EVOLUTION (3.6) & PHYSICAL AND BEHAVIOURAL ADAPTATIONS (3.7)

EVOLUTION (3.6)

Evolution

- A SLOW process that leads to changes in populations of living organisms
- Results from modifications (adaptations) that develop in response to changes in the environment

Natural Selection

- The pressures from the environment that leads to organisms with certain traits having a better chance of survival
- Over time, these changes can lead to changes in the population which could lead to evolution of the species!

Stages of Evolution

Let's look at the Peppered moth

Stages of Evolution

Peppered moths live in forests in England where the trees typically have a light coloured trunk

Stages of Evolution

1) Change in the environment

During the industrial revolution there was an increase in coal-burning factories in England

→ The trees got covered in soot

Stages of Evolution

2) Differences in the population

Some individuals had more black spots than others

Stages of Evolution

3) Natural Selection occurs

Due to the darker trees, the darker moths are harder to spot

→ more white moths get eaten; more black moths survive

Stages of Evolution

4) The selected traits are hereditary

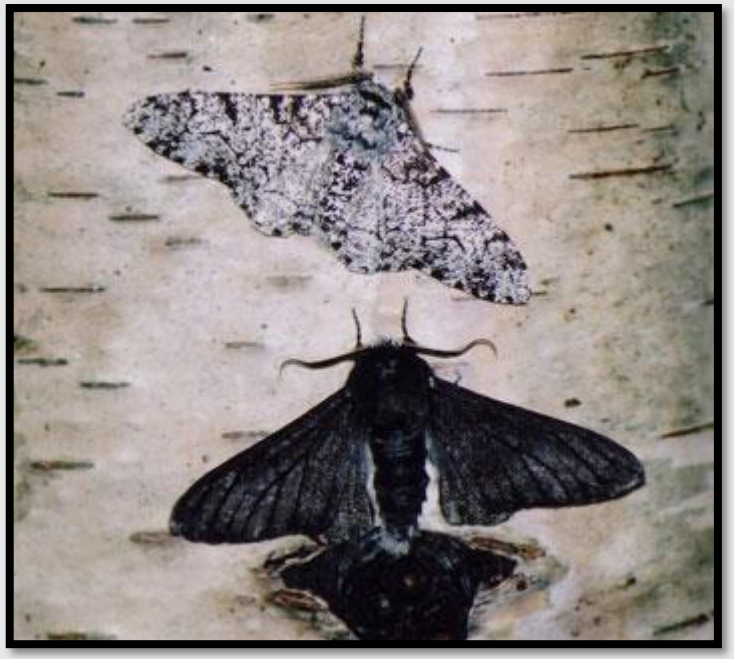
The genes for determining colour of the moth's body are hereditary – meaning they get passed down from parent to offspring

→ a dark moth is more likely to have dark moth babies

Stages of Evolution

5) The population adapts to the environment

Slowly there are more and more black moths and fewer white moths



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PHYSICAL & BEHAVIOURAL ADAPTATIONS (3.5)

Adaptation

During evolution, populations change, or adapt, in response to changes in their environment in order to continue to survive

→ if a species cannot adapt, or cannot adapt fast enough, it will go extinct!

Adaptation

- An adaptation is a trait that helps an organism survive in its environment and reproduce.
- Species must be adapted to their habitat:
  - Individuals of a species must be able to: obtain food, keep safe, build homes, withstand weather, attract mates and reproduce.

Adaptation

Adaptations can be:

-**Physical:** a change in a species' appearance

  -Ex: colour, size, shape of foot/beak/teeth, etc

-**Behavioural:** a change in how the species acts

  -Ex: flying south in the winter, hibernating , hunting vs ambush predators, etc

Physical Adaptations

Physical Adaptations

Bird Beaks

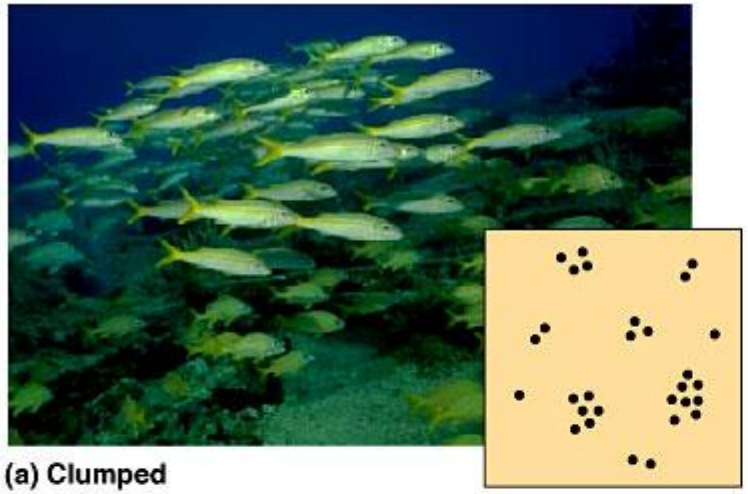
Skin/Fur colour

Behavioural Adaptations

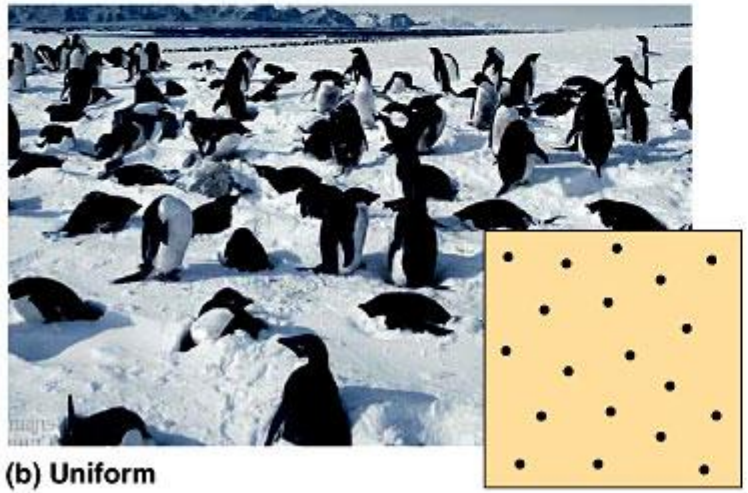
Overwintering Strategies

Frozen Frogs!

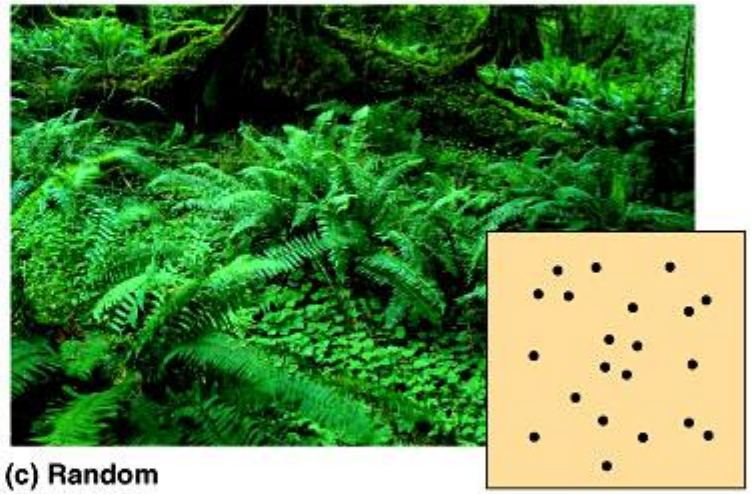
Population Distributions



(a) Clumped



(b) Uniform



(c) Random

Bird Calls (Communication)

Workbook

Peppered Moth Activity

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