

## Birds

Most obvious things that distinguishes birds from other animals are their

feather

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## Feathers

Modified scales developed from follicles in the skin

Birds molt and release their feathers, but not usually all at once

## Two Functions

Lift for flight

Conserve body heat

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Contour Feathers- cover the bird's body and give adult bird's shape

Flight feathers found on

wings and tail

Down Feathers cover young birds and are found beneath adult contour feathers.

Soft, fluffy, good insulation

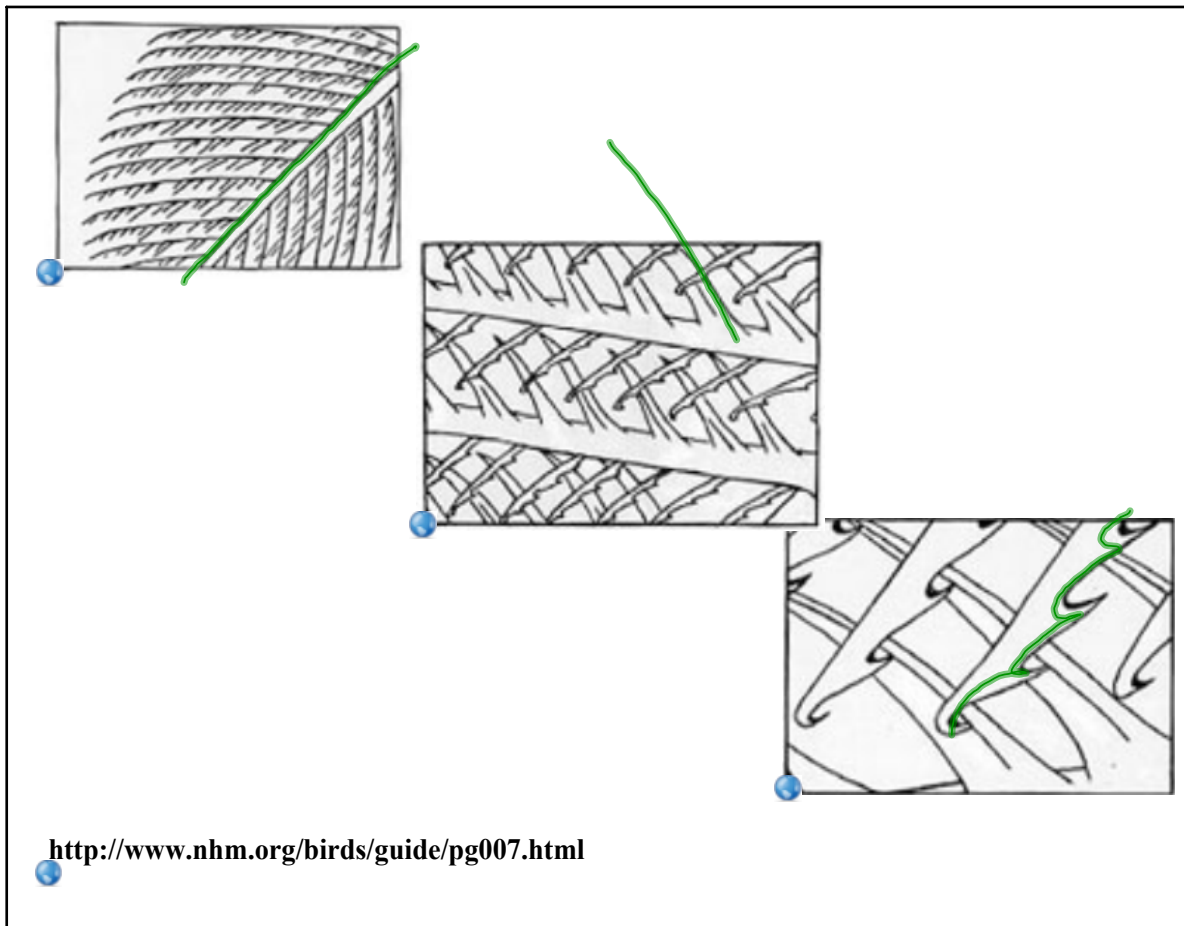
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Contour feather has branches called barbs

Each barb has barbules with hook

The hooks creates a continuous shape in the feather while keeping it flexible.

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Preening- bird pulls its feather through its beak re-hooking the hooks

Also spreads oil (from the preen gland) over its feathers.

The oil is for cleaning and water proofing.

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Feathers may also camouflage the animal and Selection of a mate

Strong lightweight skeleton

Bones are thin and hollow

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Endothermic Metabolism

They create heat through metabolism

Maintain a body temperature of 40 to 42 degrees Celsius (104 to 108 F)

The high temperature is due to the increased metabolism used for flight

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Completely divided ventricle

Four Chamber heart

Oxygen rich and oxygen poor blood are completely separate

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Highly efficient lungs

Lungs have a larger surface area than the lungs of amphibians

There is a limit to how much surface area can help of the lungs also need to be modified

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The air also passes over the surface in one direction

There are two advantages to one direction air flow

1. the lungs are exposed to fully oxygenated air
2. The flow of blood in the lungs runs in a opposite direction than the air flow

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## **Birds are adapted for Different Ways of Life**

Class - Aves

There are 28 order of birds, but 60% belong to the Passeriformes

There are 5,276 species in this order

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Birds are adapted by their beaks, legs,  
and feet

Carnivorous birds have talons and  
sharp beaks

Ducks have webbed feet and flat beaks  
for water

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Finches have a short, thick beak for  
crushing seeds and curling toes to cling  
to branches

Penguin wings and feet are modified for  
swimming

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