Surname				Other Names				
Centre Number					Candidate Number			
Title of your own investigation if different								
Are the results and tables presented with this work your own?				YES / NO				
Candidate Signature				Date				
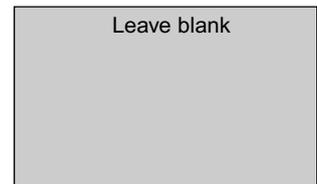
General Certificate of Secondary Education
June 2007 / June 2008

SCIENCE / BIOLOGY SCYC/BLYC/B1.1
ISA B1.1   Fieldwork Investigation

AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

To be conducted between 1 September 2006 and 4 May 2008
For submission in May 2007 or May 2008

For this paper you must have:
- results tables and charts or graphs from your own investigation.

You may use a calculator.

Time allowed: 45 minutes

For Teacher's Use	
Section	Mark
1	
2	
Total (max 34)	

Instructions
- Use blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions in **Section 1** and **Section 2**.
- Answer the questions in the spaces provided.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The maximum mark for this paper is 34.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers.

Signature of teacher marking this ISA .... Date ....

SCYC/BLYC/B1.1

SECTION 1

These questions are about your fieldwork investigation.

Answer **all** questions in the spaces provided.

---

1 What were you trying to find out in your investigation?

....

....

....

....

(2 marks)

2 (a) Explain why you used a quadrat in this investigation.

....

....

....

....

(2 marks)

(b) Explain why you used a transect in this investigation.

....

....

....

....

(2 marks)

3 Now look at a results table. Your teacher will tell you which results table to use. Put a tick (✓) in the box next to the results table that you are using.

Own results ☐   Group results ☐   Class results ☐

(a) How many times was the quadrat placed along the transect? ....

(1 mark)

(b) Was this a suitable number of times to place the quadrat?

Draw a ring around your answer.   **Yes / No**

Write down the reason for your answer.

....

....

(1 mark)

(c) Look at the values of the **dependent** variable.

How could you check the **reliability** of the results for this variable?

....

....

(1 mark)

4 What did you find out from your investigation?

....

....

....

....

(2 marks)

5 Do you think that you need extra evidence to support your answer to question 4?

Draw a ring around your answer.   **Yes / No**

Explain your answer.

....

....

(1 mark)

6 Make sure that **your** results tables, and charts or graphs are handed in with this paper. You will be awarded up to 6 marks for these.

(6 marks)

18

Turn over ▶

SECTION 2

These questions are about an investigation that may be similar to the one you carried out.

Answer **all** questions in the spaces provided.

A student studied a beech hedge in his garden. He noticed that the leaves were of different sizes. He also noticed that the hedge faced in four directions, which were roughly North, South, East and West. He thought that there might be a link between the direction in which the hedge faced and the size of the leaves.
He used a compass to measure the direction in which the hedge was facing.
He cut four branches; one from each of the north, south, east and west facing parts of the hedge. He then measured the surface area of five leaves from each branch.

The results are given in the table.
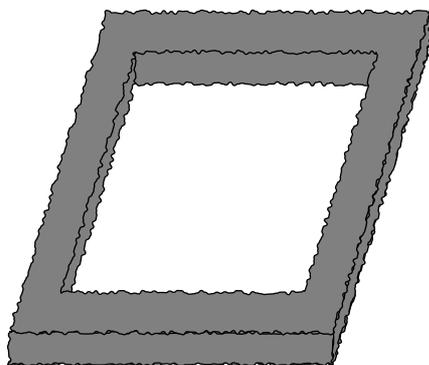
Compass direction in degrees	Approximate direction hedge faces	Surface area of leaf					Mean surface area of leaves in cm^2
		Leaf 1	Leaf 2	Leaf 3	Leaf 4	Leaf 5	
9	North	36	34	33	32	30	
94	East	26	24	23	22	20	23
186	South	18	17	16	15	14	16
264	West	26	25	23	21	20	23
264 (repeated)	*West*	*23.1*	*23.3*	*23.8*	*23.5*	*21.7*	*23.1*

7 Look at the results for **9** degrees.

(a) Calculate the mean surface area of the leaves collected at **9** degrees.
Show clearly how you work out your answer.

....

Write your answer into the table.

(1 mark)

(b)   What was the range of size of leaves for **9** degrees?

The range was from .... to ....

(1 mark)

8   The student wanted to display the results of the investigation as a graph or a chart.

What sort of graph or chart should he use?
Put a tick (✓) in the box next to your choice.

Bar chart   ☐

Line graph   ☐

Pie chart   ☐

Scattergram   ☐

(1 mark)

9   Describe how the mean surface area of the leaves is related to the approximate direction in which the hedge faces.

....

....

....

....

(2 marks)

10   The leaves on the North facing hedge do not all have the same surface area. Suggest a possible cause for this variation.

....

....

(1 mark)

11   Complete the sentence by choosing the correct word from the box.

precise	**reliable**	**valid**	**variable**

The mean could have been improved by sampling two branches instead of one.

This would have made the mean more ....

(1 mark)

Turn over ▶

12 The diagrams show how the student calculated the area of each leaf.
The shaded squares are the ones that he counted.

Student draws around the leaf   Student counts the number of squares
completely covered by the leaf
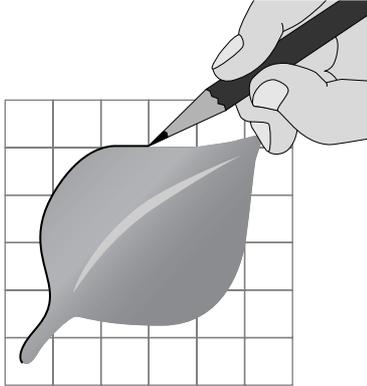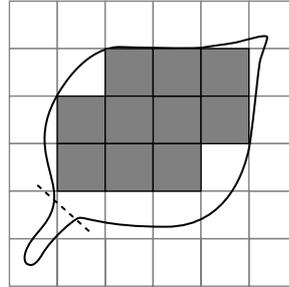
1 square = 1 cm^2 1 square = 1 cm^2

He wanted to get a more precise measurement of the surface area of each leaf.

Explain how he could do this.

....

....

....

....

(2 marks)

13 He used two different methods for the hedge facing West.

Explain why the repeat set of data allowed him to be more confident about his
results.

....

....

....

....

(2 marks)

14 He thought that the less light each leaf received, the larger it grew.

Describe how you could test this idea in the laboratory.

To gain full marks in this question you should write your ideas in good English.
Put them into a sensible order and use the correct scientific words.

....

....

....

....

....

....

....

....

(4 marks)

15 Garden centres give advice on where to place plants for the best leaf growth.
Use the results table to decide what advice they would give about where to plant a
beech hedge for the largest leaf growth.

....

....

(1 mark)

END OF QUESTIONS

16

There are no questions printed on this page