

GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY: PRODUCT DESIGN
Designing and Making Innovation Challenge

B802/IT

INSTRUCTIONS FOR TEACHERS

To be opened on receipt

JANUARY AND JUNE 2009



INFORMATION FOR CENTRES

- This document consists of **20** pages. Any blank pages are indicated.

Session 1	Organisational instructions	Must say	Say in your own words
<p>IMPORTANT</p> <p>180 minutes are available for session 1.</p> <p>The times given in this column are suggestions and may be adapted to suit Centre needs.</p>	<p>Before the candidates enter the room.</p> <p>Arrange room for candidates to sit in groups of three/four.</p> <p>Lay out inspiration/handling collection. Printed resources. These should be available for both sessions.</p> <p>Place a candidate answer booklet in each workspace. Additional pens/pencils.</p> <p>Modelling/constructing materials: have a wide range of appropriate materials, tools and equipment available.</p> <p>When candidates enter the room.</p> <p>Candidates sit in working groups of 3 or 4 students.</p> <p>Rules of the Innovation Challenge.</p>	<p><i>Session 1 – Designing/Session 2 – Making</i></p> <p><i>Over the next two sessions you are going to be involved in a D&T activity.</i></p> <p><i>By the end of the session, your sketches, notes, models and prototypes should show that your ideas would work.</i></p> <p><i>You are doing this challenge to show just how good you are at coming up with new and creative ideas.</i></p>	<p>Explain the meaning of work – not ‘decorated’ prototypes, but experiments with ideas – trying things out to see if they work/function.</p> <p>It is important that you try your best and feel that you can try out any idea – however crazy or impossible it might seem to start with. Be creative.</p>

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		<p><i>You can develop your ideas in whatever ways you think best – through sketching, writing or making models.</i></p> <p><i>Use whatever ways that will help show your most creative work.</i></p> <p><i>The examination board has given you each an answer booklet to record your progress throughout the challenge.</i></p> <p><i>Although you are not working in an examination hall you must still treat this activity as an examination. You should not talk unless you are told to do so by a member of staff. Part of the examination requires you to explain your work and receive comments from your work group. This will be explained by the member of staff before this activity takes place.</i></p> <p><i>Teaching staff are here to monitor health and safety and organise the running of the challenge. Staff are not allowed to give advice or guidance about your design or making activity. However, you are allowed to ask for clarification if you are not sure about a task.</i></p> <p><i>We will explain everything as we move through the two sessions.</i></p> <div style="border: 1px solid black; padding: 5px;"> <p>PLEASE REMEMBER THAT THE EXAMINER WILL ONLY SEE THE WORKBOOK.</p> <p>IT IS IMPORTANT THAT EVIDENCE OF ALL THINKING, 2D DESIGNING, AND 3D MODELLING, (USING PHOTOGRAPHS), IS INCLUDED IN THIS WORKBOOK.</p> </div>	<p>Use it to record everything.</p> <p>In the world of work, many companies share ideas and discuss possibilities. They are often called 'think tanks'.</p>

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<p>5 minutes</p>	<p>Candidates fill in the following information on page 1 of the answer booklet.</p> <p>Candidate name, candidate number and centre number, the title of the Innovation Challenge that they will complete and the date session 1 and session 2 will take place.</p> <p>Start the innovation Challenge.</p> <p>Introduction to the context.</p> <p>Read through the challenge, (supplied on a single separate sheet) explain anything that is needed. Explain the need to respond to the 'supplementary information'.</p>	<p><i>There will be times when you will be asked to draw or write particular things in your booklet.</i></p> <p><i>We will be taking photographs of your models as they develop. These photos will be stuck in your booklet.</i></p> <p><i>You must develop your own ideas during these sessions. The 'Reflect and Record' activity will allow you to take advice and suggestions from the others in your group. If you think the ideas are suitable, you will be able to modify your design and incorporate their feedback.</i></p> <p><i>You must produce your own booklet and your own model. You must not move forward in the workbook until instructed to do so. You are allowed to return to previously completed sections if you wish to do so.</i></p> <p><i>We are now going to start the challenge.</i></p> <p><i>If at any time you don't understand what I tell you, or what you have to do, then ask.</i></p> <p><i>There are four challenges outlined on the sheet provided. We are going to carry out task.....</i></p> <p><i>To ensure that you complete the correct task please draw a line through the other three tasks.</i></p> <p><i>We will now read through the task together.</i></p>	<p>Don't be shy or embarrassed – it is important that everyone understands so that you all achieve your best.</p>

