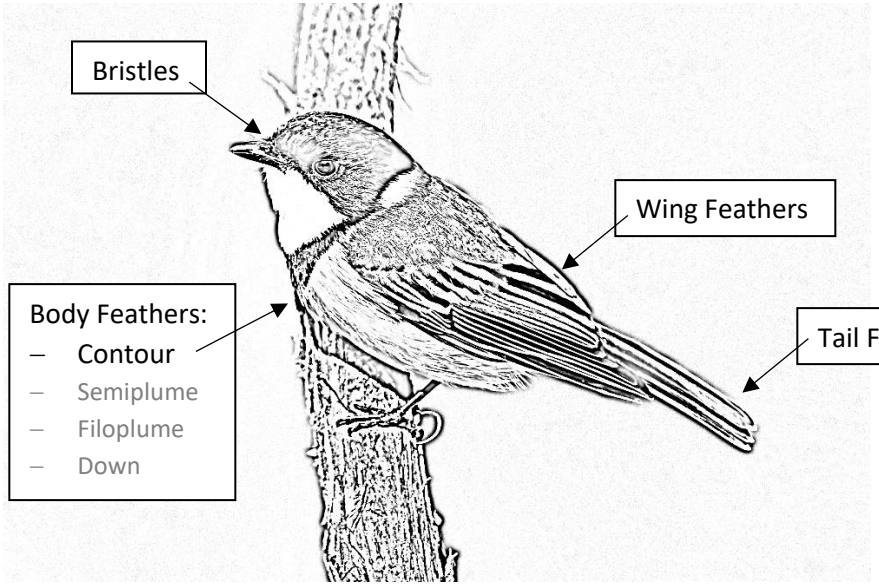
HBOC Feather Activity for Kids

Feather Types



Male Golden Whistler (Photo credit: Alwyn Simple)

