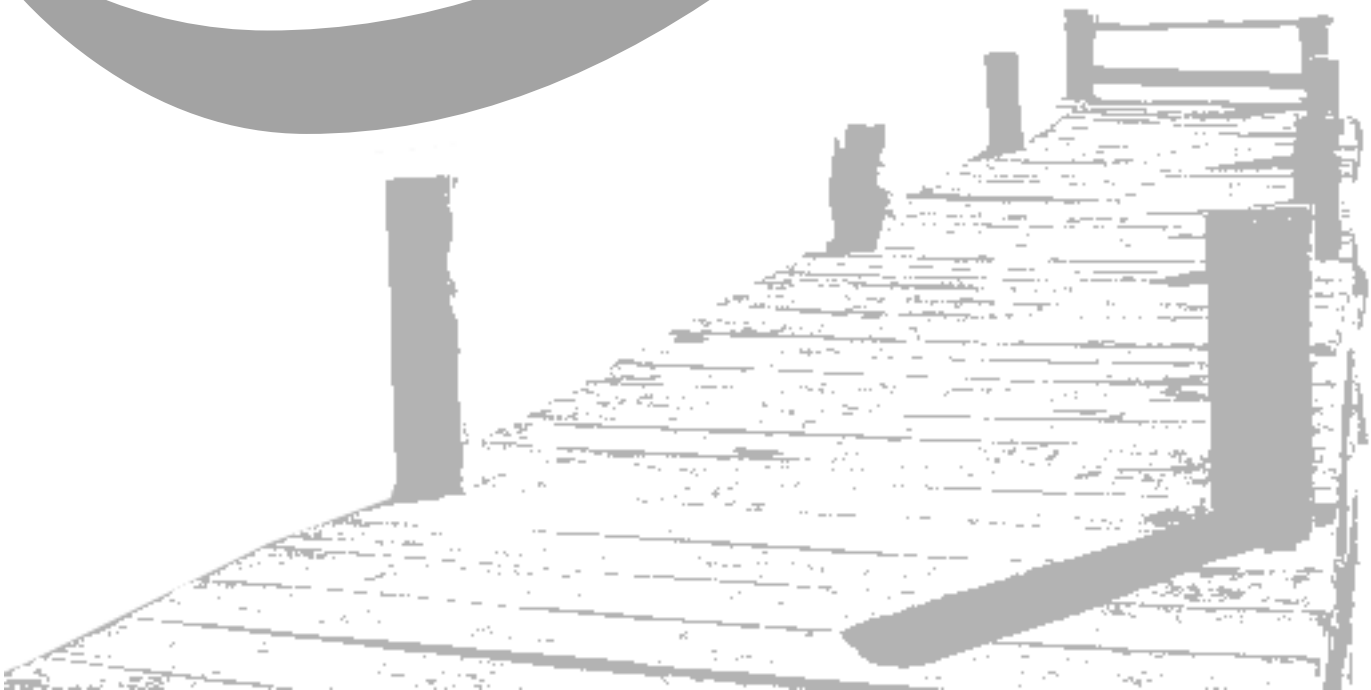
GCE
AS and A Level

Environmental Studies

AS exams 2009 onwards
A2 exams 2010 onwards

Unit 1: ENVS1
Specimen mark scheme

Version 1.1



ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Environmental Studies

The Living Environment ENVS1

Specimen Mark Scheme

for 2009 examination

The specimen assessment materials are provided to give centres a reasonable idea of the general shape and character of the planned question papers and mark schemes in advance of the first operational exams.

For operational papers, mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. The mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis on one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334).
Registered address: AQA, Devas Street, Manchester M15 6EX *Dr Michael Cresswell Director General*

Environmental Studies

Specimen Unit
Mark Scheme **ENVS1**

Instructions: ; = 1 mark / = alternative response A = accept R = reject

Question 1

1 (a)

Importance to living organisms	
Chemical reactions take place in solution/needed for nutrient uptake/ transport of substances/dilution of waste	;
Floating ice insulates/prevents water freezing solid (for survival of organisms beneath)/albedo controls climate [**A** reference to ice layer creating habitat]	;
Allows light to penetrate for water plants/photosynthesis [**A** allows predators to see prey in water (or converse)]	;

3

1 (b) Allows efficient enzyme activity/speed of chemical reaction;
high temperatures denature/deactivate enzymes;
[**R** 'kill' enzymes]
temperature range allows water in liquid state; MAX 2

Total marks = 5

Question 2

2 (a) A community of species interacting with physical environment; 1

2 (b) Direct exploitation
overfishing;
effects (of overfishing) on other named species;
collection of coral/sponge/shells/other named species;
dredging; MAX 3

Direct damage
boat/anchor damage;
swimmers /divers/snorkellers;
litter;
pollution by tourists/boats;
introduced species; MAX 3