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15 minutes	<p>The inspiration and handling collection.</p> <p>Introduce the handling collection/resources. Talk about the ‘wow factor’ that makes these products interesting, creative etc. Allow a few minutes for them to have a look at, and talk about the collection.</p> <p>Introduce the inspirational collection. Explain why these items have been selected, their inspirational features or use of material. Encourage students to examine the two collections and ask questions about them.</p>	<p><i>You are allowed to ask questions about any of the items that I am about to show you. Think about each of the items. How could these items aid your design when working on the challenge activity we just read through?</i></p>	
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 1 IN YOUR ANSWER BOOKLET			
6 minutes	<p>Box 1. Initial Thoughts.</p> <p>Open your answer booklet and find box 1.</p> <p>Allow 6 minutes with a reminder after 5 minutes.</p>	<p><i>The first thing we would like you to do is to put some of your first thoughts down on paper.</i></p> <p><i>Remember, we want you to be as creative as possible, so sketch and add notes of any ideas you have, even if they seem a bit risky or outrageous at this stage.</i></p> <p><i>We really want you to feel able to ‘let your mind go out to play’.</i></p> <p><i>In this box put down your initial thoughts. You have 6 minutes, so work quickly. Try and remain focused.</i></p>	

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 2 IN YOUR ANSWER BOOKLET			
<p>8 minutes</p>	<p>Box 2. Allow 8 minutes with a reminder after 6 minutes.</p>	<p><i>Look at your initial thoughts. Highlight the areas that interest you.</i></p> <p><i>Think about the challenge and the supplementary information you have been given.</i></p> <p><i>Which three ideas are worth developing?</i></p> <p><i>Then:</i></p> <p><i>Fill in box 2 with three possible design briefs.</i></p>	

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 3 AND 4 IN YOUR ANSWER BOOKLET			
15 minutes	<p>Box 3 and 4. Decision Time.</p> <p>Think about some key concerns.</p>	<p><i>OPEN OUT THE LAST PAGE TO REVEAL BOXES 3 AND 4.</i></p> <p><i>Box 3 and 4 will be visible throughout the challenge and you should refer to them from time to time.</i></p> <p><i>Think carefully before you fill out the boxes. Consider all your options.</i></p> <p><i>Now complete boxes 3 and 4 with:</i></p> <p><i>a design brief;</i></p> <p><i>who your product will be used by;</i></p> <p><i>where your product will be used; and</i></p> <p><i>a full design specification that lists all key features that you will need to consider.</i></p>	
<p>Allow 15 minutes with a reminder after 12 minutes.</p>			<p>One that you will enjoy doing. One that will show your creative ability.</p> <p>A detailed description of the group of people who will benefit from your design. The environment.</p>

