



# Biology Topic B16

## Adaptations, Interdependence and competition

KNOWLEDGE

ORGANISER

### Section 1: Key terms

Ecosystem	The <b>interaction</b> of a <b>community of living organisms (biotic)</b> with the <b>non-living (abiotic)</b> parts of their environment.
Habitat	The <b>area</b> in which an organism <b>lives</b> .
Community	<b>Two or more different species</b> in an ecosystem. A <b>stable community</b> is one <b>where all the species and environmental factors are in balance</b> so that <b>population sizes remain fairly constant</b> .
Population	The <b>total number of organisms of one species</b> in an ecosystem.
Competition	<b>Plants</b> often compete for <b>light, space, water and mineral ions</b> . <b>Animals</b> often compete for <b>food, mates and territory</b>
Interdependence	Within a community each <b>species depends on other species</b> for <b>food, shelter, pollination</b> etc.
Adaptations	A <b>feature</b> that an organism has that allows it to <b>survive</b> in its ecosystem.
Biodiversity	The <b>variety</b> of all the <b>different species</b> of organisms <b>on Earth, or within an ecosystem</b> .

### Section 4: Distribution and Abundance

	Random Sampling	Systematic Sampling (transect)
Purpose	<b>Estimate the size of a population</b> in an area.	See how populations and communities <b>change over a distance</b> .
Method	<ul style="list-style-type: none"> <li>Use approximately 10 or more quadrats</li> <li>Place quadrats randomly</li> <li>Count organisms in each quadrat</li> <li>Use mean number of organisms and multiply by area of field</li> <li>Repeat in different areas to compare areas</li> </ul>	<ul style="list-style-type: none"> <li>Place tape measure across area</li> <li>Place quadrat(s) next to the tape</li> <li>Count number of organisms in quadrat</li> <li>Repeat at regular intervals along tape measure</li> </ul>

### Section 2: Biotic and Abiotic Factors

Biotic	Abiotic
Availability of <b>food</b>	<b>Light intensity</b>
New <b>predators</b> arriving	<b>Temperature</b>
New <b>pathogens</b>	<b>Moisture</b> levels
One species <b>outcompeting</b> another	<b>Oxygen</b> levels for aquatic animals
	<b>Wind</b> intensity and direction
	<b>Carbon dioxide</b> levels for plants
	<b>Soil pH</b> and <b>mineral</b> content

### Section 3: Adaptations

Structural Adaptations	Part of the <b>body</b> that helps the organism survive. e.g. polar bears have a thick layer of fat for insulation.
Functional Adaptations	How the <b>body operates</b> that helps the organism survive. E.g. camels do not sweat.
Behavioural Adaptations	A <b>behaviour</b> that helps the organism survive. e.g. desert rats stay in their burrows during the hottest parts of the day.
Extremophiles	Organisms that have adapted to live in environments with extreme conditions of salt, temperature or pressure.

