

Please read the instructions printed at the end of this form. **One** of these sheets, suitably completed, should be attached to the assessed work of **each** candidate.

<b>Unit Title</b>	<b>The science of production</b>				<b>Unit Code</b>	<b>R078</b>	<b>Session</b>	Jan/June/Nov	<b>Year</b>				
<b>Centre Name</b>							<b>Centre Number</b>						
<b>Candidate Name</b>							<b>Candidate Number</b>						
Criteria							Teacher Comments		Mark	Page No			
<b>LO1: Understand how to produce bulk chemicals by neutralisation</b>													
<b>MB1: 1 – 5 marks</b>			<b>MB2: 6 – 10 marks</b>			<b>MB3: 11 – 15 marks</b>							
<ul style="list-style-type: none"> <li>• <b>Lists</b> commercially important chemicals that can be produced by neutralisation</li> <li>• <b>Basic</b> knowledge of neutralisation including a statement describing the process</li> </ul>			<ul style="list-style-type: none"> <li>• Lists and <b>describes</b> some uses of commercially important chemicals that can be produced by neutralisation</li> <li>• <b>Detailed</b> knowledge of how soluble salts can be made by neutralisation, including use of a word equation</li> </ul>			<ul style="list-style-type: none"> <li>• Lists and describes some uses of commercially important chemicals that can be produced by neutralisation; <b>explains</b> why these chemicals are important</li> <li>• <b>Thorough</b> knowledge of how soluble salts can be made by neutralisation including correct and appropriate use of balanced symbol equations and chemical nomenclature</li> </ul>							
[1 2 3 4 5]			[6 7 8 9 10]			[11 12 13 14 15]							
<b>LO2: Be able to produce a bulk chemical by neutralisation and determine its yield</b>													
<b>MB1: 1 – 5 marks</b>			<b>MB2: 6 – 10 marks</b>			<b>MB3: 11 – 15 marks</b>							
<ul style="list-style-type: none"> <li>• When provided with method and equipment, <b>some support</b> needed to set up equipment in order to produce a bulk chemical by neutralisation</li> <li>• <b>Some</b> data collected and recorded on yield and quality of product</li> </ul>			<ul style="list-style-type: none"> <li>• <b>Independent</b> selection of equipment to carry out production of a bulk chemical by neutralisation; <b>little support</b> needed to set up equipment correctly</li> <li>• Measurements on yield and quality of product, recorded using an <b>appropriate</b> format</li> </ul>			<ul style="list-style-type: none"> <li>• <b>Independent</b> selection of equipment to carry out production of a bulk chemical by neutralisation; equipment set up correctly</li> <li>• Measurements taken and recorded to <b>appropriate accuracy</b> and precision using an appropriate format, including use of correct units</li> </ul>							
[1 2 3 4 5]			[6 7 8 9 10]			[11 12 13 14 15]							

Criteria			Teacher Comments	Mark	Page No
<b>LO3: Understand the factors that affect the growth of plants for commercial production</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li>• <b>Lists</b> factors that affect plant growth</li> <li>• <b>Basic</b> understanding of how the factors affecting plant growth can be altered to optimise growth</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li>• List the factors that affect plant growth and provides a <b>limited</b> description of the how they affect plant growth</li> <li>• <b>Detailed</b> understanding of how the factors affecting plant growth can be altered to optimise growth</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li>• List the factors that affect plant growth and provides a <b>detailed</b> description of how they affect plant growth</li> <li>• <b>Thorough</b> understanding of how the factors affecting plant growth can be altered to optimise growth</li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			
<b>LO4: Be able to monitor the growth of a plant grown for commercial production</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li>• When provided with method and equipment, <b>some support</b> needed to set up equipment in order to monitor the growth of a plant grown for commercial production</li> <li>• <b>Some</b> measurements taken and recorded</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li>• <b>Independent</b> selection of equipment to monitor the growth of a plant grown for commercial production; <b>little support</b> needed to set up equipment correctly</li> <li>• Measurements taken and recorded using an <b>appropriate</b> format</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li>• <b>Independent</b> selection of equipment to monitor the growth of a plant grown for commercial production; equipment set up correctly</li> <li>• Measurements taken and recorded to <b>appropriate</b> accuracy and precision using an appropriate format, including use of correct units</li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			
<b>LO5: Understand how products are made by microorganisms</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li>• <b>Lists</b> useful products produced by microorganisms</li> <li>• <b>Lists</b> the conditions required to produce useful products made by microorganisms</li> <li>• <b>Basic</b> understanding of why conditions affect the product production of microorganisms</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li>• Lists useful products produced by microorganisms and provides a <b>limited</b> description of how these products are made</li> <li>• <b>Limited</b> description of the conditions required to produce a range of useful products by microorganisms</li> <li>• <b>Detailed</b> understanding of why conditions affect production by microorganisms</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li>• Lists useful products produced by microorganisms and provides a <b>detailed</b> description of how these products are made</li> <li>• <b>Detailed</b> description of the conditions required to produce a wide range of useful products by microorganisms</li> <li>• <b>Thorough</b> understanding of why conditions affect production by microorganisms</li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			

