

**Advanced GCE**

**BIOLOGY**

Unit F216: Practical Skills in Biology 2  
Qualitative Task

**Specimen Task**

**For use from September 2008 to June 2009**

## F216

**All items required by teachers and candidates for this task are included in this pack.**

**INFORMATION FOR CANDIDATES**

- Practical Skills in Biology 2: Qualitative Task

**INFORMATION FOR TEACHERS**

- Mark scheme.
- Instructions for Teachers and Technicians.

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Candidates answer on this task sheet.

## F216

### INSTRUCTIONS TO CANDIDATES

- Answer **all** parts of the task.

### INFORMATION FOR CANDIDATES

- The total number of marks for this task is **10**.

### ADVICE TO CANDIDATES

- Read each part carefully and make sure you know what you have to do before starting your answer.

FOR TEACHER'S USE		
	Max.	Mark
TOTAL	10	

	Max.	Mark
TOTAL	10	

This task consists of **6** printed pages.

*Fucus* is a genus of brown algae, found in salt water. The distribution of *Fucus* species is related to the length of time each species spends exposed to the air.

Your task is to investigate the distribution and abundance of two species of *Fucus* and relate distribution and abundance to the time spent exposed to the air. It is your responsibility to work safely and to organise your time effectively.

*Read the procedure carefully before you start.*

Procedure:

Start at low tide and move up the shore as the tide advances.

- 1 Locate the low tide and high tide points on the shore.
- 2 Lay the measuring tape from low tide shore line up the platform to the high tide shore line (if the intertidal zone is long then the tape can be moved as the investigation continues).
- 3 Starting at the low tide shore line place the 50 cm<sup>3</sup> quadrat against the line and record the percentage coverage and abundance of each *Fucus* species present in the quadrat.
- 4 Observe and record details of the appearance of each species.
- 5 Move the quadrat midway between the low and high tide levels and repeat steps 3 and 4.
- 6 Move the quadrat to the high tide level and repeat steps 3 and 4.
- 7 Repeat steps 3, 4, 5 and 6 in **two** more locations along the shoreline.
- 8 Calculate the mean coverage and mean abundance of each species for each shore zone and record your results and observations in an appropriate format in the space provided.

Results and observations

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[Turn over

(a) State the **independent variable(s)** in this investigation

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.....

(b) State the **dependent variable(s)** in this investigation

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.....

(c) Identify **one uncontrolled variable** in this investigation and explain its effect on the precision and accuracy of the data you have collected

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(d) Suggest reasons for the distribution of the two species.

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**Total [10]**

**END OF TASK**

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**F216**

Unit F216: Practical Skills in Biology 2: Qualitative Task

**Specimen Mark Scheme**

The maximum mark for this paper is **10**.

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	Mark
measurements of coverage and abundance recorded logically and in a format that allows comparisons to be made	1
mean coverage <b>and</b> mean abundance calculated correctly	1
qualitative observations (colour, size, degree of dessication) made using more than single words	1
independent variables stated correctly as <i>Fucus</i> species and location on shore	1
dependent variable stated correctly as coverage, abundance and appearance	1
two correct statements made explaining the effect of the uncontrolled variable given (time of day / time of year / other abiotic factor)	2
three clear statements made linking distribution of the two species to xerophytic adaptations	3
<b>Total</b>	<b>[10]</b>

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**This task relates to Module 3, Unit F215. There is no time limit but it is expected that it can be completed within one timetabled lesson.**

It is assumed that you will have completed the teaching of the above module before setting your students this task. This module has links to other modules which contain related learning experiences – please refer to your specification.

Candidates may attempt more than one qualitative task with the best mark from this type of task being used to make up the overall mark for Unit F216.

### **Preparing for the assessment**

It is expected that before candidates attempt Practical Skills in Biology 2 (Unit F216) they will have had some general preparation in their lessons. They will be assessed on a number of qualities such as demonstration of skilful and safe practical techniques using suitable qualitative methods, the ability to make and record valid observations, and the ability to organise results suitably. It is therefore essential that they should have some advance practice in these areas so that they can maximise their attainment.

### **Preparing candidates**

At the start of the task the candidates should be given the task sheet.

Candidates must work on the task individually under controlled conditions with the completed task being submitted to the teacher at the end of the lesson. Completed tasks should be kept under secure conditions until results are issued by OCR.

Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. If a teacher feels that a candidate has under-performed, the candidate may be given an alternative task. In such cases it is essential that the candidate be given detailed feedback on the completed assessment before undertaking another Qualitative Task. Candidates are permitted to take each task **once** only.

### **Assessing the candidate's work**

The mark scheme supplied with this pack should be used to determine a candidate's mark out of a total of 10 marks. The cover sheet for the task contains a grid for ease of recording marks. To aid moderators it is preferable that teachers mark work using red ink, including any appropriate annotations to support the award of marks.

### **Notes to assist teachers with this task**

Teachers must trial the task before candidates are given it, to ensure that the apparatus, materials, chemicals etc provided by the centre are appropriate. The teacher carrying out the trial must complete a candidate's task sheet showing the results attained, and retain this, clearly labelled, so that it can be provided to the moderator when requested.

### **Health and Safety**

Attention is drawn to Appendix E of the specification.

Teacher / technician guide

Students should research the features of the two species or be guided by teacher notes. Three common, easily identifiable species of *Fucus* are:

*Fucus spiralis*

Fronds have twisted pattern around stipe but edge is solid

*F. serratus*

Edge of frond is toothed

*F. vesiculosus*

Smooth flattened frond with solid edge swollen paired bladders along the length of the frond

Each student will require:

- Quadrat (0.5 m<sup>2</sup>)
- Measuring tape

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