



# Cambridge International AS & A Level

**BIOLOGY**

**9700/32**

Paper 3 Advanced Practical Skills 2

**May/June 2020**

CONFIDENTIAL INSTRUCTIONS



**This document gives details of how to prepare for and administer the practical exam.**

**The information in this document and the identity of any materials supplied by Cambridge International are confidential and must NOT reach candidates either directly or indirectly.**

**The supervisor must complete the report at the end of this document and return it with the scripts.**

## INSTRUCTIONS

- If you have any queries regarding these confidential instructions, contact Cambridge International stating the centre number, the syllabus and component number and the nature of the query.  
email [info@cambridgeinternational.org](mailto:info@cambridgeinternational.org)  
phone +44 1223 553554

This document has **8** pages. Blank pages are indicated.

## General information about practical exams

Centres must follow the guidance on science practical exams given in the *Cambridge Handbook*.

### Safety

Supervisors must follow national and local regulations relating to safety and first aid.

Only those procedures described in the question paper should be attempted.

Supervisors must inform candidates that materials and apparatus used in the exam should be treated with caution. Suitable eye protection should be used where necessary.

The following hazard codes are used in these confidential instructions, where relevant:

<b>C</b>	corrosive	<b>MH</b>	moderate hazard
<b>HH</b>	health hazard	<b>T</b>	acutely toxic
<b>F</b>	flammable	<b>O</b>	oxidising
<b>N</b>	hazardous to the aquatic environment		

Hazard data sheets relating to substances used in this exam should be available from your chemical supplier.

### Before the exam

- The packets containing the question papers must **not** be opened before the exam.
- It is assumed that standard school laboratory facilities, as indicated in the *Guide to Planning Practical Science*, will be available.
- Spare materials and apparatus for the tasks set must be available for candidates, if required.

### During the exam

- It must be made clear to candidates at the start of the exam that they may request spare materials and apparatus for the tasks set.
- Where specified, the supervisor **must** perform the experiments and record the results as instructed. This must be done **out of sight** of the candidates, using the same materials and apparatus as the candidates.
- Any assistance provided to candidates must be recorded in the supervisor's report.
- If any materials or apparatus need to be replaced, for example, in the event of breakage or loss, this must be recorded in the supervisor's report.

### After the exam

- The supervisor must complete a report for each practical session held and each laboratory used.
- Each packet of scripts returned to Cambridge International must contain the following items:
  - the scripts of the candidates specified on the bar code label provided
  - the supervisor's results relevant to these candidates
  - the supervisor's reports relevant to these candidates
  - seating plans for each practical session, referring to each candidate by candidate number
  - the attendance register.

## Specific information for this practical exam

During the exam, the supervisor or other competent biologist (**not** the invigilator) should obtain the results specified on the supervisor's report by following the relevant steps in the question paper. The results should be recorded in the space provided on the supervisor's report.

### Organisation of the exam

- Half the candidates should start on Question 1 and the other candidates should start on Question 2.
- For Question 1, each candidate must have uninterrupted use of a microscope for at least 55 minutes.

### Materials to be supplied by Cambridge International

None

**Materials and apparatus for Question 1**

Each candidate will need:

<b>materials and apparatus for each candidate</b>	<b>quantity</b>	<b>✓</b>
2 pieces of onion in a beaker or container covered with distilled water, labelled <b>X</b> , provided at room temperature (see <b>Preparation of materials</b> )	1	
4.0% sodium chloride solution in a beaker or container, labelled <b>S</b> , provided at room temperature (see <b>Preparation of materials</b> )	50 cm <sup>3</sup>	
Distilled water in a beaker or container, labelled <b>W</b> , provided at room temperature	50 cm <sup>3</sup>	
Beaker, maximum capacity 100 cm <sup>3</sup>	5	
Measuring cylinder, 10 cm <sup>3</sup>	2	
Beaker or container, capacity approximately 100 cm <sup>3</sup> , labelled <b>For waste</b>	1	
Glass pipette with teat or plastic pipette	5	
Microscope slide and coverslip	1	
Scalpel	1	
Forceps	1	
Mounted needle	1	
White tile	1	
Paper towels	10	
Glass marker pen, permanent	1	
Suitable eye protection	1	
Microscope with: <ul style="list-style-type: none"> <li>● an eyepiece lens, ×10 magnification</li> <li>● a low-power objective lens, ×10 magnification</li> <li>● a high-power objective lens, ×40 magnification</li> </ul>	1 between 2	

