

5.2. Communities and Ecosystems

You will need a copy of the resources booklet to complete this task. It may also be necessary to research further information in which case you should quote your sources with citations and an additional bibliography.

Syllabus reference: 5.2.6 Outline the consequences of a global temperature rise on arctic ecosystems.

Effects include increased rates of decomposition of detritus previously trapped in permafrost, expansion of the range of habitats available to temperate species, loss of ice habitat, changes in distribution of prey species affecting higher trophic levels, and increased success of pest species, including pathogens.

Q1. Compare and contrast the climate data for the periods 1961-1990 with that of 1991-2004. [4]

Between 1961-1990	Where as between	1991-2004

Q2. Suggest why the conclusions you have drawn may be unreliable. [1]

Q3. Suggest what impact the climate changes identified may have on the permafrost layer. In particular suggest the effects that may occur on decomposition within the upper surface layers. [5]

Impact 1	
Impact 2	
Impact 3	
Impact 4	
Impact 5	

Sources:

Q4. Place each of the animals into the table and identify the characteristic seen from the diagram or form a named source to justify your placement.

Producer	Primary consumer	Higher level consumer
Name: Characteristic:	Name: Characteristic:	Name: Characteristic:
Name: Characteristic:	Name: Characteristic:	Name: Characteristic:
Name: Characteristic:	Name: Characteristic:	Name: Characteristic:

Q5. Outline a possible sequence of events that might have led to the speciation of the wild reindeer into the Svalbard reindeer. [8]

Isolation mechanism	
Major selection pressures	
Source of variation	
Founder effect	
Physical Advantageous characteristic	
Behaviour Advantageous characteristic	
Survival	
Evolution	

Sources:

--

Q6. Suggest what the effects of the climate changes (identified in question 1) may have on the Svalbard reindeer.

[3]

Effect 1	
Effect 2	
Effect 3	

Q7. Suggest how the seed bank discussed in figure 9 may be of future benefit to agriculture.

[3]

Benefit 1	
Benefit 2	
Benefit 3	

Q8. Using figure 10 suggest five implications of declining sea ice on the migration of animals in the arctic regions. Credit will be given for named examples beyond those quoted in the resources booklets

1	
2	
3	
4	
5	

[5]

Sources:

--