



UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

Sustainable Packaging and Design



Summative Assessment Notes

Grade 12



UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

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Part 1 – 10 Marks



Marking Overview

Summative Assessment Grade 12

Grade 12

Part 1 – (10 Marks)
Students critically analyse an existing packaging based on ACCESSFM

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Part 2 – (20 marks)
design packaging for a chosen product considering sustainability.

Section	Description	Mark
Design Analysis	Product selection and project title . Aspects of ACCESSFM have been explored that focus on the design of the packaging.	3
Environment	A minimum of 3 aspects of the selected product have been explored with regards to the environment and sustainability .	3
Presentation of Display	Accurate, relevant, and effective information selected. The work must be original and not taken directly from another source. Clear and concise with a good layout. Use of various materials to capture audience attention including images, sketches, graphs or charts .	3
Conclusion	Ability to justify if the product chosen is a sustainable success or failure .	1
	Total	10

Section	Description	Mark
ACCESSFM	Practical application and theory based on at least THREE prescribed elements from the ACCESSFM framework	5
Environment / Sustainability	Annotations to explain sustainable aspects of the design	5
Sketching Skills / Design	Quality and presentation of design idea by sketching and rendering	4
Originality and Creativity	Ability to design a unique idea using innovation	3
Secondary Function	Ability to give the packaging a secondary function to make it reusable .	3
	Total	20



Part 1 - Display Project – 10 Marks

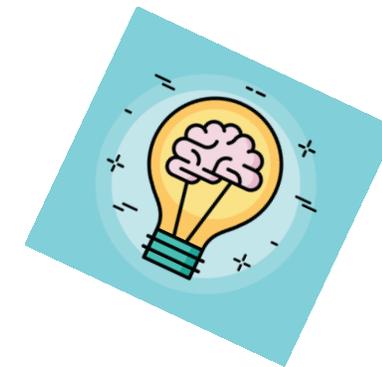
Instructions to students:

- Study **Unit 2** of the book on **Sustainability**. It is recommended that you complete the activities throughout the unit to further your knowledge.
- Review the **PowerPoint** slides provided based on **Sustainable Packaging and Design**.
- Use the skills you have developed in the Design Cycle from previous projects to help you **analyse, research, sketch** and **display** information in an **informative manner**.
- The information should be **presented clearly** for others to see in a **visually pleasing style**. The information should be laid out in a way that is **easy to interpret** and **not text-heavy**. **ACCESSFM** should provide a guideline for your design analysis.
- The display can be completed in any way that you see appropriate and can use a **range of materials** including **2D** and **3D resources**. The display can be presented to your teacher in **hardcopy** (physical) or **softcopy** (digital).





Design Brief



Using an item you have seen or purchased recently as a case study, create a **display** based on **packaging**.

The **environment** and **sustainability** should be to the forefront of your thoughts as you **record** the information you gather. Use **ACCESSFM** to guide your **critical exploration** of the **design** of the selected packaging

Make a **recommendation** if you think the packaging you chose is a **sustainable success** or **failure** and provide **evidence** for your reason.

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Section	Description	Mark
Design Analysis	Product selection and project title . Aspects of ACCESSFM have been explored that focus on the design of the packaging.	3
Environment	A minimum of 3 aspects of the selected product have been explored with regards to the environment and sustainability .	3
Presentation of Display	Accurate , relevant , and effective information selected. The work must be original and not taken directly from another source. Clear and concise with a good layout. Use of various materials to capture audience attention including images , sketches , graphs or charts .	3
Conclusion	Ability to justify if the product chosen is a sustainable success or failure .	1
	Total	10



