Marwell Wildlife

KS3/4 Adaptation

Beaky Blinders!

Darwin's finches are a classical example of an adaptive radiation. Their common ancestor arrived on the Galapagos about two million years ago. During the time that has passed the finches originally studied by Darwin have evolved into 15 recognized species differing in body size, beak shape, song and feeding behaviour. These changes in the size and form of the beak have enabled different species to utilize different food resources such as insects, seeds, nectar from cactus flowers as well as blood from iguanas, all driven by Darwin's theory of natural selection.

Use the prompts provided to investigate the purpose of beak adaptations for different species of bird, and consider the role that evolution and adaptation has played in the development of these avian tools and weapons.

What's on the Menu?

Find pictures to cut out or insert into a document using "Mark My Bird" of different kinds of birds.
https://www.markmybird.org/gallery

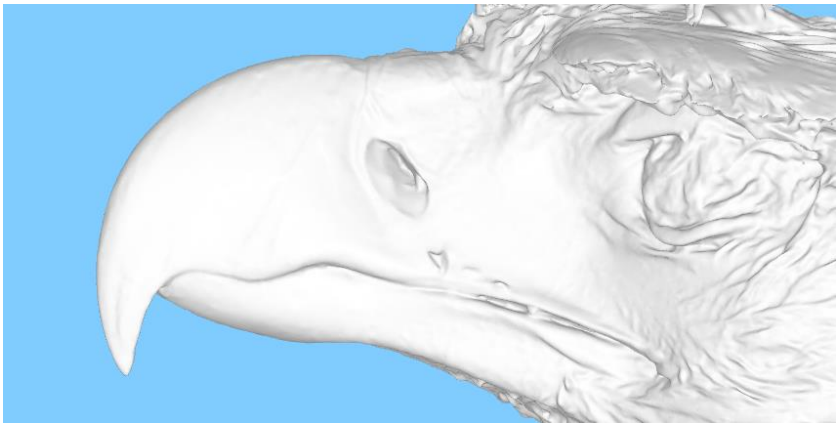
This website will make studying each of the bird's beaks in detail and from all angles easier. By looking at the shape, size, and any specialties you can see, you should be able to work out what each of the birds' diet consists of, and how they physically go about collecting and eating their differing diets.

Below is a short list of birds with highly specialised beaks to include in your investigation together with some examples of each species. To start with you will need to research the scientific name for each bird to help you use the website:

1. **Hummingbirds**: *Ruby-throated and Anna's*
2. **Herons and egrets**: *Great Blue Heron and Snowy Egret*
3. **Birds of prey (raptors)**: *Great Horned Owl, Bald Eagle, and Cooper's Hawk*
4. **Shorebirds**: *Spotted Sandpiper, American Woodcock, and Wilson's Snipe*
5. **Woodpeckers**: *Downy, Hairy, and Pileated*
6. **Seed eaters**: *Northern Cardinal, American Goldfinch, Song Sparrow, White-throated Sparrow, and Rose-breasted Grosbeak*
7. **Aerial insectivores**: *Tree and Barn Swallow, Common Nighthawk, Purple Martin, and Chimney Swift*
8. **Flamingos and some ducks (only certain ducks are filter feeders.)**: *Flamingo, Mallard, and Blue-winged Teal*
9. **Warblers and thrushes**: *Yellow Warbler, Common Yellow throat, American Robin, Wood Thrush, and Ovenbird*

Pick one from each group, or work through an entire group and see if there are any subtle differences in beak design. Make any notes and/or sketches of what you identify and consider how these benefits each bird in its survival.

Can you match the picture to the correct name and then complete the questions?

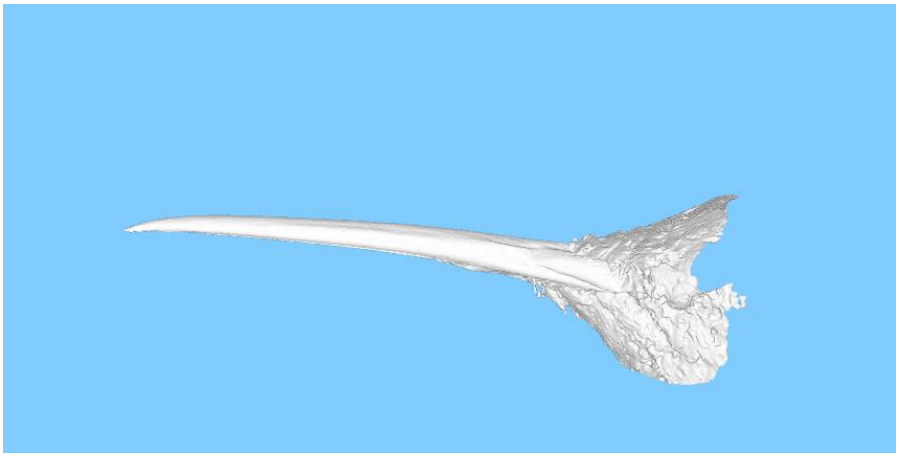


Harpy eagle (Harpia harpyja)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

