

General Certificate of General Education

UNIT B802/TS

**DESIGN AND TECHNOLOGY
(PRODUCT DESIGN)**

Unit B802: Designing and Making
Innovation Challenge

Specimen Paper

To be opened on the day of examination



INSTRUCTIONS TO CANDIDATES

You will have a total of 6 hours to complete the examination. This is normally 2 x 3 hours sessions.

At the end of the examination you must have:

- ✓ selected **one** of the challenges detailed on this paper;
- ✓ completed an answer booklet showing your creative thinking and how your idea works;
- ✓ produced a model/prototype to show the important features of your design;
- ✓ have at least four photographs fixed in your workbook showing your modelling activities;
- ✓ produced a persuasive argument about why your product will attract the users you are aiming at;
- ✓ completed the "Reflection" section of the workbook at some time between 24 and 72 hours after completion of the challenge; and
- ✓ ***considered within your design, the 'further supplementary information,' detailed in italics, for your selected challenge.***

This task sheet consists of 4 printed pages.

A Day on the Beach

The situation:

As part of their holiday many families enjoy spending time on the beach. Throughout a day, the family might want to:

- Sunbathe
- Swim
- Sit in the shade
- Keep out of the wind
- Eat and drink
- Play

A company called “**Beach Aid**” has decided to develop a new range of innovative products that could be used to transport one or some of the items needed for a day on the beach from the car/coach park, hotel, apartment, caravan or tent. The distances can be quite far and some of the items required are heavy and awkward to carry over grass and sand.

The items a family **might** carry to the beach include the following:

Beach bags, cool box / picnic basket, towels, swimming costumes, sun hats, sun shade, sun lotion, valuable personal items, wind break, lilo, beach chairs, picnic rug, bucket and spade, bats and balls, kite, surf board, books, etc.

You are to design and model a product that could transport one or some of these items easily to the beach.

Your design **should** include:

- the possibility of being multi-functional; or
- the reduction of the number of different things that have to be carried; or
- the redesign of an item to be more compact.

YOU MUST ALSO CONSIDER THE FOLLOWING SUPPLEMENTARY INFORMATION. MARKS WILL BE AWARDED ACCORDINGLY.

- ***The weather at the beach is changeable. Sunshine and showers are expected. Your design must be suitable for both these situations.***

Take Five

The situation:

Many of us are not eating enough fruit and vegetables. The recommended daily intake of fruit and vegetables is at least 5 portions.

A company called “**Take Five**” are compiling recipe sheets to be displayed on the ‘fruit and vegetable’ counters in supermarkets. They wish to develop a new range of creative food ideas that use fruit and vegetables as the main food ingredients.

These recipes are designed to:

- include a total of **Five** fruits and or vegetables;
- be prepared at home using ingredients that are readily available;
- to enliven the taste buds of consumers;
- to improve the health of consumers.

All additional ingredients used, should be as healthy as possible avoiding the inclusion of large amounts of sugar, fat or salt. The purpose of these recipes could be any of the following:

- humorous;
- have disguised ingredients;
- have a surprise element; or
- have a secretive element.

You are to design and model a recipe for the company “Take Five”.

You should base your recipes around:

- An occasion e.g. a birthday, a wedding, a religious festival etc.;
- an environment e.g. the seaside, the moon, the zoo etc.; or
- an alternative area of your choice.

YOU MUST ALSO CONSIDER THE FOLLOWING SUPPLEMENTARY INFORMATION. MARKS WILL BE AWARDED ACCORDINGLY.

- ***Your design should incorporate the use of at least one citrus fruit.***

Rainwater

The situation:

Water is becoming more scarce.

A company called “**Rain Joy**” has decided to develop a new range of innovative products that utilises rainwater.

These products could have elements of surprise in them.

The purpose of these products could be any of the following:

- watering plants;
- powering garden ornaments;
- providing energy; or
- entertainment and enjoyment.

You are to design and model a product for the company “Rain Joy” that uses /re-uses rainwater.

You should consider the whole system when you design the product, including how the water needs to be stored if appropriate.