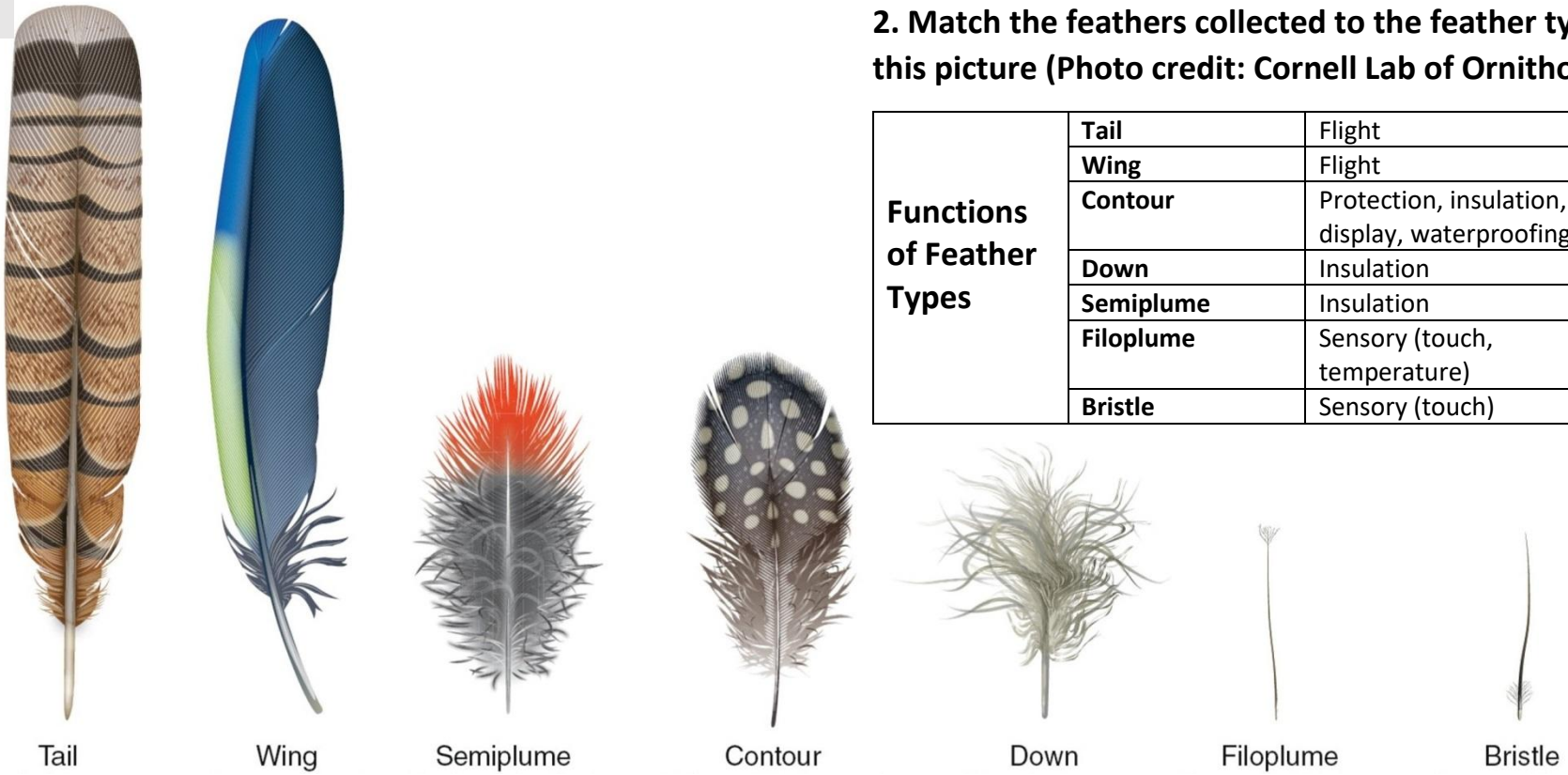




Female Golden Whistler (Photo credit: Rob Palazzi)



1. **Label the feather types on the outline of the female Golden Whistler**



2. Match the feathers collected to the feather types in this picture (Photo credit: Cornell Lab of Ornithology)

Functions of Feather Types	**Tail**	Flight
	Wing	Flight
	Contour	Protection, insulation, display, waterproofing
	Down	Insulation
	Semiplume	Insulation
	Filoplume	Sensory (touch, temperature)
	Bristle	Sensory (touch)

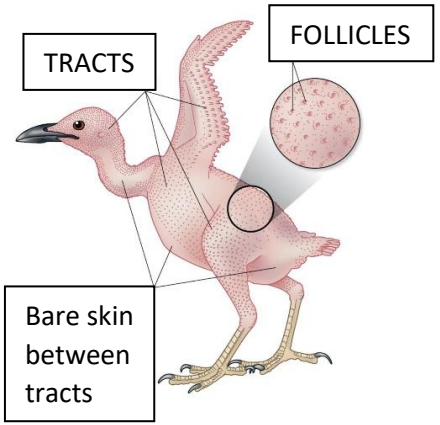
What are Feathers made of? (Photo credit: Cornell Lab of Ornithology)

Feathers like hair are made of: KERATIN.

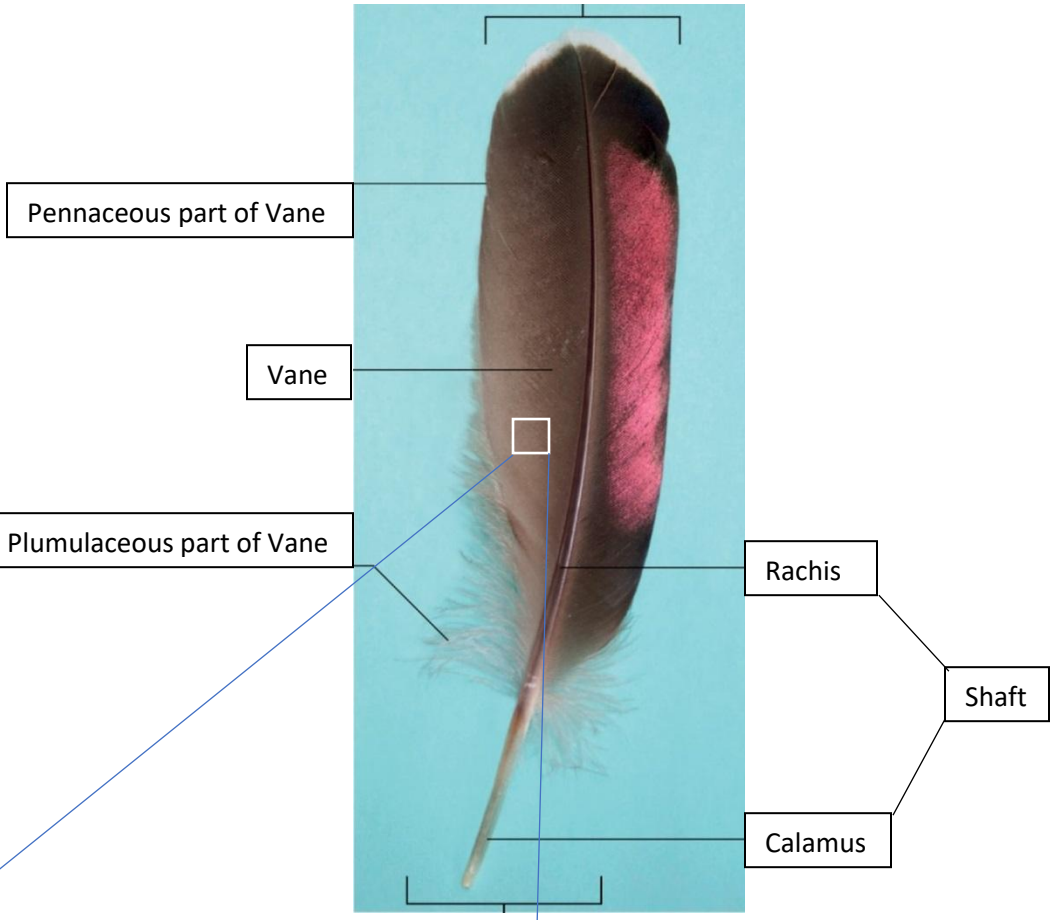
Wing, tail and contour feathers are made of hard keratin. Plumes and hair are made of soft keratin.

