difference between an ape and a gold-fish seem almost inconsequential.

Arthropoda (Phylum)
The name Arthropoda means jointed-legs. The 'skin' is made of tough material, in effect a surface skeleton (unlike a vertebrate which has its skeleton on the inside.

Apart from insects (with 6 legs), this huge phylum includes centipedes, millipedes, spiders, woodlice, shrimps, crabs and many others. In Britain there are about 30,000 species, including marine fauna.

Insecta (a Class of Phylum Arthropoda)

- They have 6 legs.
- Adults of most species have wings, but some do not.
- The life cycle is basically of two types.

- The more primitive insects have an egg that hatches into a larva, which looks like a mini-adult. After molting its skin a number of times as the larva increases in size (and wing 'buds' develop if that is normal for a species), the adult stage is reached. Dragonflies and grasshoppers are examples.

- In more advanced insects, the egg hatches into a larva, which looks very different from the adult, such as a maggot or caterpillar. After molting the skin several times, when full grown the larva turns into a pupa (chrysalis) enabling the body to completely re-organise itself before emerging as an adult.

- In Britain there are about 27,000 species.

buglife.org.uk 01733 201210 @buzz_dont_tweet

Classification: The basics

Life on Earth is incredibly varied. To make sense of it all, we recognise that some species have shared features, whilst others are very different. So we give names, such as 'animal' or 'plant', and if an animal, we want to know for instance whether it is an insect or bird. There are many types of insect, such as beetles or bees, and there are groups of species within beetles. This structured approach is called **classification**.

How to classify invertebrates
With over 40,000 invertebrates to distinguish between in the UK alone, including many which can only be identified beneath a microscope - a comprehensive taxonomic system is needed to make sense of it all. The main elements are as follows:

KINGDOM (the top level: animals, plants, fungi, 3 kingdoms of bacteria and viruses)

PHYLUM (plural = Phyla)

- **Vertebrates** (with a backbone) = only part of a Phylum (Chordata – with a notochord rod along the back) = a very fundamental body type (with many distinctive features apart from the backbone).
- **Invertebrates** (without a backbone) = lots of different Phyla (34, apart from half the Chordata), each is very fundamentally different from the other.

Class
Mammals, birds, reptiles, amphibians and fish are each a Class.

Arthropoda (joint-limbed) is a Class, the largest of all (insects + spiders + crabs + centipedes etc).

Mollusca is a Class (snails, slugs, clams, octopus etc.)

Order
The main groups of insects are Orders, and there are over 20 of them in the British fauna:- Odonata (dragonflies), Coleoptera (beetles) and Lepidoptera (butterflies and moths) are examples.

Family
This is a much more familiar relationship word. Whether big or small, a 'family' has a lot in common.

Within butterflies, the blues (Lycaenidae) and the whites (Pieridae) are examples of families; within beetles the ground beetles (Carabidae) and long-horns (Cerambycidae).

Genus
In an extended human family, relationships might group around surnames. Hence all British bumblebees carry the surname Bombus, or more correctly the generic name *Bombus* (using italics).

Species
We all have some words we use to define a species, whether peacock (bird) or peacock (butterfly). It is part of our English language. All species have a worldwide scientific name, based on a common language, but it just happens that language is Latin, supplemented by Greek, a tradition started by cultured men several centuries ago.

Scientific Name
Species are defined by two words, in italics, with 'surname' first. Instead of Fred Smith, the name becomes Smith fred or in pidgin Latin, *Smithus fredi* . Scientific names are written in italics with a capital for the first word and a small letter at the start of the second word.

The Invertebrates span 3 Kingdoms:

Protozoa
Very primitive animals, each individual of one cell. There are 4 classes and 24 orders. Britain probably has well over 10,000 species. As yet it is not practical to advance a detailed conservation strategy for these mainly microscopic creatures.

Parazoa
Sponges, in only a single Phylum, Porifera. Multi-celled animals, with limited differentiation within a colonial structure. The British fauna has about 345 marine species, plus a few freshwater ones.

Metazoa
Multi-celled animals, with groups of cells having specialised functions in the body as a whole. This covers microscopic rotifers to easily seen crabs. This is the major group of Invertebrates, with 19 Phyla (or 18 and a half allowing for part of the Chordata), of which 9 have no major divisions but the remaining Phyla have between them about 49 classes. In Britain the land and freshwater species total about 38,000 species, and another c.7,500 live in the surrounding seas. The world fauna estimates are in the guesstimate range of 20-80 million species.

So Invertebrates, consist of a mind-blowing variety of life forms, which leaves the