is its durability low/high?	
Results summary	What do your results tell you about the material's properties, and its suitability as a seat?

ACTIVITY 2

RISK ASSESSMENT



STEP 1 Fill in your risk-assessment:

Table 1. Risk assessment.

EQUIPMENT	WHAT INJURIES MIGHT OCCUR?	HOW MIGHT YOU PREVENT THIS INJURY/S FROM HAPPENING?
Scissors		
Hot Glue Gun		
Cutting Knife		

STEP 2 As a class, create a list of safe working practices that are to be followed. List them below.



STEP 1 Use the space below to add drawings or photos of your prototypes, including images and notes about construction details you discover.

STEP 2 Write a small paragraph or list some dot points about what worked well and what didn't while building your prototype, including what you could improve for your final design.

LESSONS 5-7



CARDBOARD SEAT PRODUCTION



STEP 1 Follow the sequence of production and use the skills you obtained from building prototypes to produce your own upcycled cardboard seat for your end user.

PRODUCTION SEQUENCE

1

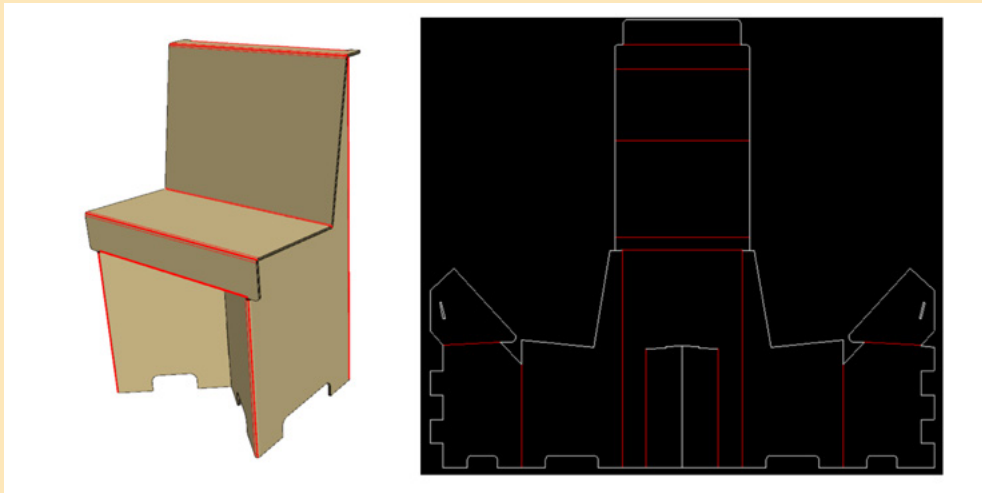
Gather the materials and tools you will need:

- Your design idea
- Your prototype
- Safety glasses
- An apron
- A cutting mat
- Other _____
- Steel ruler
- Pencil
- Scissors
- A hot-glue gun

Continually refer to the class risk assessment to make sure you work through each production step safely.

2

Measure and mark out the parts of your seat onto your cardboard with a pencil. Make sure you have measured twice before you cut out your pieces.



3

Cut out your cardboard pieces.



4

Either glue or cut out slots to join the different parts of your cardboard seat.



Image source: © 2022 SlideShare from Scribd

5

Continue to check each stage of the production processes and make any adjustments as needed. Remember your seat needs to be sturdy and comfortable.





LESSON 8



EVALUATION AND PRESENTATION OF FINISHED UPCYCLED CARDBOARD SEAT

ACTIVITY 1

EVALUATION



STEP 1 Complete this evaluation worksheet to summarise and reflect on what you have learnt.

EVALUATION WORKSHEET

Paste an image of your completed cardboard seat here

Respond to the following questions and try to elaborate on what you have learned throughout the lessons. Use phrases such as:

- 'I used to think ... now I think ...'
- 'At first, I didn't understand ... and now I do because ...'

QUESTION 1 Who did you create a cardboard seat for?

QUESTION 2 How did you adapt your design to make it appeal to them?

QUESTION 3 What were the benefits of measuring an existing seat or chair?

QUESTION 4 What worked well during production?

QUESTION 5 What did you find difficult?

QUESTION 6 Why was cardboard a good material to use?

QUESTION 7 How will your product help the planet?

OPTIONAL EXTENSION

ACTIVITY 2

CLASS SHOWCASE



STEP 1 Present your completed cardboard seat with your final design to the class/small group and ask classmates to complete a short feedback form.

Use the example form below or create your own.

FEEDBACK FORM	
<p>FUNCTION</p> <p>Does the cardboard seat function as intended, is it sturdy and comfortable?</p> <p>Why or why not?</p>	
<p>TECHNOLOGY</p> <p>Do you think the cardboard seat will last with heavy use?</p> <p>Why or why not?</p>	
<p>STYLE (HOW IT LOOKS)</p> <p>Does the style of the cardboard seat reflect the end user's requirements?</p> <p>Why or why not?</p>	

REFERENCES

DESIGN AND TECHNOLOGIES YEAR 7 & 8 LESSONS

PRODUCTION

DAATA Vic – <https://www.datta.vic.edu.au/>
Forest Learning – <https://forestlearning.edu.au/>

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LESSONS 5-7





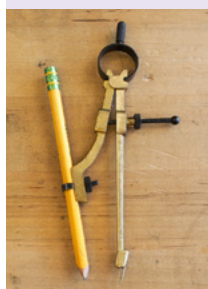

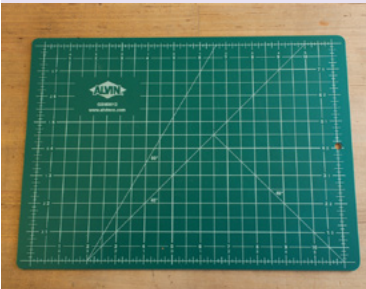
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APPENDIX 1

PRODUCTION TIPS

This information has been summarised from the following website: <https://learn.adafruit.com/cardboard-fundamentals/cutting-tools-and-techniques> and PDF by John Park, 2021, Adafruit Industries.

 <p>Steel rule for marking out and cutting straight lines.</p>	
 <p>Pencil and texter for marking out on your cardboard.</p>	 <p>Scissors for cutting your cardboard.</p>
 <p>Retractable cutting knife/ utility knife for cutting your cardboard - straight long cuts.</p>	 <p>Drawing compass to draw circles and rounded corners.</p>
 <p>Hobby knife for cutting your cardboard - detailed curved cuts.</p>	 <p>Cutting mat to protect the table surface from scratches and cuts from the cutting blades.</p>

HOW TO CUT CARDBOARD

STRAIGHT CUTS

Here, a small straight edged metal ruler is used with a hobby knife to make a nice, straight cut.

- Keep those fingers out of the way.
- Apply firm pressure to the ruler.
- Cut away from yourself, not toward your body.



HOW TO BEND CARDBOARD

CREASE TO BEND

Run a creasing tool across the cardboard a few times in order to create a better bend.



HOW TO JOIN CARDBOARD

HOT MELT GLUE

Hot melt glue is one of the best ways to join cardboard. It is fast to cure, strong, and can fill in uneven surfaces.

