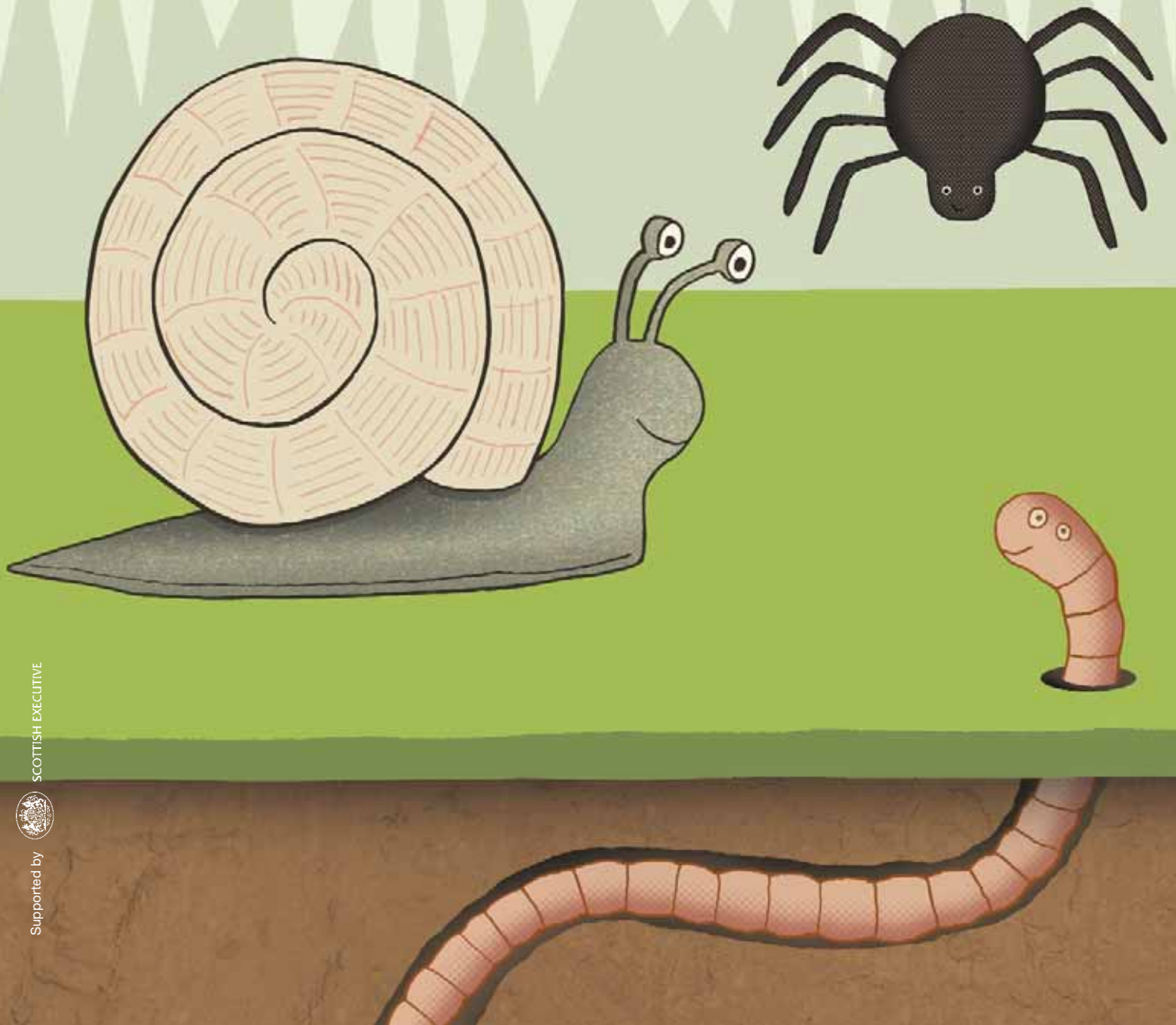


A seven part series exploring the fantastic world of science.

WHAT ARE MINIBEASTS?



What is an invertebrate?

Learn how to identify an invertebrate.

Animals can be divided into two large groups, vertebrates and invertebrates. The main difference between these two groups is that vertebrates have a backbone, whereas invertebrates do not. Invertebrates are also known as minibeasts. There are thousands of different types of invertebrates. So, scientists sort them into different groups based on their characteristics. This is called classification.



Did you know?

For every human on the planet there are 200 million invertebrates.

Behaviour of invertebrates.