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 5 AND 6 IN YOUR ANSWER BOOKLET			
25 minutes	<p>Box 5 and 6. Product ideas.</p> <p>Allow 20 minutes and move candidates onto box 6. Give a reminder of time after a further three minutes.</p>	<p><i>In a moment you can start designing. You can sketch, make notes and make card models. You should produce a range of ideas that satisfy your chosen design brief.</i></p> <p><i>From now on you may use any of the resources at any time.</i></p> <p><i>If there are things you need that are not here, ask.</i></p> <p>Remember, from now on you are creating your own ideas.</p> <p>You should not talk.</p>	<p>If you use 3D modelling, systems and control kits, or trialling & testing with food ingredients, to develop ideas, you can take photographs and stick them into box 5. Use annotation to communicate your ideas to the examiner.</p> <p>Ensure these photographs are fully annotated.</p>
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 7 IN YOUR ANSWER BOOKLET			
6 minutes	Box 7. Traffic Light Zone.	<p><i>Fill in the three spaces.</i></p> <p><i>Think carefully about the problems you may encounter.</i></p> <p><i>Which is your best idea?</i></p> <p><i>Which is your most unusual idea?</i></p>	<p>Check it against the specification.</p> <p>It might not be as silly as it first appears.</p>

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 8 IN YOUR ANSWER BOOKLET			
25 minutes	<p>Box 8. The development of your final idea.</p>	<p><i>You have 25 minutes to develop your chosen idea.</i></p> <p><i>You may use any of the resources at any time.</i></p> <p><i>Think about size, shape and assembly.</i></p> <p><i>Think about modelling materials.</i></p> <p><i>Think about components</i></p> <p><i>Think about how the product will function.</i></p> <p><i>Think about taste and nutrition.</i></p>	<p>Ergonomics.</p> <p>How many separate components are there in your proposal?</p>
15 minutes	<p>Allow 25 minutes with a reminder after 20 minutes.</p> <p>BREAK.</p> <p>Allow candidates 15 minutes to have a drink, use the toilet, get some fresh air if possible. They may stay in the same room as the challenge if supervised, but are not allowed to work in their booklets or on their models.</p>	<p><i>A photograph (photo 1) will be taken at the end of 25 minutes to record your progress. Additional photographs may be placed in box 8. These photos may be annotated.</i></p> <p>MAKE SURE THAT ALL 3D MOCK-UP MODELS AND PARTS OF MODELS ARE INCLUDED IN THE PHOTOGRAPH.</p> <p><i>Close the booklets.</i></p>	<p>'Take Five' challenge only.</p>

Session 1	Organisational instructions	Must say	Say in your own words
	<p>PRESENTATIONS. Teacher introduction to the presentations. Same table/group arrangements as before.</p>	<p><i>You will have the opportunity to tell the other students in your group what you are designing and modelling.</i></p> <p><i>You can show drawings/card models if it helps to communicate your idea.</i></p> <p><i>Students in your group can ask you questions.</i></p> <p><i>Students in your group can suggest improvements/developments to your idea.</i></p>	<p>Explain about the presentations. The value of sharing ideas. Suggesting modifications. Discussing further possibilities.</p>
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 9 IN YOUR ANSWER BOOKLET			
5 minutes	Box 9. Reflect and Record.	Use the space provided in Box 9 to plan your presentation.	
GROUP WORK			
<p>10 - 15 minutes Timings will need to be flexible due to group size.</p>	<p>Within working groups. (3 or 4 students)</p> <p>Candidates give presentations of their ideas and receive feedback.</p> <p>Staff to overview process and encourage candidates to be positive, constructive and fair with time allocations.</p>	<p><i>You are to present your ideas to members of your group. You presentation should last approximately 2 minutes. Two minutes of question and answer activity will then take place.</i></p> <p><i>You should make brief notes of your group's feedback about your design to help complete the next activity.</i></p>	

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 10 IN YOUR ANSWER BOOKLET			
6 minutes	Box 10. Green Zone.	<p><i>Record any comments/suggestions made by your working group.</i></p> <p><i>What could you change/modify?</i></p>	
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 11 IN YOUR ANSWER BOOKLET			
5 minutes	Box 11 Question time.	<i>Answer the questions.</i>	Add additional support/explanation if appropriate.
10 minutes	<p>Modelling Kit.</p> <p>Introduction to the modelling/prototyping materials available.</p>	<p><i>I am about to introduce the modelling materials we have available to you.</i></p> <p><i>You are not required to use every material provided. Only appropriate materials for your design should be used.</i></p> <p><i>If you require a specific material that is not here you may request it.</i></p>	<p>Staff may wish to demonstrate some materials, construction/assembly possibilities etc.</p> <p>If the candidates know what is available, it will help them in the construction/assembly of their model/prototype.</p> <p>They may ask for additional items.</p>