Criteria			Teacher Comments	Mark	Page No
<b>LO6: Be able to determine the optimum conditions for production of a product by a microorganism</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li>When provided with method and equipment, <b>some support</b> needed to set up equipment in choosing the conditions and to monitor product production</li> <li><b>Some</b> measurements taken and recorded</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li><b>Independent</b> selection of equipment to monitor product production; <b>little support</b> needed to set up equipment correctly</li> <li>Measurements taken and recorded using an <b>appropriate</b> format</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li><b>Independent</b> selection of equipment and conditions when monitoring product production; equipment set up correctly</li> <li>Measurements taken and recorded to <b>appropriate accuracy</b> and precision using an appropriate format, including use of correct units</li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			
<b>LO7: Describe the purpose and structure of an organisation related to an organisation that produces products</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li><b>Basic</b> description of the purpose and structure of an organisation related to an organisation that produces products</li> <li>Information provided is <b>limited</b>. Tutor guidance may be required to find and select appropriate information</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li><b>Detailed</b> description of the purpose and structure of an organisation related to an organisation that produces products</li> <li>Information provided is <b>detailed</b>. <b>Minimal</b> tutor guidance is required to find and select appropriate information</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li><b>Thorough</b> description of the purpose and structure of an organisation related to an organisation that produces products</li> <li>Information provided is <b>comprehensive</b>. Research is carried out <b>independently</b></li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			
<b>LO8: Be able to research career options within an organisation that produces products</b>					
<b>MB1: 1 – 5 marks</b>	<b>MB2: 6 – 10 marks</b>	<b>MB3: 11 – 15 marks</b>			
<ul style="list-style-type: none"> <li><b>Lists</b> sources of information on career areas within an organisation that works in the production sector</li> <li><b>Basic</b> information on career areas within an organisation that works in the production sector</li> <li><b>Basic</b> information about opportunities for career areas within an organisation that works in the production sector</li> </ul> <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> <li>Information provided is <b>detailed</b>. <b>Minimal</b> tutor guidance is required to find and select appropriate information on career areas within an organisation that works in the production sector</li> <li><b>Detailed</b> information on career areas within an organisation that works in the production sector</li> <li><b>Detailed</b> information about opportunities for career areas within an organisation that works in the production sector</li> </ul> <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> <li>Information provided is <b>comprehensive</b>. Research is carried out <b>independently</b> on career areas within an organisation that works in the production sector</li> <li><b>Thorough</b> information on career areas within an organisation that works in the production sector</li> <li><b>Thorough</b> information about opportunities for career areas within an organisation that works in the production sector</li> </ul> <p style="text-align: right;">[11 12 13 14 15]</p>			
<b>Total/120</b>					

If this is a re-sit, please tick		Session and Year of previous submission	Jan / June / Nov	<b>2</b>	<b>0</b>		Please tick to indicate this work has been standardised internally	
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Please note: This form may be updated on an annual basis. The current version of this form will be available on the OCR website ([www.ocr.org.uk](http://www.ocr.org.uk)).

### Guidance on Completion of this Form

- 1 **One** sheet should be used for each candidate.
- 2 Please ensure that the appropriate boxes at the top of the form are completed.
- 3 Please enter *specific* page numbers where evidence can be found in the portfolio, and where possible, indicate to which part of the text in the mark band the evidence relates.
- 4 Circle the mark awarded for each strand of the marking criteria in the appropriate box and also enter the circled mark in the final column.
- 5 Add the marks for the strands together to give a total out of 120. Enter this total in the relevant box.