Find out about minibeast communities and societies.

Due to the fact that invertebrates are really small they can inhabit the tiniest of spaces, which aren't utilised by other animals or accessible to larger predators. Being so small also means that large numbers of one species can live together.



Wasp Bike



Ant Hill



Communication between the colony

Ants communicate using their sense of smell. If an ant is attacked or a predator is close-by they produce a nasty, horrible smell to warn other ants. When a worker finds food they leave a trail of scent for other ants to follow.

Nests

To ensure the growth of their colony, insects build protective shelters. For instance, bees construct hives, wasps build bikes and ants live in hills. Hundreds of thousands of these creatures can live together in their shelters.



Queen Ant

Social organisation

Insects often live in large groups or colonies where different individuals have different roles. For example, an ant colony is ruled by a Queen and protected by soldiers. The majority of the ants in the colony are female workers. The role of the worker is to find food, look after the Queen's eggs and keep the nest clean and tidy. The soldiers that protect the nest have large jaws, to bite potential attackers.

The Queen lives for 14 years, but only mates once in this time. During the mating period both male and female ants are winged and mating takes place mid-air. The males die after mating.



Honey Bee Dances

When a forager honey bee returns to the hive they are able to describe the location, quality and quantity of a food source to other bees in the hive. They communicate this information through dance and sound. A 'waggle' dance is performed to communicate the direction and distance to the food source from the hive.

Did you know?

Ants account for 10% of the entire animal biomass on Earth.



Survival of invertebrates.

Discover the tricks invertebrates use to stay alive.



Defence

Insects have an arsenal of weapons to protect themselves from predators. Some insects use their sharp jaws to nip those that dare to attack them. Or in the case of the rhinoceros beetle, they look as if they have a nasty bite, when in fact they don't! Insects, such as wasps and bees, have a sting.



Exoskeleton

Most insects have a hard outer shell called an exoskeleton. The outer layer of this beetle is like a suit of armour and helps to protect the insect.



Mimicry

Other insects use mimicry as their defence. This moth has a pattern on its wings that resembles the eyes of a larger, dangerous animal as a warning to predators. Some insects mimic other more dangerous animals to protect themselves. A hover fly pretends to be a wasp, which has a dangerous sting, to scare predators away.



Warning colours

The ladybird's bright colours are to warn predators of its foul taste.

Camouflage

This katydid mimics a leaf and spends its day hiding amongst dead leaves on the forest floor. The katydid even has a pattern of veins that resembles a leaf and legs that look like twigs. When the katydid is disturbed it falls to the floor on its side amongst the dead leaves, making it very difficult for predators to spot it as it is well camouflaged.



Flight

The ability to fly allows insects for example dragonflies to escape from predators. Having wings also makes it easy to relocate.

Tropical invertebrates.

Learn about the types of minibeast you would find in the rainforest.

Invertebrates are the most abundant animals in the rainforest. Invertebrates play an important role in their habitat. They help to distribute pollen between plants and flowers. They also help to breakdown leaves and plants when they die. Invertebrates are a readily available food source for birds, reptiles and animals living in the rainforest.

Below are just some examples of the minibeasts you could find in the rainforest.



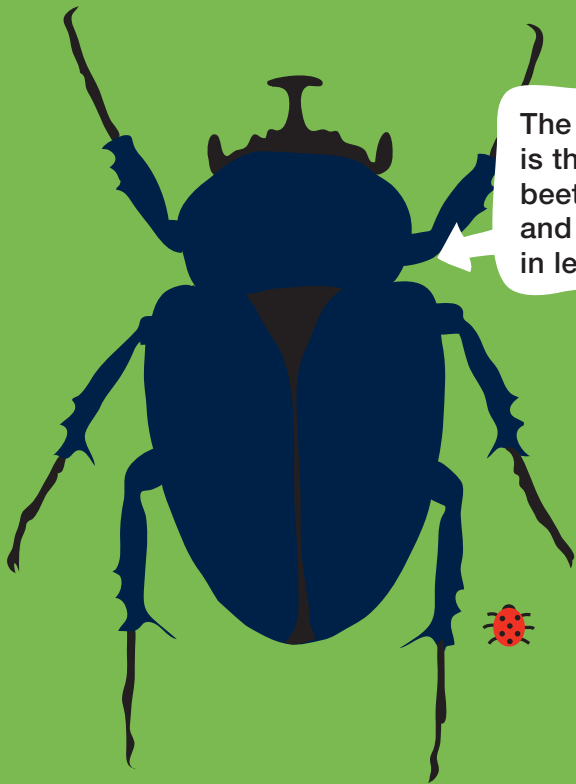
Thorn bug

One of the most unusually shaped insects is the Thorn bug. The Thorn bug looks so similar to the actual thorns on the stem of a plant that it is very difficult for predators to find it.



