



## 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 (NOT the invigilator) must do the experiment in Question 1 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### Question 1

Each candidate should be provided with:

hazard	materials and apparatus	quantity per candidate
	standard test-tubes	2
	stoppers to fit standard test-tubes	2
	spinach leaves	8
	pestle and mortar (If unavailable a heavyweight ceramic bowl and metal tea-spoon can be used.)	1
	cold isolation medium supplied in a 100 cm <sup>3</sup> beaker labelled <b>isolation medium</b>	50 cm <sup>3</sup>
	small funnel to fit into large test-tube <b>C</b>	1
	20 cm × 20 cm pieces of muslin (If larger funnels are used, then bigger muslin may be required. Check that the muslin is sufficiently large to reach the edges of the funnel.)	3
	large test-tube labelled <b>C</b> in a test-tube rack	1
	empty 250 cm <sup>3</sup> beaker labelled <b>water-bath</b>	1
	20 cm × 20 cm piece of aluminium foil	1
	plastic graduated Pasteur pipette to measure 2 cm <sup>3</sup>	1
	5 cm <sup>3</sup> syringe	1
	a supply of ice-cold water to distribute to candidates when they put their hand up (This can either be made using ice and water or by keeping the water in the refrigerator prior to the practical.)	200 cm <sup>3</sup>
<b>HH, MH, N</b>	DCPIP in a 100 cm <sup>3</sup> beaker labelled <b>DCPIP</b>	20 cm <sup>3</sup>
	stop-clock	1
	paper towels	3
	pair of gloves	1
	bench lamp with a 60 watt or equivalent bulb	1
	container labelled <b>waste</b> that is large enough to hold the funnel	1
	suitable eye protection	1

**Preparation of materials***Phosphate buffer solution*

Dissolve 4.48g hydrated disodium hydrogen phosphate ( $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ ) and 1.7g potassium dihydrogen phosphate ( $\text{KH}_2\text{PO}_4$ ) in  $500\text{ cm}^3$  of distilled water. Keep refrigerated until required.

*Isolation medium*

Dissolve 68.46g sucrose and 0.38g potassium chloride (KCl) in phosphate buffer solution and make up to  $500\text{ cm}^3$  with phosphate buffer solution. Keep refrigerated until just before the exam.

*DCPIP solution* **HH, MH, N**

Dissolve 0.01g DCPIP and 0.93g KCl in phosphate buffer solution and make up to  $250\text{ cm}^3$  with phosphate buffer solution. Keep refrigerated until required.

*Spinach leaves*

Common spinach (*Spinacia oleracea*) leaves are suitable and should be fresh. If fresh spinach is not available fresh green lettuce or cabbage leaves can be used as a substitute. Ensure that the substituted leaves are of approximately the same total size as eight spinach leaves.

**Question 2**

Each candidate should be provided with:

hazard	materials and apparatus	quantity per candidate
	30 cm transparent plastic ruler	1



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**Supervisor's report**

Syllabus and component number

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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.

**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) .....