

## Genius Of Nature

1 x 90' / 3 x 60'

### EPISODIC BREAKDOWN

#### 1. Sensing

We, as humans, have fairly advanced senses, but there is a great deal we can learn, copy and develop from nature. This programme looks at how we can draw on millions of years of evolution to enhance our own technology and methods of sensing the world around us. Some of the animal kingdom's great 'sensors' include the common seal, whose whiskers can detect water turbulence over 30 seconds after it was generated; African elephants who are able to 'hear' sounds through their feet from potentially over 2 kilometres away and bats, whose ability to echolocate, has led to the new design of a walking cane for the blind, and even a bike that can be ridden by a blind cyclist!

#### 2. Extremes

We have taken cues from nature's most extreme examples to help ourselves in as many applications as possible. Huskies survive in the coldest places on earth and so are covered in thick fur, but can also avoid overheating in warmer climates. Based on their cooling methods scientists have developed the 'Bear glove' to help stop humans from overheating. Copying a giraffe's ability to regulate the blood pressure in its head, Swiss scientists have developed a suit for fighter pilots to wear, allowing them to stay conscious when experiencing more than 9G. And crash helmets are now being improved by copying the way woodpeckers protect their brains when they undergo 1200G, hammering their head against a tree. We have learnt from some of nature's most extreme evolutionary adaptations to make our lives just that little bit easier and safer.

#### 3. Arms Race

Evolution is a race. A survival of the fittest. And because of this, nature has come up with some incredible answers to our planet's difficult questions. Animals' exoskeletons, which make them strong, protected from predators and mobile, now provide inspiration for scientists hoping to aid disabled people to walk. The cuttlefish's ability to camouflage itself in almost any marine environment has led to the development of specialist camouflage technology for the military. And even an owl's wing is now being used to make our world a tiny bit quieter. Fan companies are studying their ability to fly silently and copy this for their product's fan blades. The race to be stronger, better, quieter, faster has given us answers from nature that we can copy to advance ourselves.