

Questacon at HOME

Citizen Science: Year 7 to Year 9

Backyard Adventure

Instructions

Read through the 'backyard adventure resource sheet' and do your best to answer all the questions below – including the bonus points! With permission from a responsible adult get out and about your house to track down some of these interesting creatures. Look high and low but remember not to touch anything and to stay safe at all times!

Cockatoos

Cockatoos, or "Cockies", can be found throughout much of Australia and are native to our country. Can you name three types of Cockatoo?

1. _____
2. _____
3. _____

How old can Cockatoos live to be? Check your answer below:

- 5 years
- 15 years
- 30 years
- 60 years

Bonus point! Name 5 things Cockatoos eat?

1. _____
2. _____
3. _____
4. _____
5. _____



Citizen Science: Year 7 to Year 9

Bird Dropping Spiders

These sneaky spiders feed almost exclusively on male moths – they hang off leaves at night with their front legs poised to catch their prey. How do you think the spider attracts the moths (Hint: It only eats males)

Do you know any other names for this spider? There are at least two more:

- _____
- _____
- _____

Bonus point! What class do spiders fall under?

Mosquitoes

Where do mosquitoes lay their young?

Many people think mosquitoes only have one long biting part – how many pieces actually bite you?

Bonus Point! Name 3 diseases mosquitoes can carry:

1. _____
2. _____
3. _____

Flies

What type of eyes do flies have?

Flies eat by using a proboscis. For them to eat the food needs to be liquid – but you've definitely seen flies land on your solid food before! How do flies eat your solid food?

Bonus point! How many species of flies are there in Australia? Check your answer below:

- 300
- 3,000
- 15,000
- 30,000



Citizen Science: Year 7 to Year 9

Spiders

Can you name 3 venomous spiders? Can you give an identifying feature of them?

1. _____
2. _____
3. _____

What is the name for the product used to treat a venomous spider bite? Do you know how it's made?

Bonus point! What is the difference between 'venomous' and 'poisonous'?

Mushrooms

What is another name for mushrooms? (Hint: this is the kingdom of life they constitute)

How do mushrooms reproduce? (Hint: look under the cap of a mushroom in the fridge)

Bonus Point! Can you name 3 types of mushrooms:

1. _____
2. _____
3. _____

Slaters

What type of animal is a slater?

Slaters eat decaying organic matter. What do we call the types of organisms that do this?

Bonus Point! What are the antennae on a slater called?



Citizen Science: Year 7 to Year 9

Bees

Did you know the honey bee isn't native to Australia, even though we have many native ones of our own? Can you name 3 types of native bees?

1. _____
2. _____
3. _____

Bees are extremely important to the earth's ecosystems – why is that?

Bonus Point! How do bees make honey?

Possums

What kind of animal is a possum?

When do possums mate and reproduce?

Bonus point! Possums have babies that are quite under developed. Can you list 3 reasons why their pouches would help with this?

1. _____
2. _____
3. _____



Resource Sheet

Cockatoos

The charismatic and noisy 'Cocky'! Their raucous calls would be familiar to most. The large white Cockatoo with a yellow crest, aptly named the Sulphur Crested Cockatoo, is native to our country and has a very large population! It is not unusual to see flocks of them ripping into their food on grassy areas, or perched in their hundreds throughout trees, screaming at each other. Other types of cockatoos include the Gang, Galah, and Red or Yellow Tailed Black Cockatoos.

Cockies can live up to 60 years, and are mainly seed eaters - though they can vary their diet with roots, bulbs and even the occasional insect or their larvae for some protein! To crack through hard seed cases Cockies have a very powerful beak, so never ever put your fingers near them!

Bird Dropping Spiders

Bird dropping spider (*Celaenia excavate*) is a species of orb weaving spider. You might have seen one of these before in your backyard but you thought you were looking at bird poop! That is the camouflage of this amazing spider which is quite common in eastern Australia. The female is much larger than the male but they both still look like blobs of bird poop. You will mostly see them on leaves and twigs or maybe grass. These spiders exist mostly on male moths which they attract by hanging off of leaves or twigs with their forelegs in front of them – they then release chemicals that smell like the pheromones of female moths, attracting the males which they grab with their legs before devouring! Tasty!

Mosquitoes

There are over 300 different species of the ubiquitous 'Mossie' in Australia, but to the untrained eye they all look the same. The mosquito has quite a bad reputation, with most people being accustomed to getting hassled and bitten by mosquitoes around dusk. When it comes to biting humans (and pets), it is only the female that does that. They use their **proboscis**, or mouth, which consists of six needlelike parts to pierce the skin and find blood vessels. Females also lay their eggs in an aquatic environment, so try to not let water gather in buckets in your backyard!

Some species of mosquitos in Australia can actually carry serious diseases such as Dengue Fever, whilst species in other parts of the world can carry diseases like Malaria or Yellow Fever. Many of these diseases are deadly without effective treatment, and it's estimated that mosquito-borne diseases kill over 700,000 people a year - making them the most dangerous animal taxon on earth!

Flies

There are over 30 000 different species found in Australia! Flies are unique to a lot of other insects! Firstly, they have two sets of wings. They use their first set of wings to fly, and use the second set to maintain balance and do complex aerobics. They also have compound eyes – lots of little hexagonal sections see different images, these are put together to create a compound image, which helps them see swiftly moving objects. Perhaps this is why they're so hard to catch!