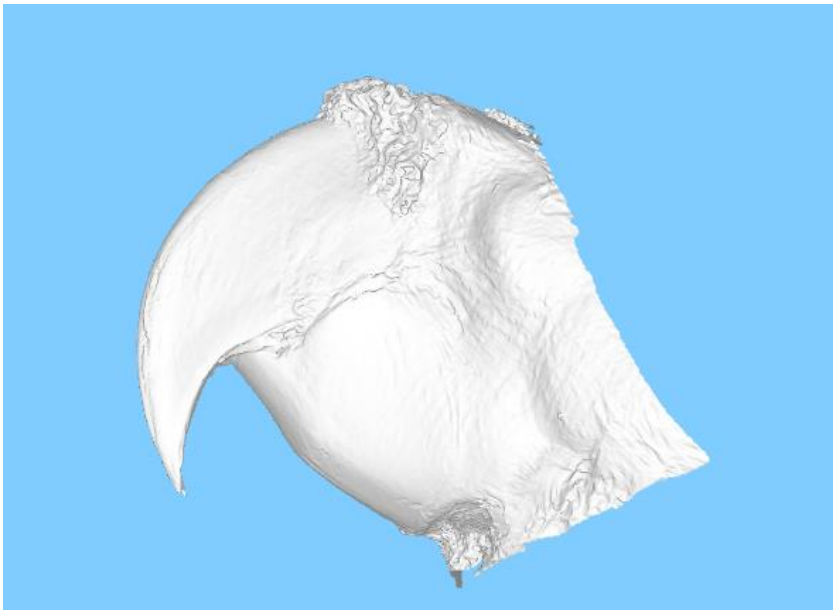


Green-and-white Hummingbird (Amazilia viridicauda)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