Saddleback caterpillar

The saddleback caterpillar has stinging hairs and is brightly coloured to deter any animal that might try to eat it. It is difficult for a predator to attack, as it is hard to tell which end the caterpillar's head is at (it's the end without the extra "eye" spot).



The heaviest insect is the African Goliath beetle weighing 100g and measuring 15cm in length.



Praying Mantis

The praying mantis gets its name from the 'prayer-like' position it stands in. The praying mantis has very fast reflexes, which it uses to catch its prey. It eats living insects, such as flies and aphids. Some larger species have been known to prey on small lizards, frogs, birds and even rodents. The praying mantis catches prey with its strong forelegs. It is well camouflaged to surprise its prey and avoid predators.

Did you know?

Butterflies have taste organs on their feet. So they know when they have landed on a tasty plant or flower.

The life cycle of a butterfly.

Learn about the different stages of a butterfly's life.

The life cycle of an insect has evolved to ensure their survival. By laying hundreds of eggs in one batch, insects ensure at least some of their young survive. The life cycle of an insect is relatively short, which reduces the window of opportunity for predators to attack.



Mating

A male butterfly finds a female butterfly to mate with. When the females eggs are fertilised, she finds a good location to lay her eggs.

Eggs

The eggs laid by a butterfly are very small, making them hard to see. The eggs are often the same colour as the foliage or material they are laid on, which also helps to camouflage them.



Adult butterfly

When the adult butterfly emerges from the pupa it has the advantage of being able to fly, which is a useful when trying to escape from predators.



Larvae

The caterpillar larvae uses a range of tricks to avoid being eaten, such as good camouflage or sharp spines.

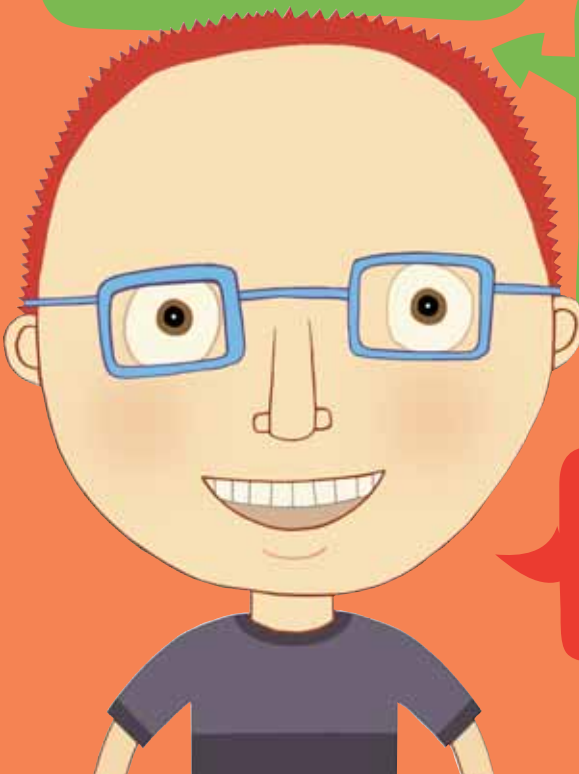


Chrysalis (pupa)

This is perhaps the most dangerous stage of a butterfly's life cycle, as it is unable to move and cannot escape from predators. Therefore, the majority of pupa utilise camouflage to protect themselves.

Have a go!

Have a go at making your own butterfly life cycle using the worksheet.



Have a go!

