Present Day Fact File

Hummingbirds
These brightly-coloured birds are a good example of the co-evolution of plants with the animals that pollinate them. Hummingbirds feed almost exclusively on the nectar of flowers (although they also eat tree sap, pollen and insects for a more varied diet!) and each one will vigorously defend a small patch of territory where their favoured flowering plants grow.

Bribery!
Plants began bribing insects to visit their flowers with a small drink of nectar – a solution of sugar produced by nectaries at the base of the petals. Possibly while chasing the insects, some birds discovered that the nectar was actually a better source of energy than insects, and started to cut out the middle-man (or insect) by drinking directly from the flowers. Over time, they made a number of adaptations to this new lifestyle, and some plants made changes to their flowers to encourage the birds to visit them.

Extreme adaptations
Like all birds, hummingbirds have very delicate skeletons, with lots of air-filled hollows in their bones. However, they have taken it a bit further by reducing their size to the point where they are some of the smallest birds in the world; they range from about 5cm long to a maximum of 25cms, and weigh between 1.5grams and 20grams. Their nests are tiny cups made from lichen, moss and even spider webs – the largest is about the size of a tea cup.

Another adaptation they have made is that their wings beat at an incredible rate, often between 50 and 120 times a minute. This is so fast that even with fast film it is almost impossible to get a clear picture of a hummingbird's wings in flight. This wing speed gives them an amazing ability to hover, fly backwards – and even upside-down – in order to get at any flower they choose. The downside is that they burn a huge amount of energy to power their wing muscles, and need to eat at least once every ten minutes. In fact, their heartbeat can go as high as 1200 beats a minute, something that would kill a human. To save energy, hummingbirds can 'hibernate' during cold nights by dropping their temperature and heartbeat to very low levels; when the sun comes up, the warmth helps to bring them back to a normal temperature and wake them up.

Payback and pollination
All hummingbirds have a long thin beak that reaches the base of even the longest flower. Their tongue is also long and thin, with little brushes or grooves at the end to help soak up as much nectar as possible. They flowers they feed on have, over time, developed long 'trumpet' flowers to stop anything other than a hummingbird from drinking their nectar. As the bird hovers in front of the flower to drink, the anthers touch the top of the bird's head or its chest, leaving a smear of pollen on the feathers. The bird then flies off to another flower, taking the pollen with it and hopefully transferring it to another flower.