Rubric

SUSTAINABILITY: Packaging and Design – PART 1 – Critical analysis of existing packaging					
Section	MARKS				Section notes
	0	1	2	3	
Design Analysis	No effort made	Selection of product packaging and title given.	Selection of product packaging and title given. Exploration of THREE or more aspects of ACCESSFM based on the design of packaging	Selection of product packaging and title given. Exploration of FIVE or more aspects of ACCESSFM based on the design of packaging	Research should include images and notes.
Environment	No effort made	Exploration of ONE aspect of the packaging based on sustainability	Exploration of TWO aspects of the packaging based on sustainability	Exploration of THREE aspects of the packaging based on sustainability	
Presentation	No effort made	Research has been copied & printed directly from a source . The student has made little attempt to present the work themselves.	The student has presented their research in a simple way – it is their own work <u>but</u> may be partially copied from the source material.	The student has made an effort to present the research in an attractive way . It is ALL their own work and not copied directly from the source.	The presentation should be student work and not just printed from a website or taken from another source.
Conclusion	No effort made	Ability to give a recommendation with 2 reasons as to why the packaging is a sustainable success or failure			Student opinion and justification.



ACCESSFM - Design Considerations



A is for **Aesthetics**



Aesthetics means **what does the product look like?**
What is the: Colour? Shape? Texture? Pattern? Appearance? Feel?
Weight? Style?

C is for **Cost**



Cost means **how much does the product cost to buy?**
How much does it: Cost to buy? Cost to make?
How much do the different materials cost? Is it good value?

C is for **Customer**



Customer means **who will buy or use your product?**
Who will buy your product? Who will use your product?
What is their: Age? Gender?
What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**



Environment means **will the product affect the environment?**
Is the product: Recyclable? Reuseable? Repairable? Sustainable?
Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**



Size means **how big or small is the product?**
What is the size of the product in millimeters (mm)? Is this the same
size as similar products? Is it comfortable to use? Does it fit?
Would it be improved if it was bigger or smaller?

S is for **Safety**



Safety means **how safe is the product when it is used?**
Will it be safe for the customer to use? Could they hurt themselves?
What's the correct and safest way to use the product? What are the risks?

F is for **Function**



Function means **how does the product work?**
What is the products job and role? What is it needed for? How well
does it work? How could it be improved? Why is it used this way?

M is for **Material**



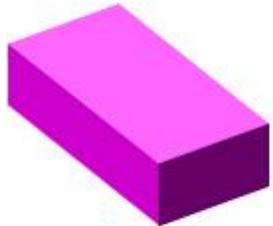
Material means **what is the product made out of?**
What materials is the product made from? Why were these materials
used? Would a different material be better? How was the product
made? What manufacturing techniques were used?



ACCESSFM

A = Aesthetics

What does the packaging **look** like?



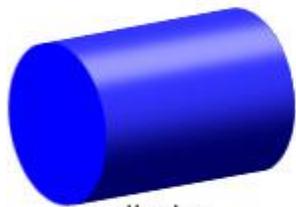
rectangular
prism



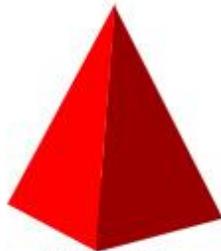
sphere



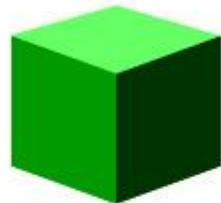
cone



cylinder



pyramid



cube



- What is the:
- Colour?
- Shape?
- Texture?
- Pattern?
- Appearance?
- Feel?
- Weight?
- Style?



Class Activity

ACCESSFM

A = Aesthetics

Discuss the topics in the table.

Ask the class to vote for Option 1 or Option 2. Record the numbers of votes in the table.

Option 1



Option 2



Topic	Option 1	Option 2
Colour		
Shape		
Texture		
Pattern		
Appearance		
Feel		
Weight		
Style		

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There is space at the bottom of the table to add in additional topics the class may want to vote on.

Count the total number of votes for each option.

Which option has been voted as more aesthetically pleasing?



ACCESSFM

C = Cost

- How much does it cost: To buy? To make?
- How much does it cost to make?
- How much do the different materials cost?
- Is it good value?

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Class Activity

ACCESSFM

C = Cost

Which bottle is cheaper to make?

