



NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2009

**LIFE SCIENCES: PAPER III**

Time: 1½ hours

50 marks

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**INSTRUCTIONS TO TEACHERS AND LABORATORY TECHNICIANS**

**PLEASE NOTE:** This is an open-ended practical and, as such, results can be **HIGHLY** variable from one school to another and also from one candidate to another. There is no **CORRECT** result for this investigation. It is imperative that candidates write up and discuss **EXACTLY** what they get. They **MUST NOT** try to guess the result and make their data 'fit' the expected result.

Do **NOT** open the examination packs before the day that the examination is to be written.

Do **NOT** try the experiments first and adjust any of the instructions or volumes/ amounts of reagents.

Do give candidates time or other concessions if they are allowed those by the IEB.

NOTE: You may not run successive sessions in order to accommodate all the candidates on an individual basis. This examination must run at the same time for ALL candidates. It is designed so that it can be carried out in any venue and invigilated by staff which do not have a Life Sciences background.

The following equipment is to be laid out for EACH candidate at an individual workstation:

- At least 15 ml ordinary table salt provided in a suitable container and labelled 'salt'
- 5 ml measuring spoon/ medicine spoon
- 250 ml tap water in a large labelled beaker or plastic container
- Potato
- Stirring rod/ ice-cream stick
- Tile/ suitable cutting surface
- Sharp vegetable/ fruit knife
- Ruler
- Three identical containers which may be glass or plastic or insulcups. Volume of containers to hold at least 200 ml water. (Make sure that EACH candidate gets three matching containers i.e. same volume, diameter and thickness.)
- Permanent marker
- 20 ml syringe
- Piece of paper towel

Candidates must have access to:

- Timing device

### **Notes about the apparatus and materials**

The following items are to be set out for each candidate at a dedicated workstation.

- Salt – use ordinary table salt that is reasonably fine (e.g. Cerebos). Please avoid coarse salt.
- 5 ml spoon – plastic medicine spoons are available cheaply from most pharmacies.
- Plastic disposable 'party cups' are useful containers to use if beakers are not available (they are relatively cheap as well). Please make sure that each candidate gets three identical containers.
- Stirring rod – glass stirring rods or ice-cream sticks are ideal.
- Potato – any medium to large potato is suitable regardless of cultivar.
- Sharp knife – use any vegetable/ fruit paring knife. Steak knives are ideal. Please make sure that they cut straight lines. Do NOT use scalpels, as the blades are too short.
- Cutting tile/ cutting surface – any surface that is suitable to cut on safely. You may use wooden boards or plastic bread boards.

### **GENERAL INSTRUCTIONS**

Candidates must supply their own pen, sharp HB pencil, ruler, eraser and calculator. Candidates may be requested to bring their own watches/ stopwatches and marking pens if not supplied above.

Several skills are to be assessed in this examination. Attached is a suitable grid which can be photocopied and used on clipboards by the invigilators during the examination. Make sure that sufficient copies of the grid are made before you commence the examination.

The information contained in these grids must be transposed to the front cover of EACH candidate's script at the end of the examination.

CANDIDATE'S NAME:

Chips cut accurately	1	0
Containers properly labelled	1	0
Salt accurately measured and levelled off	1	0
Container A has more water than B and C	1	0
TOTAL	(max 4)	

CANDIDATE'S NAME:

Chips cut accurately	1	0
Containers properly labelled	1	0
Salt accurately measured and levelled off	1	0
Container A has more water than B and C	1	0
TOTAL	(max 4)	

CANDIDATE'S NAME:

Chips cut accurately	1	0
Containers properly labelled	1	0
Salt accurately measured and levelled off	1	0
Container A has more water than B and C	1	0
TOTAL	(max 4)	

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