You should choose a suitable context from:

- the home;
- the garden;
- a city park;
- a town centre;
- a sports ground; or
- any other outdoor activity or energy production.

YOU MUST ALSO CONSIDER THE FOLLOWING SUPPLEMENTARY INFORMATION. MARKS WILL BE AWARDED ACCORDINGLY.

- ***Your design should include some form of mechanical movement (Rotary, Linear, Reciprocating or Oscillating).***

Entertainment

The situation:

Things are not always what they seem!

Delight often comes from discovering an element of surprise, something unusual, clever, or unexpected about a product.

Something that is not always obvious at first glance, can really add additional interest and fun to the product.

A company called “**Take Another Look**” wish to develop a new range of creative products to be sold in their high street shops.

The products could be to entertain toddlers, children, teenagers or adults.

The purpose of these products could be any of the following:

- be challenging;
- be humorous;
- have a surprise element; or
- have a secretive element.

You are to design and model a product for the company “Take Another Look”.

You should base your designs around:

- A theme e.g. a sport, hobby, other interest.
- an occasion e.g. a birthday, a wedding, a religious festival etc.; or
- an environment e.g. the seaside, the moon, the zoo etc.

YOU MUST ALSO CONSIDER THE FOLLOWING SUPPLEMENTARY INFORMATION. MARKS WILL BE AWARDED ACCORDINGLY.

- ***A ‘Renewable’ energy source such as an elastic band should be used to power the design.***

Notes:

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Candidate Name	Centre Number	Candidate Number

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OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

**DESIGN & TECHNOLOGY
(PRODUCT DESIGN)**

B802

Unit B802 Designing and Making Innovation Challenge

6 hours in either **one** 6 hour session or **two** 3 hour sessions plus 30 minutes to reflect on design ideas within 72 hours of the completion of the challenge.
The 6 hour examination can be conducted at the discretion of the centre between xx May and xx June.



	Date of Challenge	Date of Reflection
Session 1		
Session 2		

INSTRUCTIONS TO CANDIDATES
Please clearly write below

Title of the Innovation Challenge

INSTRUCTIONS TO CENTRES

It is essential that centres follow the instructions printed in the Teacher's Guide for the conduct for running this Innovation Challenge.

The activity is designed to take place in a design room, studio or workshop (not the centres examination room/hall).

For Examiner's Use		
Design	22	
Communication	10	
Use of Materials	12	
Analysis	12	
Reflection	4	
Total	60	

This question paper consists of 12 printed pages and 2 blank pages.

Time to Reflect

Use this page to reflect on what you have done.

This can ONLY be completed during the period 24 hours after and within 72 hours of the completion of the challenge. No other pages of this workbook can be added to or amended during the 30 minute reflection time.

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Session 1

- 1 What could you design? What are your initial thoughts.
Use sketches and notes to communicate your thoughts.

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- 2 What are your best ideas?

1

2

3

Possible design brief(s).

1

2

3

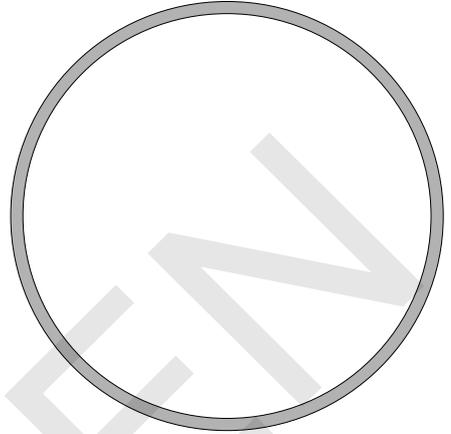
Additional space

SPECIMEN

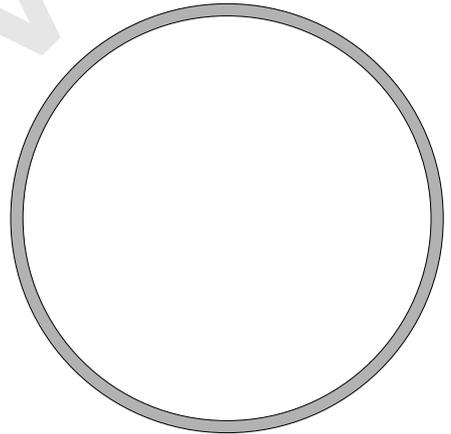
5 Start designing. Use sketches, notes and/or models to show your ideas.

