



## Lucky Ladybirds:



**Grateful Gardeners!** Ladybirds eat aphids, which are tiny little insects which eat and damage other plants. In just a year a ladybird can eat 5000 aphids!

There are 46 types of ladybird in Britain and about 5000 species in the world. They don't mind too much where they live and can be found in grasslands, forests, along rivers and in cities.

Ladybirds have 2 sets of wings. The hard coloured wings, the ones that we see when they are still, are for balance and protection but underneath at the back are a delicate set of wings which they use to fly. Their wings beat around 85 times per second!

Ladybirds can fly at speeds of 37mph and at a height of 3,600ft. They can fly for 74 miles without stopping and stay in the air for 2 hours.

Their bright colours help to scare off things that might eat them and they can also produce a horrible yellow gunge from their legs to remind other creatures that they taste horrible!

The way in which ladybirds fold up and unfold their wings is so quick and clever that researchers in the robotics industry have been studying them. They might hold the key to creating solar panels that can be launched into space in a small size but unfold to a larger size without damage when needed.



## Dramatic Dragonflies:

**Amazing Acrobatics:** Dragonflies are fantastic at flight. Not only can they can fly straight up and down they can also hover like helicopters.

There are around 30 species in the United Kingdom and 7000 around the world. They are most likely to be spotted near water. They fly at around 30 miles per hour.

Dragonflies were among the first winged insects to exist around 300 million years ago. From looking at fossils it's been found that these ancient dragonflies were much bigger with wingspans of up to 2 feet rather than the 2 to 5 inch spans of modern day species. It is thought by scientists that the high oxygen levels in that era caused them to grow to such a large size.





They have four wings and can move them all independently. They are so skilled that they can change direction in an instance and even fly upside down. Dragonflies can only eat insects while flying so if they didn't fly as well as they do they would starve to death. They have amazing eyesight and catch insects using their feet. A single dragonfly can eat 100s of mosquitoes a day.

Scientists have been observing dragonflies for years and are trying to replicate the way they fly in the design of new drones. One they are working on is called a Skeeter and has four flapping wings just like a dragonfly. The military may be able to use this to carry communication technology and cameras into the skies.

The Army Flying Museum already has a helicopter named a Skeeter on display. You may have seen it in the first Hanger. Sadly it doesn't have flapping wings like its namesake



### Brilliant Butterflies :

**Sensational Scales:** Their wings are covered with tiny scales and its these that give them their beautiful colours and help them soak up any warmth.

There are 56 species of butterfly in Britain and Ireland and around 18,000 in the world.

They have been around for at least 50 million years. They are slower than ladybirds and dragonflies, flying at speeds of 12 miles per hour. To get the energy to fly butterflies feed off nectar in flowers.

Their wings are made of an extremely thin and transparent material called chitin, stretched over a structure of veins. Strong wind and rain can damage butterflies and they are also very reactive to temperature change. For example if they get cold they can't move their wings. This is why we often see them sitting still with their wings open in the sunshine, to absorb the extra warmth needed to keep them moving. Butterflies also normally fly in short bursts as cooler air can affect them even in flight.

They have bright colours to attract mates and also to scare off predators. Their underwings tend to be darker, duller colours to help them camouflage themselves if they need to. A butterfly is much easier to spot if they have their wings open than closed. Technology companies have looked at the way butterflies have developed their fantastic colours to improve the displays of e-readers.