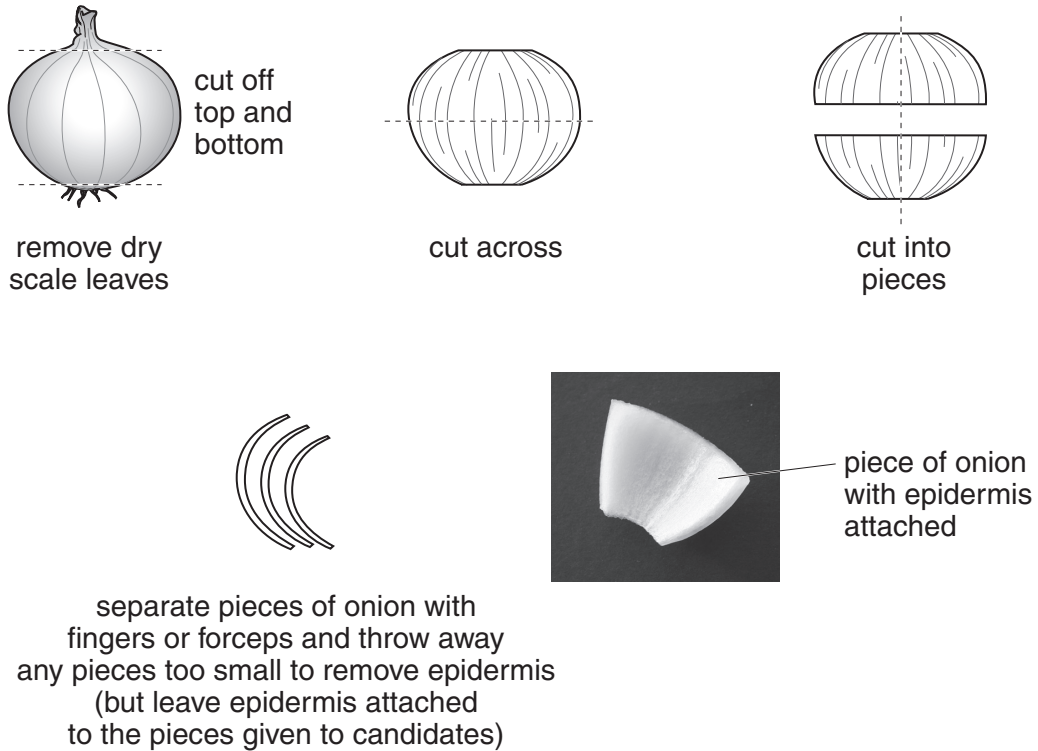
## Preparation of materials

All materials must be made up on the day of the exam.

- **X**, two pieces of white onion in distilled water.

This must be prepared at least one hour before the exam.

White onion pieces are prepared as in Fig. 1.1.



**Fig. 1.1**

- **S**, 4.0% sodium chloride solution.

This is prepared by putting 4 g of sodium chloride into 80 cm<sup>3</sup> of distilled water and making up to 100 cm<sup>3</sup> with distilled water.

- Microscope

Any lenses which are **not**  $\times 10$  or  $\times 40$  should be removed or replaced.

For each candidate:

- the microscope must be set up on low power
- the slide must **not** be on the stage of the microscope.

## Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Transparent ruler showing mm	1	
Clean, dry microscope slides	4	
Pieces of paper in a dry container, labelled <b>P</b> (see <b>Preparation of materials</b> )	6	
Adhesive tape, at least 10 cm in length	2 pieces	
Water coloured with food dye, in a beaker of maximum capacity 100 cm <sup>3</sup> , labelled <b>R</b> , provided at room temperature (see <b>Preparation of materials</b> )	1	
Beaker or container, maximum capacity 100 cm <sup>3</sup>	1	
Stop-clock or timer showing seconds	1	

### Preparation of materials

- **P**, 6 pieces of paper in a dry container.
  - Each piece of paper can be cut from any type of plain paper, e.g. printer paper, writing paper.
  - Each piece of paper must be cut, so it is narrower than the width **and** longer than the length of the microscope slides provided, as shown in Fig. 1.2.