Though they can be annoying, flies form an important part of many ecosystems.

- Flies are the second most productive pollinators after Bees
- Some types of flies are collectors - they aid in the decomposition of rotting meat
- Some flies also eat other insects, they can be predators

Flies don't eat things with a normal mouth either. They use a long trunk like mouth called a Proboscis, where they can suck food up. Fly saliva can even dissolve your food if they spit on it! Luckily for us their faces are so small and won't hold much saliva!



Spiders

A common Australian spider is the Huntsman spider, a Brown Huntsman or *Isopeda* sp. to be exact. They hunt for insects and are usually seen at night, often on a wall, outside or even inside. People are often quite frightened of these spiders as they are big and gangly and can move fast, but they are not aggressive to humans, rarely bite and if they did they are not dangerous.

Antivenom (antivenin) is the product that is produced to counteract spider venom. It must be specific to the spider however as each venom profile is different, and it is made from the actual venom (injected, as opposed to poison which can be touched, swallowed or absorbed) of spiders.

Spiders are arachnids – 8 legged invertebrates which include ticks, mites, and scorpions! Australia has a large diversity of spiders, with over 2000 species! Some are scary like the Sydney Funnel Web, and others are amazingly pretty and harmless like Peacock Spiders!

Mushrooms

Mushrooms, sometimes called toadstools, are part of the fungus kingdom and emerge from the soil, or ground though sometimes grow on trees. Usually after there has been some rain they push their way up slowly. People do eat mushrooms though some mushrooms can be poisonous (like the Death cap, Destroying Angel, and Webcap varieties) so if you **should never touch or pick them** unless you have a mushroom expert with you (a mycologist).

Mushrooms come in all shapes, sizes and colours and breed by sending out spores from the gills under their caps. The mushrooms that we are familiar with are just a tiny part of the whole organism, they have a web of roots called Mycelium that spread all throughout the ground and things that they are eating. Mushrooms are part of the group known as detritivores – organisms that decompose and digest dead and decaying organic matter.

Slaters

Slaters (also known as Roley Poleys, Pill Bugs, or Wood Lice) are a type of crustacean found almost everywhere in the world. They belong to the order Isopoda (which translates to “equal foot”), are related to crabs, lobsters, and prawns. Approximately 3,710 species were identified as of 2014, out of an estimated 5,000-7,000 species. The first slaters were marine isopods which colonized land back in the carboniferous period (that means they’re older than dinosaurs!).

Their bodies are made up of 14 segments, with 7 pairs of legs and two pairs of antennae (the second pair can be very small and difficult to see). When slaters are threatened, they roll themselves up into a defensive ball – hence the name Roley Poleys! Slaters are scavengers which mainly feed on decaying organic matter, which is why they tend to be found in places of decay. For example, underneath rotting wood. They form part of the soil cycle, which means they are actually beneficial to keep in back yards (even if they do sometimes eat seedlings).



Bees

Interestingly, the bee you are most likely to come across in your backyard is not native to Australia. The Western honey bee, or European honey bee, has now spread worldwide (except Antarctica) from its origin in Africa or Asia long ago.

Although some bee species live solitarily, many species live in colonies. In these colonies (sometimes called hives) there is a division of labour, and a queen bee, who is the only female bee that can reproduce. She is the mother of all of the working bees.

Bees form a critical part of all ecosystems, since they are specialised pollinators for plant species. Most bees are generalist when it comes to collecting pollen, although a few species are specialized, and will only gather pollen from select plant species or genera. Bees are specialised in finding pollen, using both their vision and sense of smell to find and collect pollen for the colony. Bees can see every colour except red. Additionally, bees are also known for their production of honey and beeswax, although only a few species do this.

A foraging honeybee will bring flower nectar back to the hive, where it is passed by mouth from bee to bee until the nectar dries up into honey! It is stored in the honeycomb cells until baby bees or humans need it!

Some of the Australian Native bees which you might see look a bit different to normal! We have Stingless Bees, which are tiny and harmless, as well as Yellow and Black Carpenter Bees which are the largest native Australian bees reaching up to 24mm long! That's about the length from your top thumb knuckle to your thumb tip! Green Carpenter bees also exist, they are a gorgeous metallic green!

By now, most of you would be aware that they can give a powerful sting and they literally put everything into that sting as it will be their last act. They die after issuing a sting as its main internal organs are connected to the sting..... Eeewwww!

Possums

If you live in an area with possums, you might happen to hear one in your roof! Possums sometimes use this area to rest, but they are technically arboreal, meaning they prefer to live in trees. To see a possum you'll have to wake up during the night because possums are **nocturnal**. That is, they are awake at night and asleep during the day!

Possums mostly eat leaves, but they can be **opportunistic**, with some also feeding on fruits, vegetables, and even other small mammals. Ultimately, what they eat will depend on the species. In Australia, the two common species of Possums are the Common Brushtail Possum and the Common Ringtail Possum.

Female possums begin mating around 13 months of age, and typically mate around March. Possums reproduce annually, and with an average lifespan of 6-7 years, this means a possum can have lots of babies in their life! Since possums are **marsupials**, their newborn babies are born quite underdeveloped and spend another 4-5 months in their mother's pouch.

The pouches are vital for the young possums for protection, food (the young attach to their mother's nipple for milk) and development. Once they are **weaned**, the young then ride on their mother's back until they are about 7-9 months old.

