

WHY HAVE ANIMALS EVOLVED A SENSE OF BEAUTY

(1) Evolution is supposed to be a ruthless process that forces animals to survive at all costs, so why did an appreciation for beauty evolve? Peacock spiders, for example, have beautiful rainbow-coloured abdomens, which they show off by performing a dance. They go to all this trouble to win the approval of a female. These preferences may seem arbitrary. It's hard to see how it would benefit a female peacock spider to choose a colourful male who can dance. But in fact these preferences may have had a profound effect on the course of evolution.

(2) The idea that animals have "beautiful" traits to attract mates was first put forward by Darwin. He proposed that one sex, often males, competes for the attention of the other. Darwin called this "sexual selection". This competition is not to the death. Instead the unsuccessful suitor ends up with fewer offspring.

(3) Mate choice is crucial to the theory. The sex that's being courted will prefer a mate with the most desirable traits. This is quite different to natural selection, otherwise known as survival of the fittest. Animals with poor-quality genes, for instance genes that make them more prone to disease, tend to die young, so only the best genes are passed on to future generations. Sexual selection and natural selection push animals to evolve in different ways, in a sort of tug-of-war. In particular, Darwin set out many examples of extreme and beautiful traits that evolved by sexual selection: the beautiful plumes of birds of paradise, the large antlers of stags, the striking colours of some insects, and birdsong. These traits can be detrimental at times. For example, a long colourful plume may attract more predators. But the ability to attract the best possible mate and produce lots of healthy offspring will more than compensate.

(4) The idea that animals have some sense of beauty did not fit with Victorian society's hierarchical attitudes. People thought that the higher classes were superior to all other living things. More problematically, Darwin had not explained how mating preferences arose in the first place. The key idea was presented in the 1970s, by the biologist Robert Trivers. He realised it was all about how much effort animals put into parenting. If one parent has to put a lot of time and effort into rearing their young, they are likely to be much fussier about picking the right partner, compared to parents whose offspring need little attention. This investment "governs the operation of sexual selection", according to Trivers.

EASY

1. List all the words in the first sentence of Paragraph 1 which have a stressed back monophthong. Transcribe phonemically three of them.
2. List all non-finite verb forms in Paragraph 3 and classify them into groups, paying attention to possible variation.
3. Identify and indicate the type of each morpheme in the morphological structure of *birdsong* (par. 3), *parenting* (par. 4) and *fussier* (par. 4).

MEDIUM

1. Demonstrate the different types of grammatical cohesive chains in Paragraph 2. What is the basis for their classification?
2. Point out the differences between the types of modal meanings expressed by the verb *can* in ... *a colourful male who can dance* (par. 1) and *These traits can be detrimental at times* (par. 4).
3. Distinguish the syntactic functions performed by *much* in Paragraph 4 in connection with its position and function in the respective overarching phrases.

CHALLENGING

1. Identify and describe the verb phrases marked for the Perfect in paragraphs 1 and 4. Explain the use of the Perfect phrases, taking into account the role of context clues. Give your own examples of two more known uses (meanings) of the English Present Perfect in other contexts and compare them to the use of their respective non-perfect forms.
2. Transcribe intonationally the last two sentences in paragraph 3. Explain your tonality, tonicity and tone choices.
3. Comment in detail on the nature and structure of the underlined sentence in paragraph 4 in the context of all other types of sentences with similar form, giving examples of your own. Then contrast it with sentences containing concessive clauses.