

- M1.** (a) snail
or
shrew
additional incorrect answer negates correct answer 1
- (b) shrew
additional incorrect answer negates correct answer 1
- (c) fewer shrews to eat them 1
- (d) population 1
- (e) **C** 1
- (f) $(11\ 000 \times 0.1 =)$
1 100 (kJ) 1
- (g) the snails do not eat the roots of the lettuces 1
- (h) any **one** from:
• light (intensity)
• temperature
• moisture (levels)
• soil pH
• mineral / ion content (of soil)

- wind intensity / speed
ignore wind direction
- carbon dioxide (levels)
- oxygen (levels)

1

[8]

- M2.** (a) large area
allow thin / large / big / flat / light
allow adaptations that cannot be seen eg internal air spaces 1
- (b) (shape means that) snow falls off 1
- (c) protect / stop it being eaten 1
- (d) stores/ absorbs water (from other parts of the plant)
ignore absorbs water from soil / air
ignore nutrients 1

[4]

- M3.** (a) *answer to be marked as a whole*
- has thorns / prickles / points
accept sharp points 1
- (these) hurt animal
allow frighten animal
only accept prevent animal eating leaves if qualified by
 'hurting' or 'frightening' 1
- (b) *answer to be marked as a whole*
- camouflaged / looks like twig / disguised
allow blends in
ignore too small to see 1
- (animal) cannot **see / detect** / recognise it
allow animal does not eat twigs
only accept prevents animal eating it if qualified by 'seeing'
 or 'wrong food' 1
- (c) *answer to be marked as a whole*
- red / colour 1
- warns that insect might be poisonous / dangerous
allow inedible / tastes bad 1

[6]

M4. any **three** from:

ignore references to carbon cycle

accept digested / decomposed / broken down / rotted for decay throughout

ignore eating

- dead leaves / flowers / bluebells are decayed
- idea that microorganisms do the decaying
accept microbes / bacteria / fungi / mould / decomposers for microorganisms
- minerals / ions / nutrients / named released (by decay / microorganisms)
not mineral ions unqualified
- (released) into soil **or** minerals / ions / nutrients taken up / in by (bluebell) roots (next year)
look for idea that minerals / ions / nutrients are in soil (eg released into soil or taken up from soil)

3

[3]

M5. (a) brown (colour)

1

(b) (long) ears

1

(c) (long) horns

1

(d) (white) ring

1

[4]

M6. (a) C

1

(b) B

1

(c) E

1

(d) D

1

(e) F

1

[5]

M7.(a) looks like a leaf

1

so predator less likely to / won't see it

allow 'camouflage' as alternative to either point

1

(b) (i) thorns (of acacia tree) hurt (predators)

*allow idea that fewer animals / predators live in trees **or**
ground living animals can't reach them (in the trees)*

1

(ii) (giraffe) avoids being bitten by ants

allow ants are poisonous / have unpleasant taste

1

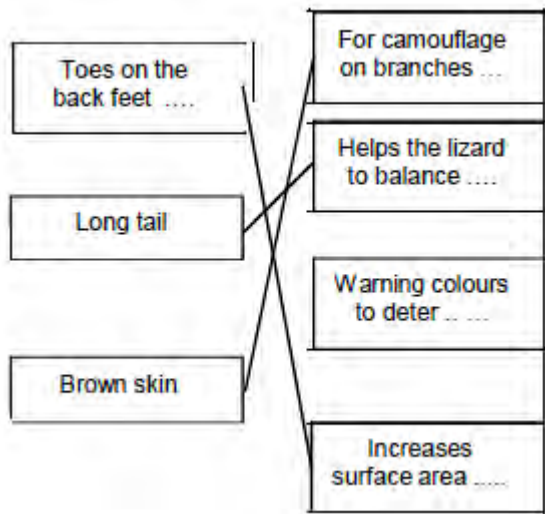
(c) looks like / mimics a wasp **or** has warning colouration

1

so predators think it has a sting

1

[6]



M8.(a)

one mark for each line

*do **not** award mark for an adaptation if lines are drawn from it to more than one advantage*

3

(b) escape (predators)

accept faster than swimming

allow chase prey

allow it stops them from drowning

1

(c) food

1

territory

1

*deduct **one** mark for each tick in excess of two*

[6]

- M9.** (a) (i) any **two** from:
ignore oxygen / food / sun / carbon dioxide
- light
 - water
 - space
 - nutrients / ions / minerals / named
- accept two named minerals / ions for 2 marks*

2

- (ii) less competition for water
ignore space / light / food

or

more water / nutrients / minerals available

1

- (b) camouflage / same shape as leaf / looks like a leaf
allow 'blends in'
ignore colour

1

[4]

M10.(a) an extremophile species 1

(b) (i) smaller ice area
allow smaller amount of ice
allow less ice 1

(so) less habitat
allow fewer places to live / nest 1

(ii) **either** increase
as more sea to live in
or
as less competition for food

or decrease
as less space (ice) to lay eggs
or
predators more likely to eat them
*there is no mark for increase / decrease alone. The mark is
for an appropriate reason linked to increase / decrease
if increase / decrease not ringed the mark may be awarded if
it is clear in the explanation which is intended* 1

(c) Living organisms show long-term changes. 1

[5]

M11.(a) any **three** from:

- place 30-m tape measure across field / from one wood to the other
- place quadrat(s) next to the tape
- count / record the number / amount of dandelions / plants in the quadrat
ignore 'record the results'
ignore measures / estimates dandelions
- repeat every 2 metres
allow every metre / at regular intervals

3

- (b) (i) low light / it is shady
allow no light
ignore sun / rays

or

not enough water / ions / nutrients
accept correct named ion
ignore no water / ions / nutrients

or

wrong pH of soil
accept competition with trees for light / water / ions
ignore competition for space and competition unqualified
accept soil too acidic / too alkaline
ignore temperature

1

- (ii) sensible suggestion for a small area, eg chance variation / anomaly /
poisoned by animal waste / wrong pH of soil / eaten (by animals) / cut
down / footpath

1

- (c) repeat (transect) / compare with the results of other groups
allow 'do it in two different locations' for 2 marks

1

at different / random location(s) / elsewhere (across the field)
*do **not** allow 'in other fields'*

1

[7]