Feathers like hair grow from special FOLLICLES, but once a feather is fully formed it stops growing, unlike hair.

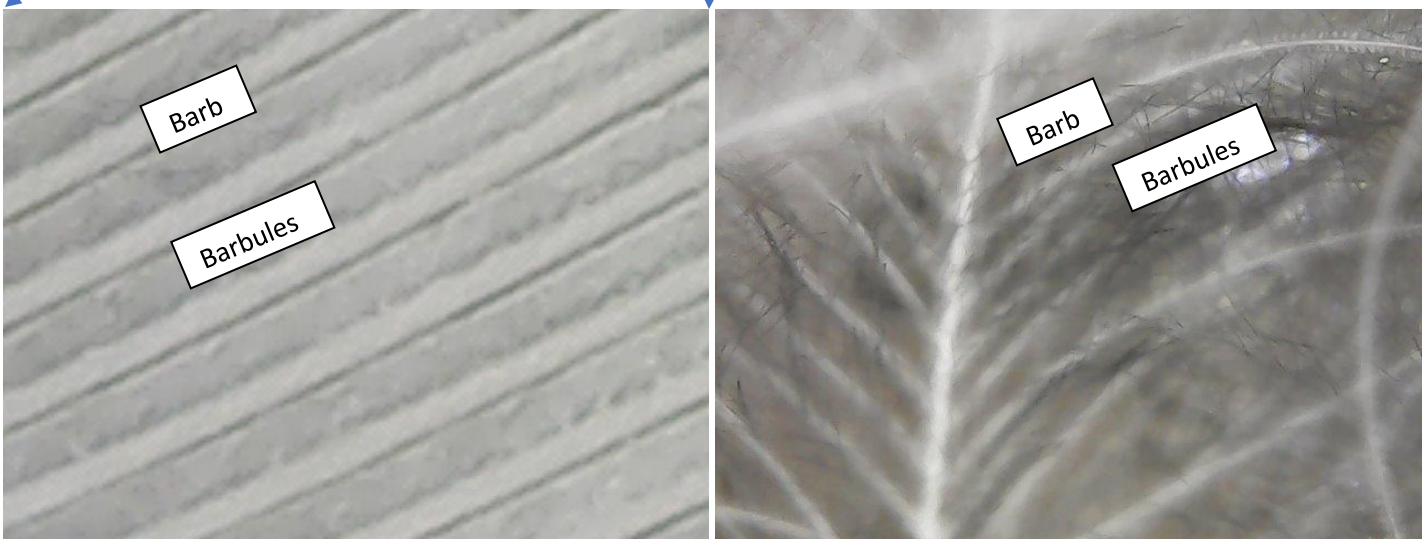
Feathers also grow in rows or TRACTS with bare skin between the tracts. (Cornell interactive game https://academy.allaboutbirds.org/features/all-about-feathers/#what-is-unique-to-birds.php)