Can you name 2 advantages and 2 disadvantages of each packaging type using ACCESSFM to guide your decisions?

Glass



VS

Plastic



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Advantages	Disadvantages
Advantages	Disadvantages

Which is more environmentally friendly and why?



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ACCESSFM

C = Customer

- Who will buy your product?
- Who will use your product?
- What is their: Age? Gender?
- What are their: Likes? Dislikes? Needs? Preferences?
- How is the packaging aimed towards the Target Market?

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Class Activity

ACCESSFM

C = Customer



Below is a box to hold a laptop. The laptop is aimed at young children – how could we make the packaging more appealing to our target audience?

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Who is the Target Market for this product?

- Age ?
- Gender ?
- How does the packaging appeal?





ACCESSFM

Is the packaging:

- Recyclable?
- Repairable?
- Sustainable (page 47, 48 & 54)
- Environmentally friendly?
- Bad for the environment?

E = Environment

- 6 R's (page 49 – 52)

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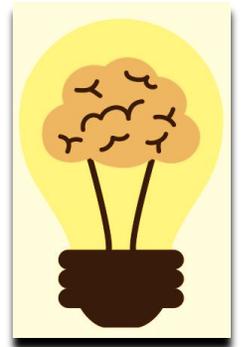
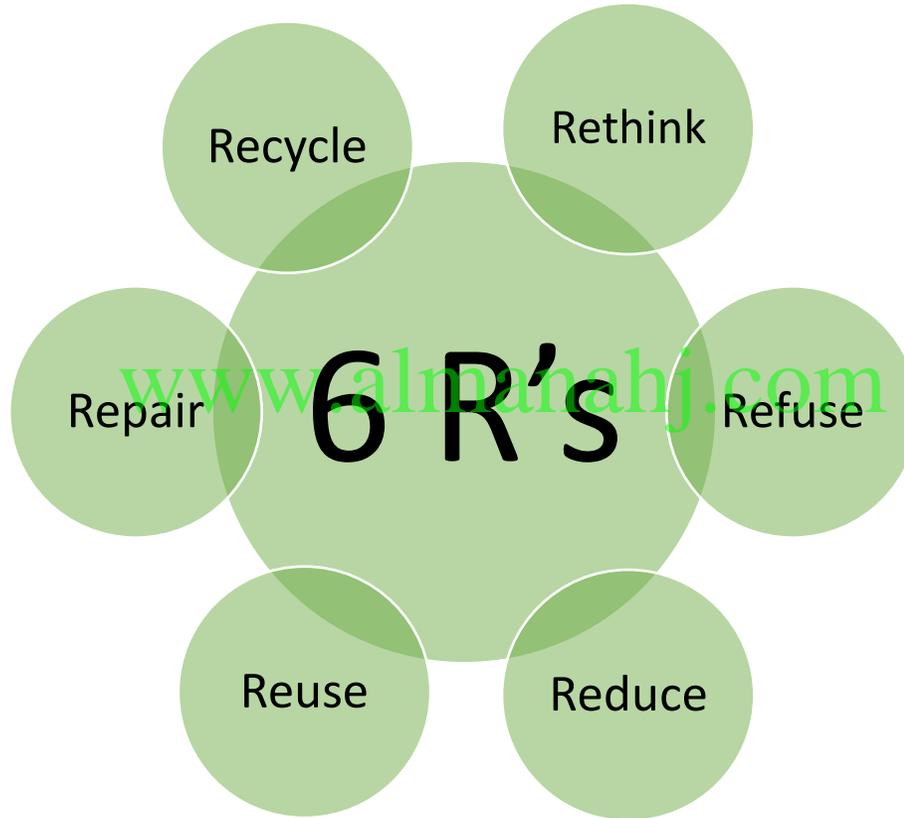




Class Activity

ACCESSFM

E = Environment



Which 'R' do the images belong to?



ACCESSFM

S = Size

- What is the size of the packaging?
- Is it suitable for the product inside?
- Is it needed?
- Is it easy to hold?
- Would the packaging be improved if it was bigger or smaller?