Indirect damage (by activities on land)
(toxic) pesticides;
sewage/fertiliser increasing algal cover;
global warming causing sea level/temperature change/coral bleaching;
development causing increased turbidity/sediment; MAX 3 5

2 (c) Storm protection (reduced costs of);
tourism (income);
habitat/breeding ground for commercial fish;
specific egs;; MAX 4

Total marks = 10

Question 3

3 (a) Species in danger of extinction on current trends (throughout most or all of its range); 1

3 (b) Two comments on data with justification;;
as proportion of total population in reserves has increased – increased importance;
as population outside has grown – reduced importance; MAX 2

3 (c) Loss of pollinators;
reduced seed dispersal;
reduced nutrient cycling;
eg of each;;; MAX 3

3 (d) Activities;;
egs of affected species;;

eg
roadkill
of badgers/deer/hedgehogs/otters

fishing bycatch
of dolphins/sharks/turtles

farm harvesting
of nesting birds/harvest mice

introduced species
on named competitor/named predated species

pollution
on named affected species

drainage
on named wetland species MAX 4

Total marks = 10

Question 4

4 (a) Difficulties keeping species in captivity
space needed;
feeding problems;
species inter-relationships;
required abiotic conditions MAX 2

Breeding problems
breeding triggers not provided;
small gene pool/inbreeding;
hybridisation between sub-species;
lack of parenting skills; MAX 2

Release problems
inability to find food;
inability to avoid toxic food;
inability to avoid predators;
not socially accepted;
original threat still exists;
lack of suitable habitat; MAX 2 4

4 (b) *Quality of Written Communication is assessed in this answer.*

Named species;;
control of succession;
culling/removal of undesirable species;
provision of suitable conditions;
biological corridors; MAX 4

Quality of Written Communication

Mark	Descriptor
2	All material is logically presented in clear, scientific English and continuous prose. Technical terminology has been used effectively and accurately throughout. At least half a page of material is presented.
1	Account is logical and generally presented in clear, scientific English. Technical terminology has been used effectively and is usually accurate. Some minor errors. At least half a page of material is presented.
0	The account is generally poorly constructed and often fails to use an appropriate scientific style to express ideas.

MAX 2

Total marks = 10

Question 5

5 (a) (i) Named conflict/ref. to planning;
advocate/opponents put their cases;
in a public setting/open to public;
inspector decides/reports to Secretary of State; MAX 2

5 (a) (ii) Monetary value of all aspects considered;
if B>C (may go ahead)/converse/ref. to net figure; 2

5 (a) (iii) Surround urban areas;
restricts development/protect farmland/countryside;
prevent towns merging;
prevent historic towns being lost;
stop urban sprawl;
encourage development of brownfield sites; MAX 2

5 (b) Biological corridor;
new habitat creation;
expansion of existing habitat;
no through road;
specific description of how change benefits wildlife;;
eg biological corridor
- links areas of same habitat to increase breeding population MAX 4

Total marks = 10

Question 6

6 (a) Presence of rare/endangered species;
good example of community requiring protection; MAX 1

6 (b) Maximum number of visitors that can be accepted without damaging dunes; 1

6 (c) (i) Primary succession is the series of community changes which occur on an entirely new habitat which has never been colonized before;
secondary succession is the series of community changes which take place on a previously colonized, but disturbed or damaged habitat; 2

6 (c) (ii) Trampling creates bare ground; 1

6 (d) (i) Named environmental gradient;
named situation/location; 2

6 (d) (ii) $D = 41 \times 40 / (31 \times 30) + (6 \times 5) + (3 \times 2)$;
$= 1.6977$;
[**A** 1.69/1.70] 2

6 (d) (iii) Increase; MAX 1

6 (d) (iv) Habitat stability;
population size re breeding viability;
ref to interspecies relationship; 2

6 (e) Definition of time zoning;
eg of time zoning;
how it helps wildlife conservation; 3

Total marks = 15

ENVS1

Assessment grids

Specification Section	Question number						
	1	**2**	**3**	**4**	**5**	**6**	**Total**
3.3.1	5						**5**
3.3.2		6	7	8		4	**25**
3.3.3		4	3			7	**14**
3.3.4					10		**10**
3.3.5						4	**4**
Total	**5**	**10**	**10**	**8 +2QWC**	**10**	**15**	**58+2 = 60**

Specification Section	Question number						
	1	**2**	**3**	**4**	**5**	**6**	**Total**
AO1 Knowledge with understanding	5		8	4	6	3	**26**
AO2 Application, analysis and evaluation		10		4	2	7	**23**
AO3 Experiment and investigation			2		2	5	**9**
Total	**5**	**10**	**10**	**8 +2QWC**	**10**	**15**	**58+2 = 60**