

Solutions

2.1 The interaction of a community of living organisms (biotic); with the non-living (abiotic) parts of their environment.

2.2 Food, mates, territory.

2.3 Structural – e.g. thick fur/blubber for cold; behavioural – e.g. migration to warmer climates; functional – e.g. venom production / low metabolic water loss.

3.1 Each species depends on others for food, shelter, pollination or seed dispersal; e.g. remove bees → fewer plants are pollinated → plant numbers fall; the animals feeding on those plants lose their food source and also fall; so effects cascade through the community – interdependence.

3.2 Any two: prey species numbers fall as the predator eats them; the prey's food plant increases as fewer are eaten, changing the whole web; the new predator competes with existing predators, whose numbers may fall; if a prey species drops too low to breed, it may disappear locally.

3.3 They live in conditions extreme for most life – very high temperature and pressure; 'extremophile' names an organism adapted to such environments; with no light there is no photosynthesis, so they obtain energy from chemical reactions – chemosynthesis around mineral-rich vents.