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Class Activity

ACCESSFM

S = Size

- Below is 2 examples of furniture packaged in cardboard.
- Why do companies use cardboard as an option for packaging?
- Why is flatpack a good idea for the environment?

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ACCESSFM

S = Safety

- Will the packaging be safe for the customer to use?
- Could they hurt themselves?
- What is the correct and safest way to use the product?
- What are the risks?

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Class Activity

ACCESSFM

S = Safety

- Are take-out foods heavy? Why are they given a handle?

- Why can sharp corners on packaging be a risk?
How could designers avoid this risk?
Are some shapes safer than others?



- What does this label mean? Why should packaging and products be made from non toxic materials if they are not intended to be edible?





ACCESSFM

F = Function

- What is the packaging's job and role?
- What is it needed for?
- How well does it work?
- How could it be improved?
- Why is it used this way?
- What is a secondary function?

TO PRESERVE



- Foods are packaged to prevent them from going rotten.
- It also keeps them hygienic and allows them to be bought conveniently.

TO PROTECT



- The packaging protects the contents, allowing the contents to arrive at the shop or at home undamaged.

TO INFORM



- Labels provide information about the product to the customer or shop.
- They can be used as a marketing tool.
- They can make claims to a customer.
- They can carry information for shops in barcodes.

TO TRANSPORT



- Items are packed into boxes or trays called 'Outers' so that they can be moved, and stacked easily.
- Packaging usually tessellates to allow more to be transported in a smaller lorry, reducing costs.

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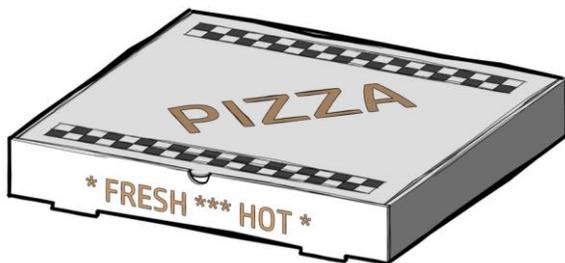


Class Activity

ACCESSFM

F = Function

- What is the function of the following types of packaging?



TO PRESERVE



- Foods are packaged to prevent them from going rotten.
- It also keeps them hygienic and allows them to be bought conveniently.

TO PROTECT



- The packaging protects the contents, allowing the contents to arrive at the shop or at home undamaged.

TO INFORM



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Do these have a secondary function?



ACCESSFM

M = Material Choice

- What is it made from?
- Why were these materials used?
- Would a different material be better?
- How was the product made?
- What manufacturing techniques were used?



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Further Reading
Page 46 - Renewable
Page 52 – Material Choice





Class Activity

ACCESSFM

M = Material Choice

- Name different types of materials and decide if they are environmentally friendly or not (some may be both).



Packaging Type		Both	
Cardboard			
Paper			
Ceramic			
Aluminium			
Glass			
Thermoplastics			
Thermosetting Plastics			
Wood			



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Part 1 - Example

- The following slides provide an **example** of how to approach **Section 1**.
- A **shampoo bottle** for **kids** has been taken as the packaging product to be critically analysed and explored (**each student will choose their own packaging to explore**).
- The product is placed in the centre of the page and **ACCESSFM** is used to explore:
 - **environmental** and **sustainable** impact
 - **design** of the packaging
- Use **concise information** matched with **images** or **sketches** to keep it **visually pleasing**.



Class Activity

Below is the packaging of a shampoo bottle.
Please use **ACCESSFM** to decide if it is a suitable design.

Aesthetics

Cost

Customer

Environment

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Size

Safety

Function

Material

Is this product a sustainable success or failure? Why?



Shampoo Bottle

Environment



Many shampoo bottles are made from HDPE which is able to be recycled. The shape of the bottle means that there is wasted space when packaging large amounts of these resulting in more fuel consumption and bigger carbon footprint.



Safety

The plastic may be slippery when wet. Some textured material would help. The ergonomic shape will help with the grip. No sharp corners, good for children.

