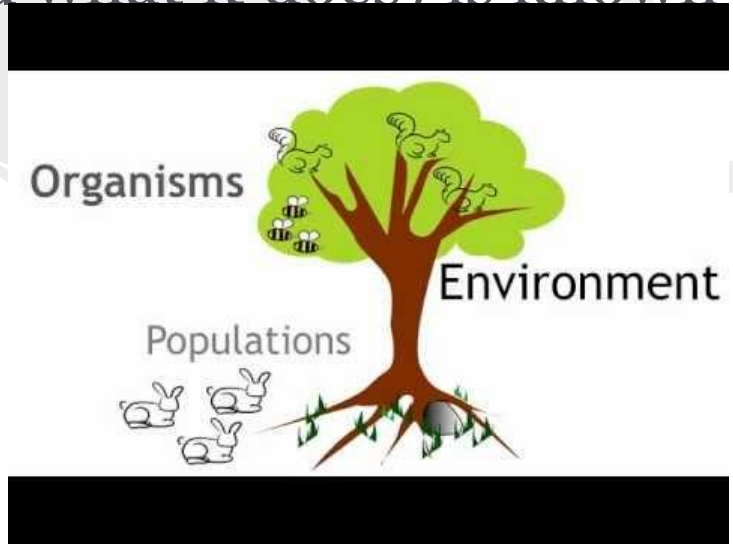
TOPIC 2: HABITAT AND LIFESTYLE

I Can...

- Identify examples of niches and discuss the role of variation in enabling closely related individuals to survive in the same ecosystem
- Investigate and interpret dependencies among species
  - provide examples of symbiotic relationships

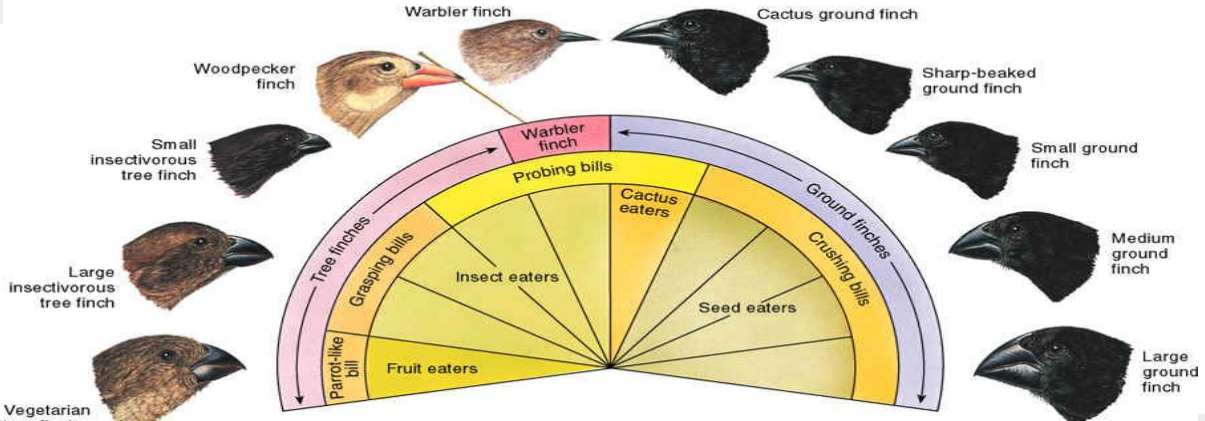
The Niche

Adaptations allow an organism to play a specific role in their particular environment; this role (where it lives and what it does) is known as a *niche*.



Variations permit closely related species who may compete for the same resources to co-exist within the same niche…

Darwin's finches, for example, all have unique beaks adapted to different foods, allowing them to occupy the same niche while avoiding competition with one another



Generalists vs. Specialists

- Species who tend to occupy a *broad niche* are said to be *generalists*. That is, they have adaptations which allow them to survive in a variety of different environments.

- Species who tend to occupy a *narrow niche* are said to be *specialists*. That

Why might specialization be dangerous in terms of species survival?

The entire population of the Banff Springs snail is restricted to five hot pools in Banff, Ab. This species is currently endangered.

Most specialists live near the tropics, where the climate is more predictable. Because specialists are adapted to survive in one particular niche, they tend to develop some very unusual characteristics...

Unfortunately, specialists are more at risk for endangerment compared to generalists, as any slight alteration in their environment could impact their ability to survive.

Dependencies Between Species

Many organisms rely on other species for survival. A relationship in which two different species live in direct contact is known as *symbiosis*.

Types of symbiotic relationships:

1) Mutualism
   Both organisms benefit from the relationship (e.g. humans & intestinal bacteria)

2) Parasitism
   One organism benefits from the relationship at the cost of the other (e.g. mosquitos & mammals)

3) Commensalism
   One organism benefits from the relationship

Taking parasitism to a new level…