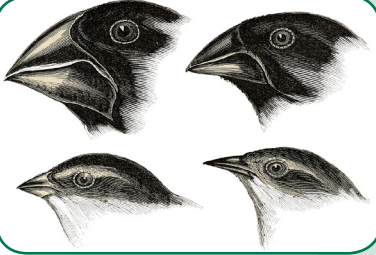
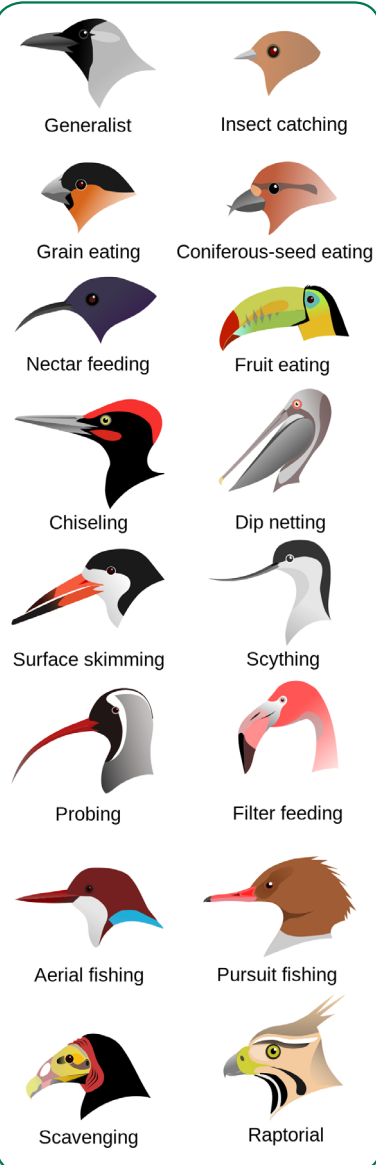


Battle of the Beaks



The birds in this image are known as Darwin's finches, and are found only in the Galapagos Islands. Specimens were first collected by Charles Darwin during his voyage on *HMS Beagle*. The birds have developed highly specialised beak shapes, related to the food available on each island.



The diagram above shows how different beak types are adapted to different feeding strategies. The generalist beak type is used by birds that are not specialised feeders

In any habitat, food is limited and the types of foods available can vary. Animals with variations allowing them to take advantage of available foods will be more likely to survive. We call beneficial inherited variations adaptations. Animals with the most helpful adaptations will be the most likely to live long enough to pass their genes on to the next generation.

Many birds have evolved specialised beak shapes that are well suited to the available food sources in their environment. The image to the left shows a variety of these specialised beaks, as well as the food source they are most suited to. Students should be encouraged to study the beak shapes and form their own conclusions as to why each shape is best for each food. This can also be used as a reminder of generalist versus specialist feeding strategies.

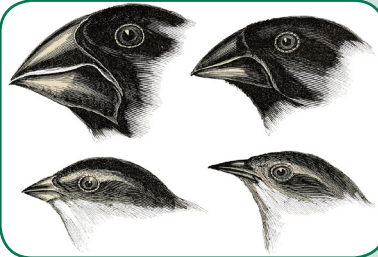
Although this experiment only examines beak adaptations, students should be urged to think about other variations which may help animals adapt to their environment. These could include feet, wings and colouration in birds, and a whole host of other features in animals. Ask students to research animal adaptations which are unusual— these could be physical or behavioural. Suggest that they stay away from the common examples of polar bears, cacti, penguins, camels etc.

QUESTIONS TO ASK:

- What did you notice about your feeding abilities?
- Did everyone with your beak type have the same success rate with the same food? Why or why not?
- What did you notice about your behaviour and the behaviour of others?
- What were your strategies?
- If you were to repeat this stage would you change your strategy?
- What would you do differently if each food had a different nutritional value?



Battle of the Beaks



My beak was a (tick the box):

☐

Scissors

☐

Spoon

☐

Peg

GO! How many of each bird 'food' did you get? Write the number down below!

Worms (Rubber bands)	Nuts (Pasta)	Insects (Paperclips)

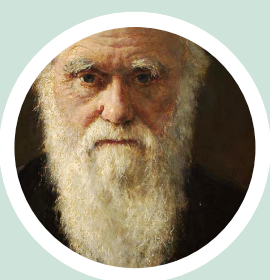
Class results:

YUM YUM! It's time to do some maths - find out the **average** number of each food item collected by each beak type during your experiment, and fill in the table below.

	Worms (Rubber bands)	Insects (Pasta)	Berries (Raisins)
Tweezers			
Spoon			
Peg			

Things to think about . . .

- Which beak was best?
- What kind of beak would you want to have?
- Do you think pigeons have different kinds of beaks?
- Do you have something special about yourself that would make you better adapted to a change in your environment (Are you super tall, or super tiny? Can you keep really quiet or hold your breath for a long time?)



The four birds in the image at the top of this page are known as Darwin's finches. They are found only in the Galapagos Islands in South America. They were first collected by **Charles Darwin** during his voyage on the ship, *HMS Beagle*. The birds have developed highly specialised beak shapes, depending on the food available on each island. It was these birds that gave Darwin the idea behind the **Theory of Evolution**.



Generalist



Insect catching



Grain eating



Coniferous-seed eating



Nectar feeding



Fruit eating



Chiseling



Dip netting



Surface skimming



Scything



Probing



Filter feeding



Aerial fishing



Pursuit fishing



Scavenging



Raptorial