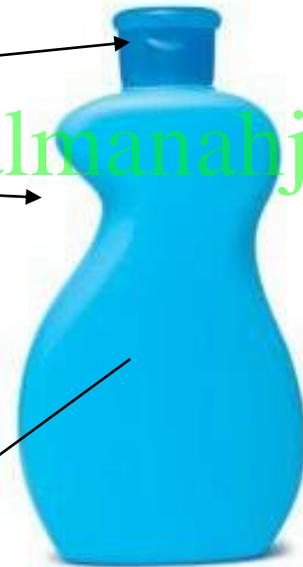
Material

Plastic
High Density Polyethelene
Can recycle
Cheap



Function

hold
store
seal
advertise



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Aesthetics

Colour: Simple 2 tone colour. ■
Shape: Fits the hand well.
Feel: Smooth.
Style: Interesting Shape.



Biomimicry



Ergonomic



Cost



Material: Cheap
Transport: Would be cheaper if packaging fitted better together – could fit more bottles side by side

Customer

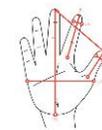


Shampoo aimed for a young market. But parents do grocery shopping. Must appeal to both. Some branding on the bottle should be present.



Size

Appropriate size for user and handheld. Holds correct amount of shampoo





Evaluation of Example

- Was a packaging product selected?
 - Yes – Image of Shampoo Bottle used
- Did the project get a title?
 - Yes – Shampoo Bottle
- Have the areas of ACCESSFM been explored?
 - Yes, using images and notes www.almanahj.com
- Has the designer mentioned 3 areas related to the environment and sustainability? If not, how many points have been made?
 - No, the designer only mentioned 2 areas – recycling and carbon footprint. They would lose 1 mark.
- Is the work unique and not copied from another source?
 - Yes, the work is unique and not copied.
- Is it presented in a visually pleasing manner?
 - Yes, titles are clear. Explanations are concise. Images are relevant. It is easy to follow.

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Presentation of Display	Accurate, relevant, and effective information selected. The work must be original and not taken directly from another source. Clear and concise with a good layout. Use of various materials to capture audience attention including images, sketches graphs or charts.	3
Conclusion	Ability to justify if the product chosen is a sustainable success or failure.	1
Total		10



Evaluation of Example

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Design Analysis	Product selection and project title. Aspects of ACCESSFM have been explored that focus on the design of the packaging.	3
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Conclusion	Ability to justify if the product chosen is a sustainable success or failure.	1
Total		10

- Have they used images/sketches and concise written information?
 - Yes, a combination of images and concise written information have been used.
- Have they made a recommendation about it being a sustainable success or failure? Have they explained why?
 - No, they have not made a recommendation or explained why. They would lose 1 mark for this.
- What else could be improved on this?
 - Please encourage students to suggest improvements.
- What score does this example deserve?
 - The example would get 8/10.
- Instead of using PowerPoint for this display, how else could the display have been made?
 - The image in the middle could be a 3D item stuck on, a sketched object or cut out from a magazine. The information could be hand written and the images could have been sketched.
- Would presenting the work in a different way affect the mark of the student?
 - No, the work should be presented neatly and clearly but using different ideas is encouraged and students will not lose marks.

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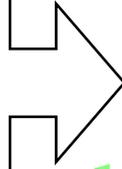
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Part 2 – 20 Marks



Marking Overview

Summative Assessment Grade 12

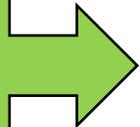
Part 1 – (10 Marks)
Students critically analyse an existing packaging based on ACCESSFM



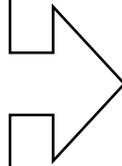
Section	Description	Mark
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Conclusion	Ability to justify if the product chosen is a sustainable success or failure .	1
Total		10

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Grade 12



Part 2 – (20 marks)
design packaging for a chosen product considering sustainability.