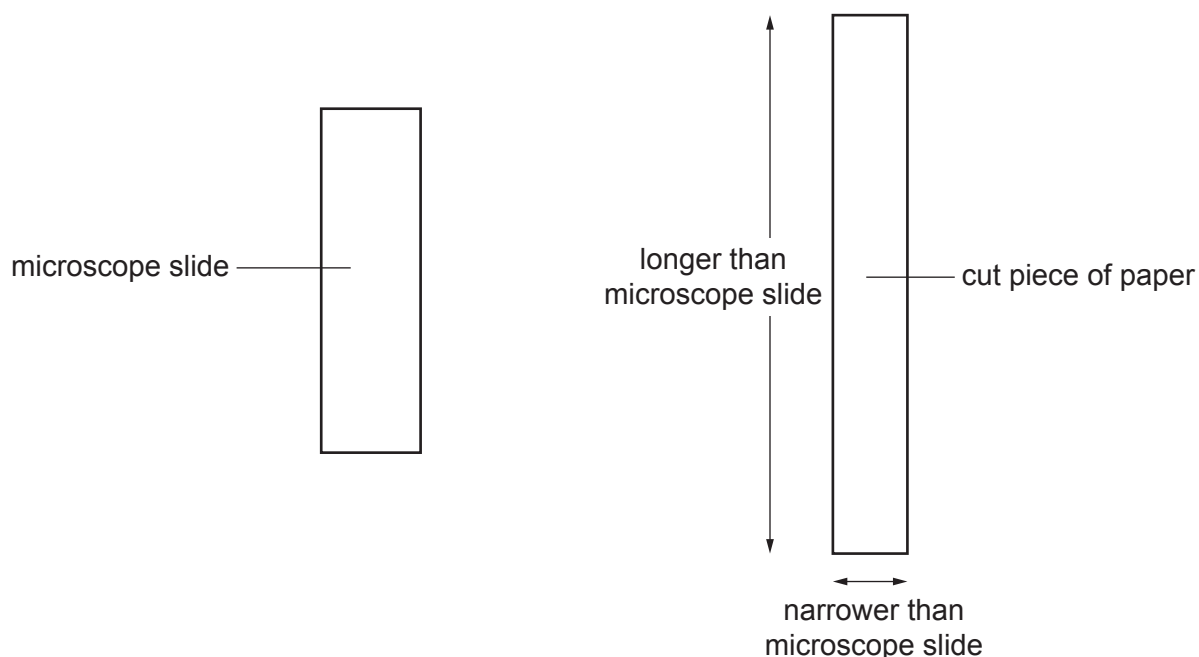


Fig. 1.2

- **R**, water coloured with food dye.

This is prepared by putting enough food dye into water to produce an intense colour.

Any colour of food dye may be used.

Put the coloured water into a 100 cm<sup>3</sup> beaker to a depth of approximately 1 cm.

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**Supervisor's report**

Syllabus and component number

9	7	0	0	/	3	2
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Centre number

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Centre name .....

Time of the practical session .....

Laboratory name/number .....

**Give details of any difficulties experienced by the centre or by candidates (include the relevant candidate names and candidate numbers).**

You must include:

- any difficulties experienced by the centre in the preparation of materials
- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
- any specific assistance given to candidates.

Temperature of exam room ..... °C

Result for Question **1(a)(ii)**

Results for Question **1(a)(iii)**

### Declaration

- 1 Each packet that I am returning to Cambridge International contains the following items:
  - the scripts of the candidates specified on the bar code label provided
  - the supervisor's results relevant to these candidates
  - the supervisor's reports relevant to these candidates
  - seating plans for each practical session, referring to each candidate by candidate number
  - the attendance register
- 2 Where the practical exam has taken place in more than one practical session, I have clearly labelled the supervisor's results, supervisor's reports and seating plans with the time and laboratory name/number for each practical session.
- 3 I have included details of difficulties relating to each practical session experienced by the centre or by candidates.
- 4 I have reported any other adverse circumstances affecting candidates, e.g. illness, bereavement or temporary injury, directly to Cambridge International on a *special consideration form*.

Signed ..... (supervisor)

Name (in block capitals) .....