Natural Selection and Adaptive Radiation

Natural Selection Activity!

- 1 square meter of grass
- Count pieces of each colour
- Scatter pieces in the marked off area

- 15 seconds-pick up as many pieces as you can find
- Record the number of each colour collected
- Repeat
- Graph Data

Graph the Data Collected in your Table

	Initial	Round 1 removed	Round 2 removed	Round 3 removed	Left over
Light green					
Dark green					
Black					
Yellow					
Orange					

If these had been beetles that a bird was eating, what colour had the best trait for survival?
If all remaining beetles reproduced, what colouration would be dominant?
How do you think this data may have changed if this was done on sand instead of grass?
What traits aside from colour may be a factor in survival?

How do organisms adapt to these Changes in biotic and abiotic Factors?

- **Natural Selection:** advantageous characteristics occurring in members of a species
  - These characteristics allow them to be in a **better** position to mate → **pass on** favourable characteristics onto their offspring

Requirements for Natural Selection

1. Variation in traits
2. Differential reproduction
   (not all individuals get to reproduce to their full potential)
3. There is heredity (trait is passed to offspring)
4. End result: individuals with advantageous trait have more offspring making the trait become more common

Examples of Natural Selection

- A salmon with a **smaller** tail may never have a chance to spawn because it can't swim to the correct location.
- Giraffes developed long necks to reach food sources- those who didn't would die out due to lack of food

- Snail example

Bag and Flag Adaptive Radiation

How do organisms adapt to these Changes in biotic and abiotic Factors?

- Adaptive radiation: when changes to a **common** ancestor occur differently leading to many **different** species that inhabit different niches

- Causes:
  - Reproductive isolation
  - Taking advantage of different **food** sources or **shelter**
  - Availability of new niches
  - Subdividing a niche

How do organisms adapt to these Changes?

- Galapagos Finches

- All the species are descended from **one** finch species on the mainland.
  - Each species has unique characteristics that allows them to thrive in their own niche, and not compete with other finches for resources.