Section	Description	Mark
ACCESSFM	Practical application and theory based on at least THREE prescribed elements from the ACCESSFM framework	5
Environment / Sustainability	Annotations to explain sustainable aspects of the design	5
Sketching Skills / Design	Quality and presentation of design idea by sketching and rendering	4
Originality and Creativity	Ability to design a unique idea using innovation	3
Secondary Function	Ability to give the packaging a secondary function to make it reusable .	3
Total		20



Part 2 - Packaging Design – 20 Marks

Instructions to students:

- Use the **information** you have gathered from **Part 1** to help **guide** you through the design process.
- Answer the **questions** around the **outside first** to guide your design idea.
- Use the skills you have developed in the Design Cycle from previous projects and from Part 1 to help you **analyse, research, sketch** and **display** information in an **informative manner**.
- The information should be **presented clearly** for others to see in a **visually pleasing** style. The information should be laid out in a way that is **easy to interpret** and **not text-heavy**. **ACCESSFM** should provide a guideline for your design analysis.



Rubric

SUSTAINABILITY: Packaging and Design – PART 2						
Design idea for a sustainable building using renewable materials & energy						
	MARKS					
	0	1	2	3	4	5
ACCESSFM	No effort made	MATERIAL (3 Marks) - Relevant material choice (1 Mark) Justification (1 Mark x 2) MARKETING (1 Mark) – Note <u>AND</u> sketch about how packaging will be appealing to target audience (1 Mark) SAFETY (1 Mark) – Note <u>AND</u> sketch about how packaging will be designed to be safe for the user (1 Mark)				
Environment & Sustainability	No effort made	Has considered the Environment & Sustainability using sketches OR notes under the following (1 Mark each): shape, material, size, recycling, reusability, minimal waste, source, transport, manufacturing or <u>ANY OTHER RELEVANT REFERENCE</u> (Max 5 Marks)				
Sketching Skills/ Design	No effort made	2D sketch using basic techniques the idea relates to the brief but is not a justifiable solution	3D sketch using basic techniques the idea displays enough information to satisfy some elements of the brief	3D sketch using good quality techniques the idea satisfies some elements of the brief & parts of the specification	well developed 3D sketch using good quality techniques and rendering. the idea closely matches most elements of the brief & the specification	
Originality & Creativity	No effort made	The idea is not unique. The creativity is limited.	The idea has elements that are unique.	The idea is innovative and original. The brief has been satisfied in a creative manner.		
Secondary Function	No effort made	The packaging would NOT have much appeal for a child to <u>reuse</u> it.	The packaging has <u>potential</u> to be <u>resused</u> by a child but has NOT <u>taken</u> into account either the <u>target market</u> OR the <u>theme</u> of the toy	The packaging is <u>likely</u> to be used by a child while playing with the toy. It has taken the <u>target market</u> into account <u>AND</u> also the <u>theme</u> of the toy.		



Shown in the picture is a **Space Exploration Rover** designed for **children**. Design a suitable packaging for this product – use **3D sketches, rendering and annotations** to explain your idea.

Use **annotations (ACCESSFM)** to explain **5 ways** of how your design is **sustainable and environmentally friendly**

The packaging should have a **secondary function** whereby the **child can use it when playing with the toy**.

Target Market

(2 Marks)

How will your packaging appeal to its audience?

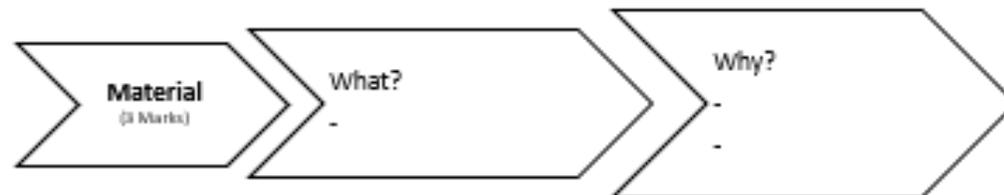
- _____

(Sketch showing detail)

How does your design consider safety for the user?

- _____

(Sketch showing detail)



Sketch and explain your packaging design below

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15 Marks