7 'Traffic Light Zone'.

What problems can you see?

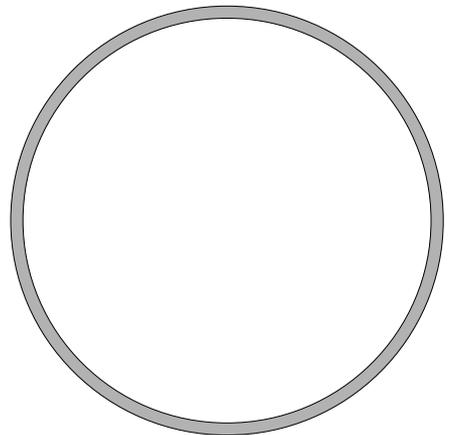


Which is your best idea?



6 What do you think of your ideas so far?

Which is your most unusual idea?



Additional space

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8 Developing your idea (Photograph 1)

14 Complete this box ONLY in Session 2

Check that your design meets your original specification



9 'Reflect and Record'

'Talk the Talk' selling your product idea to others.

You will be asked to present your ideas (no more than 2 minutes). Use the space below to plan what you will say. Think about your brief, specification and key factors of your design.

10 'Green Zone'

Record any suggestions made by others in your group.

Modifications you could make.

11 'Question Time'

- 1 What does your design do?
- 2 What would you like your design to do?
- 3 How could your design become environmentally friendly?
- 4 How does your design appeal to the user group?

Additional space

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12 'Your Model'

List the materials/ingredients you have chosen to make your prototype.

Component description	Materials/ingredients

How could these components be joined/combined together?

How could CAM or other electronic devices help you make your prototype?

13 Action plan for Session 2.

Session 2

Welcome back, in the space (Box 14 on page 7) please record any further thoughts that you have had since Session 1 about your product.

15 'Go make' You have 40 minutes construction time.

Progress report 1

Problems I have come up against so far.

Possible solutions.

16 'Go make' You have 40 minutes construction time.

Progress report 2

Did the above work? Why?

Which areas have been successful so far?

17 Plan what you will be doing/making for the final 40 minutes of construction time.

'Go make'

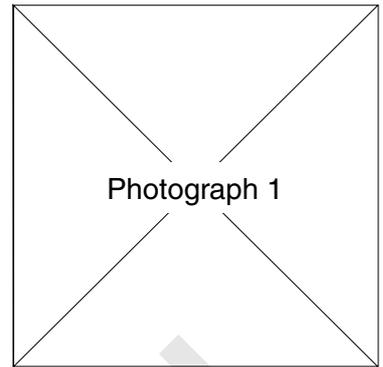
You have a final 40 minutes construction time.

Additional space

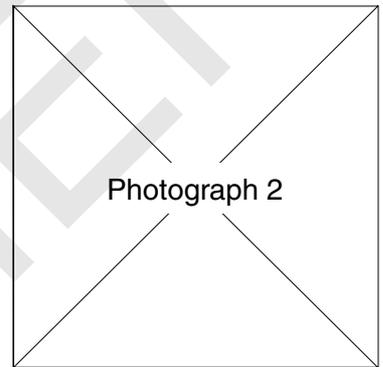
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3 Decision Time!
Your Design Brief

I am going to design and make a ...



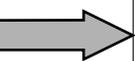
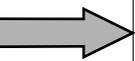
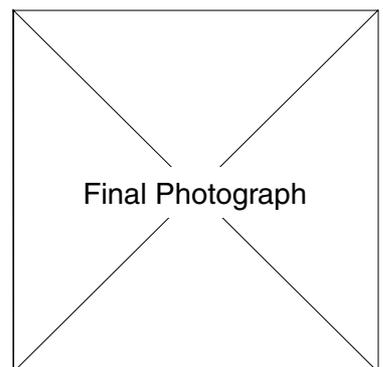
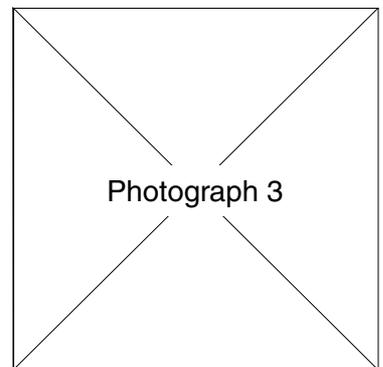
My intended clients/users are ...