Session 1	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 12 IN YOUR ANSWER BOOKLET			
10 minutes	<p>Box 12. Your Model.</p> <p>Allow 10 minutes with a reminder after 8 minutes.</p>	<p><i>Having seen the modelling materials provided, complete each of the sections in box 12.</i></p>	<p>Think about how you will make your model/prototype. What are your choices? What would be the best? Why?</p>
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 13 IN YOUR ANSWER BOOKLET			
6 minutes	<p>Box 13. Action Plan for Session 2.</p> <p>Allow 5 minutes with a reminder after 4 minutes.</p>	<p><i>In the next session you will start to manufacture the model. Plan what you will need to do in this session.</i></p> <p><i>Do staff need to get anything for you?</i></p> <p><i>Do you need to find out anything that will help you next time?</i></p> <p><i>Record your plan in box 13.</i></p>	
	<p>End of session one.</p> <p>Booklets must be collected in and securely stored by examination officer.</p>		

Session 2	Organisational instructions	Must say	Say in your own words
<p>IMPORTANT</p> <p>180 minutes are available for session 2.</p> <p>The times given in this column are suggestions and may be adapted to suit Centre needs.</p> <p>A 10 minute break is included at the end of making session 3. This may be moved to suit centre needs.</p>	<p>Before the candidates enter the room.</p> <p>Arrange room for candidates to sit in the same groups as session 1.</p> <p>Lay out inspiration/handling collection. Printed resources.</p> <p>Modelling materials. Have a wide range of appropriate materials, tools and equipment available.</p> <p>When candidates enter the room.</p> <p>Candidates sit in the same working groups.</p> <p>Give out part completed workbooks to candidates. Candidates who have not attended session 1 may not attend session 2.</p> <p>Rules of the Innovation Challenge.</p>	<p><i>In Session two of the innovation challenge you will be making your design.</i></p> <p><i>You will have longer periods of uninterrupted time so that you can model / produce your idea.</i></p> <p><i>You will be modelling / producing your design so that you, your teacher and the examiner can see your ideas.</i></p> <p><i>You should not talk to each other unless directed to do so. Teaching staff are here to monitor health and safety and organise the running of the challenge. Staff are not allowed to give advice or guidance about your design or making activity. However, you are allowed to ask for clarification if you are not sure about a task.</i></p> <p><i>We will continue to explain everything as we move into the final stages of this challenge.</i></p> <p><i>You will be using tools and equipment, so your normal risk assessments must apply.</i></p>	<p>Explain, if necessary, the departments expectations with regard to health and safety.</p>

Session 2	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 14 IN YOUR ANSWER BOOKLET			
5 minutes	Box 14. Reflection.	<p><i>You have 5 minutes to look back over the work you did in session 1.</i></p> <p><i>Look carefully at Box 3. Read your design brief, user group and specification.</i></p> <p><i>Are you still on track?</i></p> <p><i>Fill out box 14. (page 5).</i></p>	
40 minutes	<p>Go Make!</p> <p>After 30 minutes stop the candidates and tell them they have 10 minutes remaining in this section.</p>	<p><i>You will now have three manufacturing/modelling sessions.</i></p> <p><i>Session 1</i></p> <p><i>You have 40 minutes to start constructing / making your product. This time will go very quickly. You must be organised and work efficiently.</i></p> <p><i>A photograph (photo 2) will be taken at the end of 40 minutes to record your progress. Additional photographs may be taken and added in the 'additional space' section of the workbook if required.</i></p>	