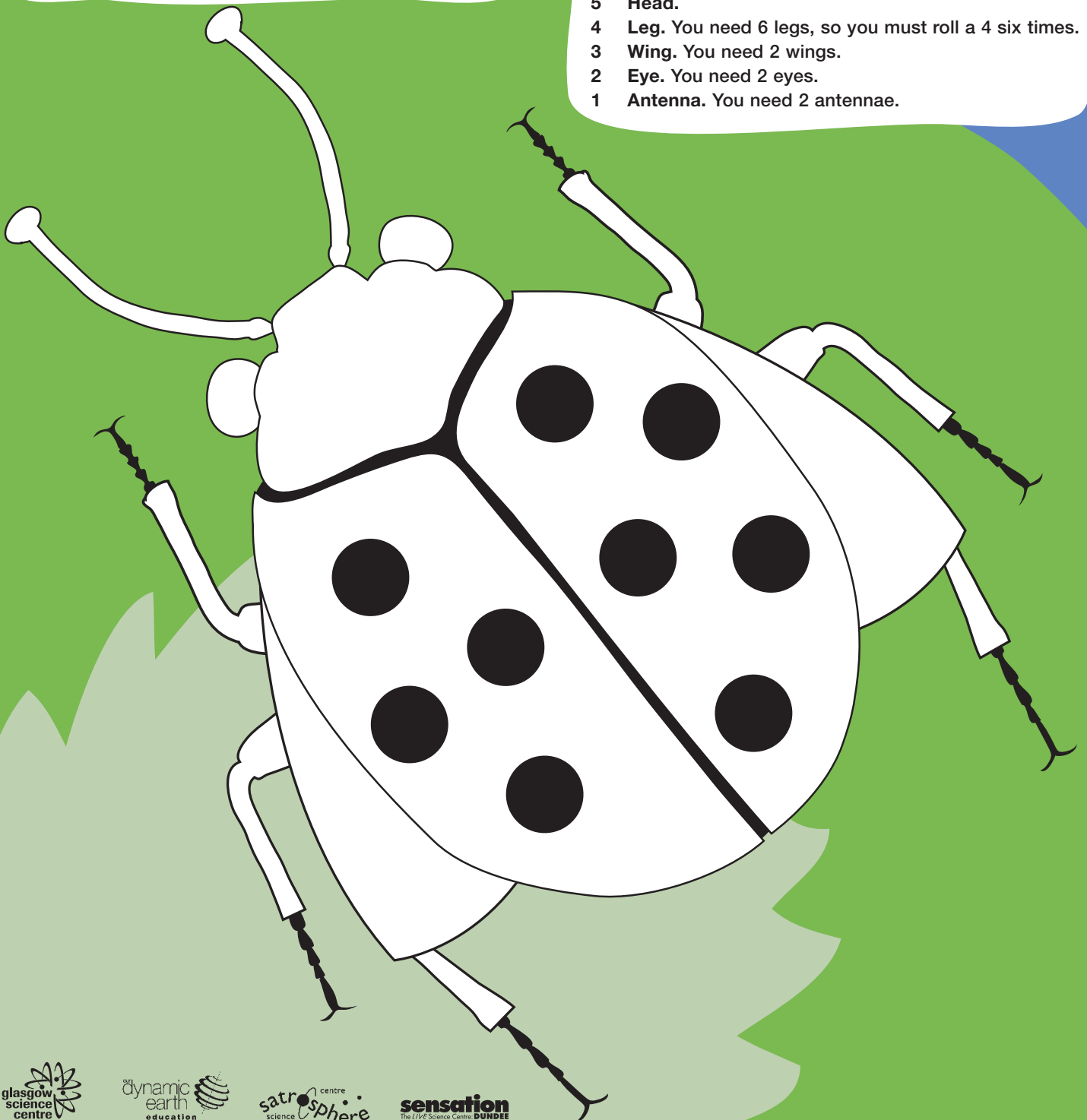
A beetle drive.

Copy this worksheet. To play beetle drive, you must take turns to roll the die. Depending on which number you roll, you can colour in a different part of the beetle. The first person to complete their beetle and colour in 1 head, 1 body, 2 wings, 2 eyes, 2 antennae and 6 legs is the winner.

Name:

The numbers for different parts of the beetle are:

- 6 Body. You must roll a 6 to start the game.
- 5 Head.
- 4 Leg. You need 6 legs, so you must roll a 4 six times.
- 3 Wing. You need 2 wings.
- 2 Eye. You need 2 eyes.
- 1 Antenna. You need 2 antennae.



Have a go!

The life cycle of a butterfly.

Copy this worksheet. Cut out and match the pictures with the correct statements to make a complete life cycle of a butterfly.



Pupa

The pupa stage in a butterfly's life is when it is encased in a chrysalis and undergoes an amazing change.

Mating

A male butterfly finds a female butterfly to mate with and fertilises her eggs.

Larvae

The larval stage lasts between 2 – 4 weeks. During this time the caterpillar larvae eats almost constantly and grows very quickly.

Adult butterfly

When the adult butterfly emerges from the pupa it is able to fly.

Eggs

Lots of small eggs are laid by the female butterfly.