My intended design will be used in ...

4 Your Design Specification

To be successful my product must ...



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J900 & J901 GCSE Product Design B802 Innovation Challenge Marking Criteria June 2006

Development of Design Evolution through making 22 Marks	Initial Thoughts	Work is predictable/non creative	1	Work shows potential/some elements of creativity	1	Creative thinking expands ideas which show potential but is not always fully realised	1	Responds with an open mind showing unexpected and/or challenging ways of thinking	1	1
	Brief	Possible briefs are narrow	1	Final design brief has scope for creativity	1					2
	Use/ clients/ users	Consideration of intended use and clients is limited	1	Work positively reflects client/user requirements	1					3
	Specification	Specification is vague/generic points	1	Specification gives some basic requirements for product	1	Specification identifies key features of the product	1			4
	Ideas	Very limited / predictable idea/s	1	Some evidence of creative thinking although elements are predictable	1	Ideas show detail	1	Ideas fully explained showing details of construction/materials	1	5
						Creative thinking expands ideas	1	Ideas are innovative and creatively sustained	1	6
	Supplementary Information	Some consideration of supplementary information	1	Positive response to supplementary information	1	Considered and reflected within design work	1	Fully incorporated into design work	1	7
Innovation and creativity demonstrated								1	8	
Communicating information through sketches, writing and photographs 10 Marks	Quality of Communication Skills	Use of sketches/images is limited	1	Use of sketches/images is satisfactory	1	Use of sketches/images is good	1	Sketches/images are clear, confident, incisive and to the point	1	1
Written communication (clarity of message) is limited		1	Written communication is satisfactory	1	Written communication is good	1	Written communication is of a high level, clear and succinct	1	2	
						Innovative and creative communication technique	1	Extensive use of innovative and creative communication techniques	1	3
Materials, Components, Processes, Techniques, and Industrial practice 12 Marks	Material Selection	Choice of materials and components is basic	1	Considered choice of materials and components	1					4
	Use of Material	Use of materials restricted to basic constructions, structures or experiments	1	Some adept use of materials but with inconsistencies. Not always relevant to the task	1	Adept use of materials	1	Creative use of Materials	1	5
	Making Skills	Poor quality making skills. Product may be incomplete	1	Model complete with reasonable standard of making skills evidenced	1	Model(s) complete with good standard of making skills demonstrating accuracy	1	Model(s) complete to a high standard	1	6
Model accurately reflects design						1	Making skills demonstrate a range of techniques/and/or complexity	1	7	
Analysis of ideas, models and prototypes 16 Marks	Analysis and Evaluation	Analysis and evaluation limited and appears only on boxes 18, 19 & / or 20	1	Analysis and evaluation limited but evident within design work	1	Analysis and evaluation good	1	Detailed analysis and evaluation with some justification	1	8
	Peer Evaluation	Plans for reflect and record activity	1	Records peer feedback and possible modifications	1					9
	Development of ideas	Shows some development of ideas	1	Shows clear development of ideas	1	Shows discrimination between good and poor ideas	1	Justifies rejection of ideas in favour of ones that are worthy of further development	1	10
						Evidence of further development of ideas	1	Develops ideas to a logical conclusion	1	11
	Reflection	Basic comments / observations with no suggested refinements	1	Some specific strengths and weaknesses identified	1		1	Quality analysis/creative improvements suggested	1	12
Alterations/refinements are specified/suggested										1

	AO2 Development	AO2 Communication	AO1 Materials	AO3 Analysis	Total Mark
Marks					/60

Candidate Name	Centre Number	Candidate Number

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