Session 2	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 15 IN YOUR ANSWER BOOKLET			
5 minutes	Box 15.	<p><i>Fill in progress report 1.</i></p> <p><i>Be honest about the problems you have experienced.</i></p> <p><i>What are the possible solutions to your problems?</i></p> <p><i>Check that your model/prototype is photographed.</i></p>	
40 minutes	<p>Go Make!</p> <p>After 30 minutes, stop the candidates and tell them they have 10 minutes remaining in this section.</p>	<p><i>You have 40 minutes to continue constructing your product.</i></p> <p><i>A photograph (photo 3) will be taken at the end of 40 minutes to record your progress. Additional photographs may be taken and added in the 'additional space' section of the workbook if required.</i></p>	

Session 2	Organisational instructions	Must say	Say in your own words
2 minutes	<p>Tidy Workspace. To allow work in workbooks to continue. Staff to organise final photographs.</p>	<p>Clear workspace of tools, equipment, materials etc. You need to have adequate space to complete work in workbook.</p>	
10 minutes	<p>BREAK. Allow candidates 10 minutes to have a drink, use the toilet, get some fresh air if possible. They may stay in the same room as the challenge if supervised, but are not allowed to work in their booklets or on their models.</p>	<p>Close the booklets. No further work on models until after break.</p>	
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 18 IN YOUR ANSWER BOOKLET			
6 minutes	<p>Box 18. Evaluation. Regroup the candidates at their tables. Allow 6 minutes. Give a reminder after 4 minutes. Fill in Box 18.</p>	<p>You are about to complete the evaluation of your design and prototype product. Answer the following sections in as much detail as possible. Remember that you are allowed to use the additional space in the workbook.</p> <p>What did you want to achieve, but couldn't?</p>	<p>Explain there is no more time for construction, but they can still communicate via their booklets.</p>

Session 2	Organisational instructions	Must say	Say in your own words
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 19 IN YOUR ANSWER BOOKLET			
7 minutes	<p>Box 19. Summing up.</p> <p>Fill in box 19.</p> <p>Allow 7 minutes. Give a reminder after 5 minutes.</p>	<p><i>List the most successful things about your product.</i></p> <p><i>Do you think your intended users would be interested in your product?</i></p> <p><i>If you had more time, what would you do?</i></p>	
THE FOLLOWING SECTION SHOULD BE DONE IN BOX 20 IN YOUR ANSWER BOOKLET			
15 minutes	<p>Box 20.</p> <p>Allow 15 minutes for this task.</p> <p>After 11 minutes move candidates on to 'fast forward 2'.</p> <p>Fast Forward 2.</p> <p>Collect in workbooks. Check that final photographs have been taken and glued in. Examination officer to store workbooks securely.</p>	<p><i>This session is due to finish at</i></p> <p><i>Look at your original specification in box 4.</i></p> <p><i>Have you done what you set out to do?</i></p> <p><i>Use box 20 to record your thoughts.</i></p> <p><i>You may wish to comment on the whole experience.</i></p> <p><i>How you personally found the challenge.</i></p> <p><i>Use the fast forward box to list the main features of your product if it was manufactured.</i></p>	<p>Materials, surface finish, colour, texture, smell, etc, as appropriate.</p>

Session 2	Organisational instructions	Must say	Say in your own words
30 minutes	<p>Time to Reflect. Between 24 and 72 hours after the challenge was completed – return to page 2 in the booklet.</p>	<p><i>You are not allowed to make any alterations to your work from session 1 or 2 in your workbook.</i></p> <p><i>Now that the challenge has been completed and you have had time to think about what you did, you can fill in the 'Time to Reflect' box on page 2. Sketches, notes and photographs can be used here.</i></p> <p><i>This is not an evaluation of your work. It is a chance for you to review your ideas and put forward any further suggestions you may have had to improve your product further.</i></p>	



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