

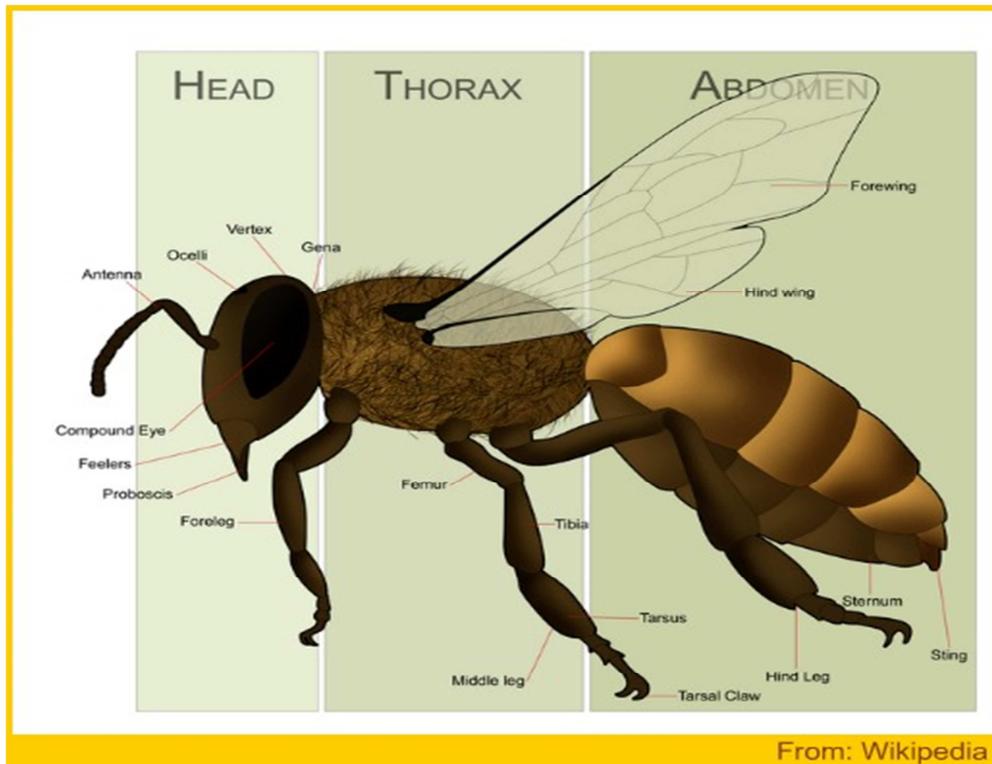
Bees

Worksheet Teacher's notes

1. "If the bee disappeared off the surface of the globe, then man would have only four years of life left." Albert Einstein

No more bees, no more pollination, no more plants, no more animals, no more man + students' own answers

2. Go to <http://www.buzzaboutbees.net/honey-bee-anatomy.html> and complete the bee morphology:



Complete the chart with the information

BODY PART	FUNCTION, INTERESTING FACTS
Proboscis	This is a long tongue which the bees use to suck nectar from flowers into the mouth.
Eyes	<p>Honey bees have 5 eyes:</p> <p>2 compound eyes: these are made up of many hexagonal facets, meaning that they can simultaneously see all around them (above, below, side to side, in front). Like humans, bees are trichromatic, but whereas humans base their vision on red, blue and green, bees base their colour vision on blue, green and UV. This means that some colour combinations visible to bees, are not visible to humans. However, bees cannot see red, however, they do visit red flowers because they can see the UV patterns within the petals.</p> <p>3 simple eyes (or <i>ocelli</i>: the ocelli are 3 eyes positioned on top of the head. These eyes are sensitive to light, and aid the bee in its orientation.</p>
Antennae	Antennae are vitally important in all insects, and thus have to be kept clean through hygienic behaviours – you may have observed bees using their legs to groom themselves, including their antennae. Antennae are vital for touch and smell. They are used for communication within a honey bee colony, for locating food, for sensing predators, and even aid flight.
The sting	The abdomen contains the <i>honey stomach</i> . The honey stomach enables the bee to carry about 75 mg of nectar from a flower back to the nest or hive.

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Honey stomach	The sting is a modified ovipositor (egg laying organ). Only females are able to sting, and do so only when they feel threat of attack. The sting is barbed and is intended for stinging predators such as other insects, however, it is not adapted for stinging humans! Thus to sting a human means death for the bee, since the barbed feature results in the sting becoming lodged in the skin, tearing the abdomen of the bee as it attempts to pull away. Bumblebee stings are smooth.
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3. Honey bees are social insects, which means that they live together in large, well-organized family groups. Go to
<https://agdev.anr.udel.edu/maarec/honey-bee-biology/the-colony-and-its-organization/>
<http://www.biology-resources.com/bee-01.html>
 read about the bee colony and complete the chart:

Name	Function	Interesting facts
The queen	Egg laying	<p>A queen bee may live from two to five years.</p> <p>All the members of the colony, whether drones or workers, are her offspring.</p> <p>She spends all her time laying eggs, perhaps up to 1500 a day, each one being placed in a wax cell made by the workers.</p> <p>The queen can feed herself but in the hive the nearest workers turn towards her, lick her body and feed her by regurgitating a special secretion of their salivary glands, called "royal jelly", on to their probosces from which the queen can absorb it.</p> <p>The queen usually mates only once in her life and stores the sperms received from the drone in a sperm sac in her abdomen.</p>
A drone	Their function is to fertilize a new queen.	the drones live for about four to five weeks and do not work inside the hive, are fed by the workers or help themselves from the store of pollen and nectar in the combs In the autumn, or when conditions are poor, they are turned out of the hive where, unable to find food for themselves, they soon die.
A worker bee	Among many other tasks they collect food from outside the hive and store it, make the wax cells and feed the developing larvae.	The workers are female bees whose reproductive organs do not function.