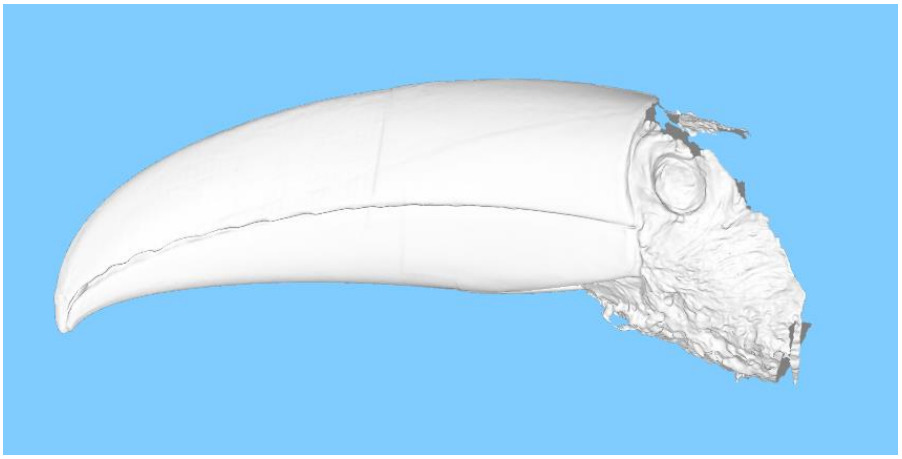


Scarlet Macaw (Ara macao)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

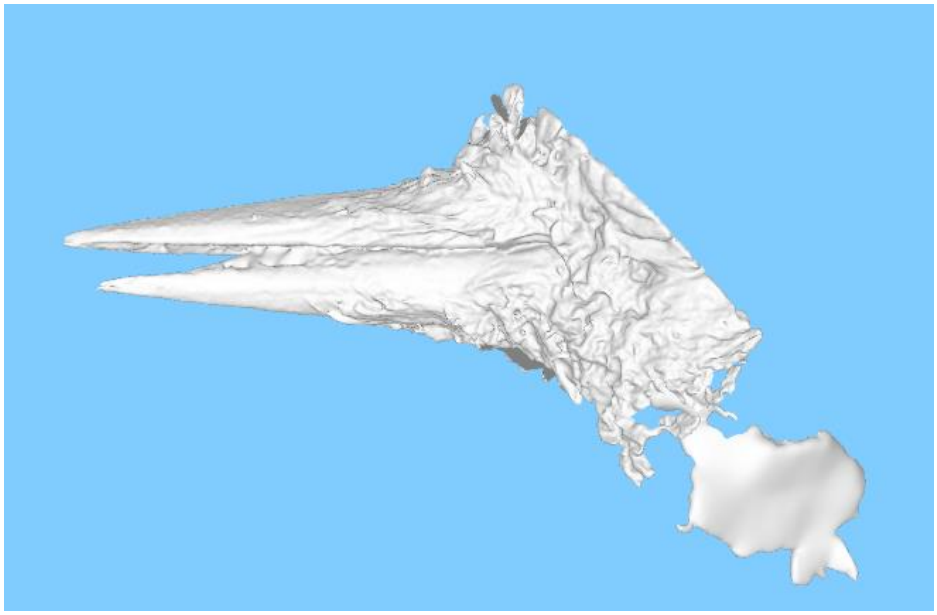


Chestnut-mandibled Toucan (<u>Ramphastos swainsonii)</u>

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

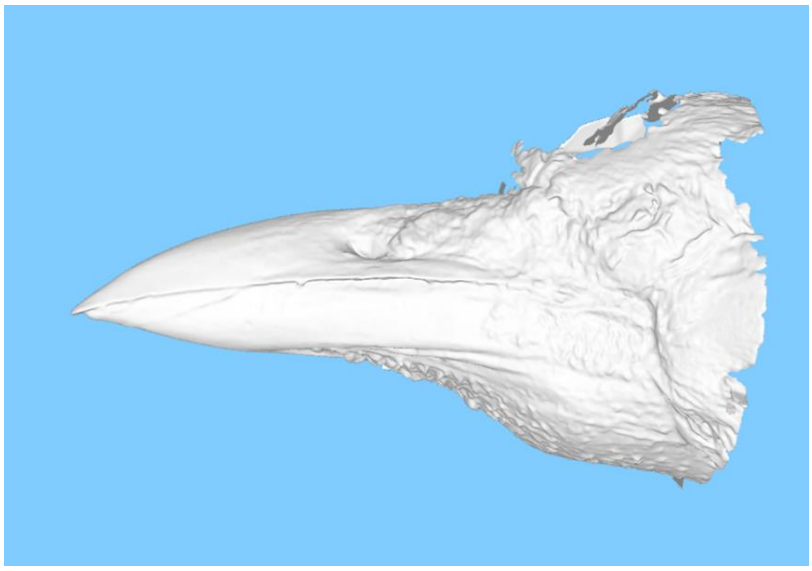


Nuttall's Woodpecker (Picoides nuttallii)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

