

NATURE



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SUM OF THE PARTS

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5 x 50 min.
4K, 5.1 and Stereo



We are all more than the sum of our parts – yet without those parts we wouldn't exist! Eyes, nose, mouth. Hands, feet. Ears. Hair. Skin. In a light, informative but entertaining series, we look at these parts, how they work, how they differ between animals, and what they contribute to the way we live.

A few examples:

EYES

We know how the world looks by seeing with our eyes. But humans aren't the only ones to depend on the sense of sight, most animals also orient themselves using their eyes. Eyes are so common among animals, we forget that even some plants are sensitive to light. There are so many different types of eyes, organs of vision probably emerged independently of each other more than 40 times in evolution; the simplest, most primordial eyes could only distinguish between light and dark. But predators use their eyes to spot prey, while recognizing danger helps prey to escape in time – seeing means surviving. Yet how do frogs still recognize colors, even in the dark? How do compound eyes help dragonflies in the speed of the hunt? What special ability does a South American fish called „four-eyed blenny“ have? Why do some birds of prey see UV light, just like bees? And why are false eyes in fish and butterflies so common?

NOSE

Whether dog, horse, shrew or human, we all have a nose in the middle or front of the face. It can be ruffled, can sniff and twitch, and is one of the most important sensory organs. There are dry noses, moist noses, hairy noses and bare noses, but the nose has two purposes – it is used for breathing, and for sensing chemicals in the air that convey information from the environment. Probably the most complicated nose in the animal kingdom is that of the elephant, a long, muscular tube, which also serves as a tactile and gripping organ. Also very prominent is the nose of the proboscis monkey – it isn't any more sensitive than that of other monkeys, but it does impress the ladies with its large olfactory bulbs. And how does the star-nosed mole manage to smell even under water with its tentacle nose? The structure of mammalian noses differs from that of reptiles, fish and birds. The New Zealand kiwi is a master of sniffing out food hidden in the soil. When it comes to sensing molecules in water, the eel is even better than the great white shark. And turtles have a good nose – not only for smelling food but finding suitable breeding grounds.

EARS

Some ears are the most obvious feature of the head – others can't be seen at all! They have one simple purpose, to perceive tones and noises. Ears give another dimension to the senses, perceiving vibrations in air that we know as sound. This provides information when it's pitch dark, or where vision wouldn't help such as dense undergrowth or deep water. Sound gives a sense of direction and allows communicating over long distances. But why do hares have such large ears, and whales – although they can hear very well – no visible ears? And how do bats perceive the high-pitched echoes of their prey? Different creatures hear sounds at different frequencies – we can't hear the infrasound range, but pigeons can, and other animals that hear these low-pitched sounds can sense earthquakes, storms and volcanic eruptions. Other ears have additional purposes from detecting sound, in dogs they are mood indicators and means of communication, while elephants and fennec foxes use them as air conditioners. And then the grasshopper has no ears on its head, but still hears excellently... with its knee.

FEET

Feet carry us through the world – human or animal. But not all feet are the same; two legs, four legs, eight legs, lots of legs – however how many feet an animal has, they allow it to move from one place to another. Did you know that horses only walk on their middle toes? Or that owls can change the arrangement of their toes? Gecko feet still leave scientists puzzled over how they seem to be able to stick to any surface the gecko likes. Some primates stand on their hind feet which frees up their hands – to manipulate and control the world around them. What do animal feet reveal about their wearer? And why do feet look the way they do?

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HAIR

Every mammal is covered in hair, some very sparsely, others with dense, fluffy fur – but even the naked mole is not completely naked. Hair is made of keratin, the substance that also forms nails, claws, and feathers. There are various types of hair, from soft undercoat to dense top hair, sensitive tactile hairs, and rough bristles. Different types of hair fulfill different purposes. Some is crucial for heat regulation, some for camouflage; some protects against sunlight and rain, some carries body odor into the world and yet other types keep annoying insects

away from the body. Some animals emphasize their aggression by making their hair stand on end. But why does the sloth's hair grow in a different direction than in other mammals – and what are moths doing in it? Why – and how! – do snow hares and ermines change their coat color during the year? Why did hedgehogs and pangolin develop spines and scales instead of hair? Hair is much more complicated than it seems!

Produced by Terra Mater Studios