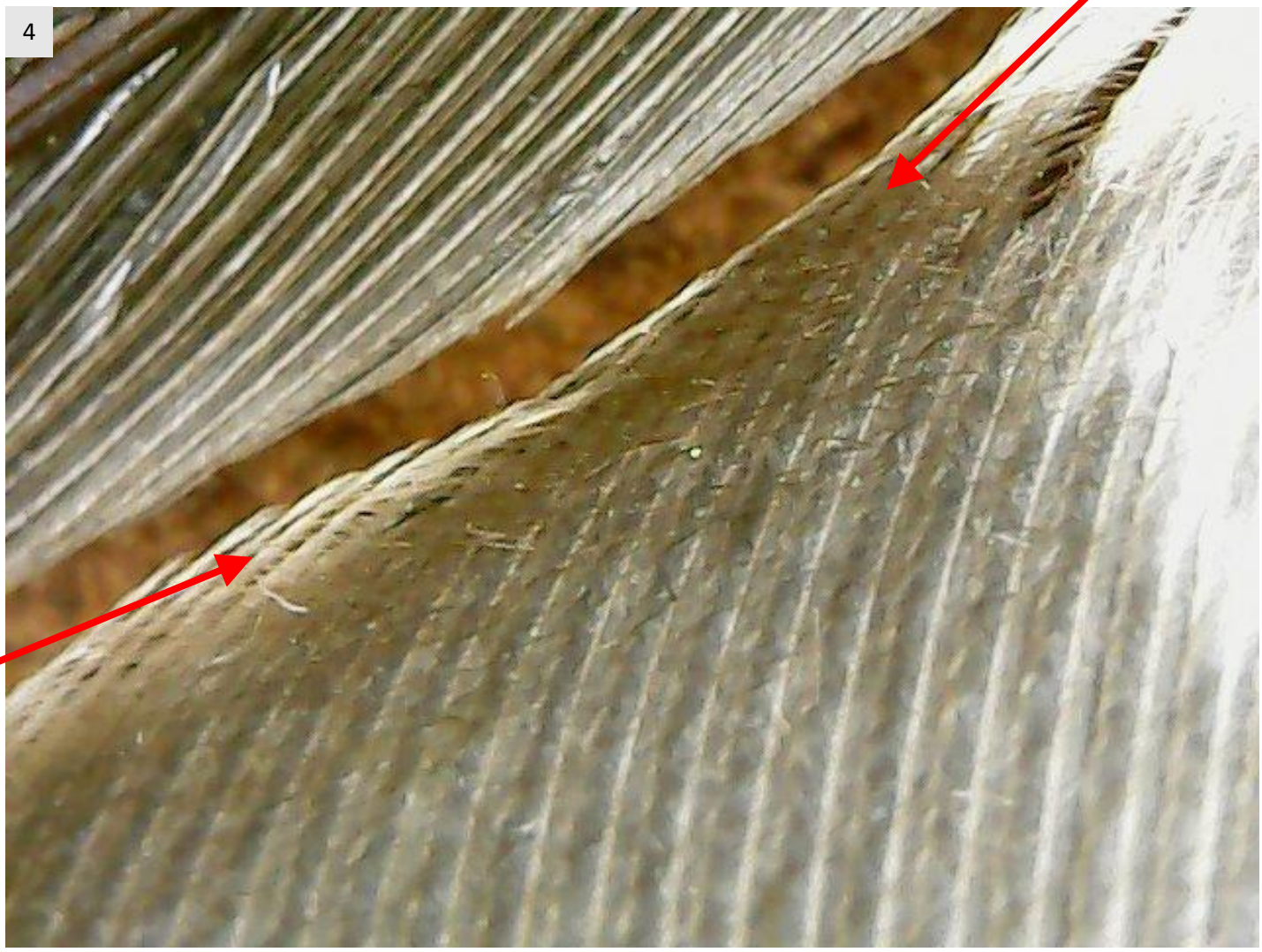
3. Look at the Feathers under a Microscope (Photo credit: Cornell Lab of Ornithology)



Microscopic Feather Detail



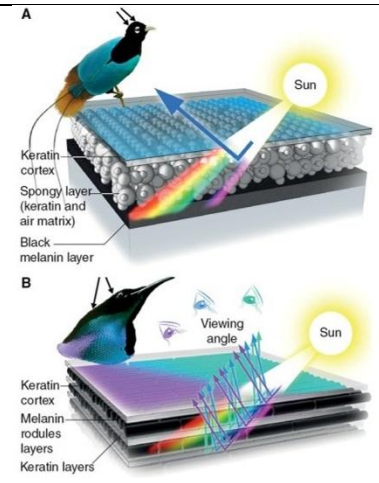
The vane of a wing or tail feather (left) is made up of parallel barbs which are joined by velcro-like barbules with hooks. In contrast the 'vane' of a semiplume (right) or down feather is made up of barbs that branch in different directions and the barbules also branch in different directions and do not have hooks.



The section of feather at the top is a Rainbow Lorikeet's wing feather and the feather at the bottom a Tawny Frogmouth's wing feather. A part of the leading edge of each feather is shown – that is, the edge that is at the front during flight. The frogmouth's wing feather has a soft 'comb' along it (follow the red arrows), which reduces the noise of the wing beating against the air so that the frogmouth can fly silently and surprise its prey. The lorikeet feather doesn't have this soft comb.

How Feathers show their Colours (Photo credit: Cornell Lab of Ornithology)

Black	Pigment – absorbs all light
Red	Pigment – absorbs all but red light, reflects red
Orange/Brown	Pigment – absorbs most light, reflects orange/brown
Yellow	Pigment – absorbs all but yellow light, reflects yellow
Green	Pigment & Reflection by microscopic structure (bottom right)
Blue	Reflection by microscopic structure (top right)
Purple	Pigment & Reflection by microscopic structure (bottom right)
White	Pigment – reflects all light



The air bubbles in the spongy layer inside the feather are a bit like 'bubble blow', which reflects sunlight as a rainbow.