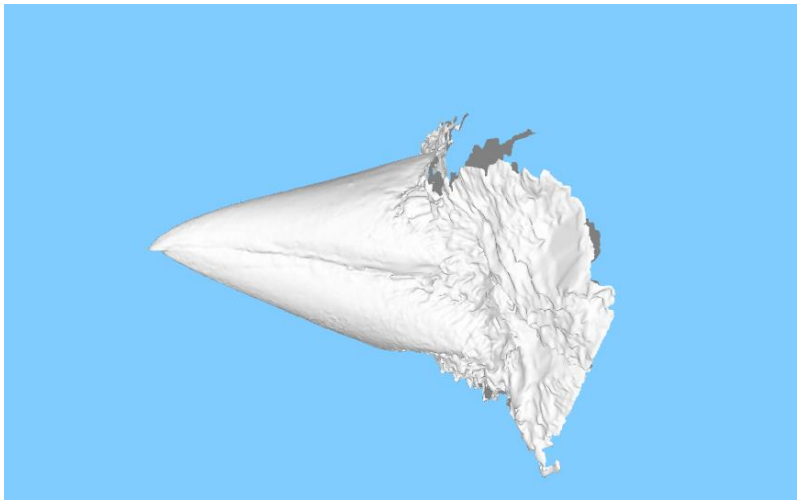


Rook (Corvus frugilegus)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

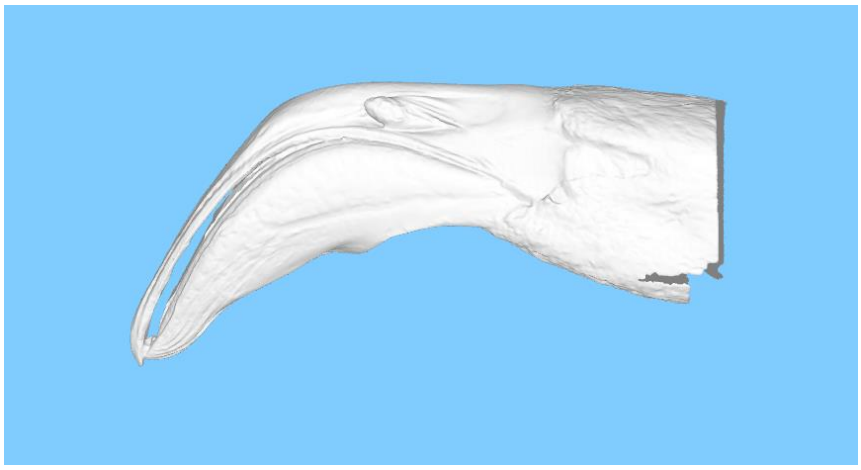


Common chaffinch (Fringilla coelebs)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

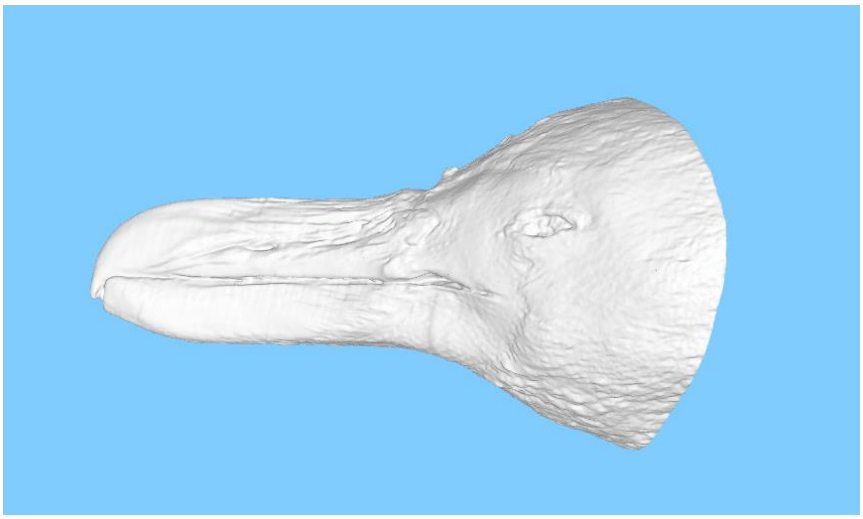


Greater flamingo (Phoenicopterus roseus)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?



Humboldt penguin (Spheniscus humboldti)

Where are they found?

What do they eat?

How to they hunt/ obtain their food source?

What's on the Menu? - Help Sheet

- **Hummingbirds**: *birds that have long, hollow beaks that protect the bird's tongue; they use their tongue to drink nectar*
- **Herons and egrets**: *birds that hunt for fish in shallow water have long, sharp beaks that they use to catch or spear fish*
- **Birds of prey (raptors)**: *birds that eat other animals have strong, sharp beaks to tear the meat into pieces small enough to swallow*
- **Shorebirds**: *birds with very long, thin beaks that they use to probe for food in the sand or mud*
- **Woodpeckers**: *birds that drill for food under bark have strong beaks which are sturdy and taper at the tip, forming a chisel for pecking holes in trees*
- **Seed eaters**: *birds that have short, strong, triangular-shaped bills that can crack open seeds* – Northern Cardinal, American Goldfinch, Song Sparrow, White-throated Sparrow, and Rose-breasted Grosbeak
- **Aerial insectivores**: *birds that feed while in flight, catching and eating airborne insects have beaks that are very short and flat; their mouths open very wide and act like nets to trap flying bugs*
- **Flamingos and some ducks (only certain ducks are filter feeders.)**: *birds that have beaks that act like strainers; they filter their food, plants, seeds, and small animals, from the water using the comb-like edge of their beak; water enters at the tip of the beak and exits out the sides*
- **Warblers and thrushes**: *birds with sharp, pointed beaks; used to pick insects from leaves, logs, and twigs*