

SCIENCE IN ACTION

TEACHER RESOURCE

Stage 4 and 5 Science

Outcomes: SC4/5-4WS, SC4/5-5WS, SC4/5-6WS



Curiosity drives scientific discovery. Your students can become scientists by exploring the scientific process. Through observing animals and learning about behaviours and characteristics that help them survive in the wild, they will develop skills that will help them see the world like a scientist.

At Taronga Zoo, your students will get the opportunity to interact with our habitat classroom and conduct these observations.

TEACHER RESOURCE

Pre- or Post-Zoo Visit

SCIENCE DOESN'T JUST HAPPEN IN THE LAB!

The scientific method is a process for experimentation that is used to explore observations and answer questions, it comprises of five main steps:

1. Observation
2. Questioning
3. Forming a hypothesis
4. Experimenting
5. Data analysis and conclusion

Observation drives scientific investigations. Through sound observation questions can be asked and data can be collected to form conclusions. It is always important to record what is being observed and not and not what is expected to observe

The activities in this resource will allow students to collect data based on their own observations of the living world. Not everyone will notice the same thing, however, the observations made should drive discussion. From this, experiments can be repeated, potentially altering variables so observations can be made from a different perspective, leading to the refinement of the method to enhance accuracy of the experiment. Considering observations from a different perspective should drive further questions and lead students to the development of a greater understanding of their surroundings.



©Taronga Zoo Institute for Science and Learning 2018

These sheets may be reproduced for teaching purposes. Permission to reproduce them for other purposes may be obtained from the Taronga Zoo Education Team.



Education



THINKING SCIENTIFICALLY

Specific observations lead to questions.

OBSERVATIONS

Make a note of animals you see in a particular area.

What behaviours do you notice?

Do the animals have any structures that assist with this behaviour?

How do they interact within their species/with other species?

QUESTIONS

Why do you think the animals are doing what you observe? Do they maintain this behaviour at other times or in other environments?

HYPOTHESIS

Can you make a statement that answers your question using *as*, *then*, language

VARIABLES

Controlled variable What will you keep the same	Independent variable What will you change?	Dependent variable What will you measure?

THINKING SCIENTIFICALLY

Specific observations lead to questions.

OBSERVATIONS

QUESTIONS

HYPOTHESIS

VARIABLES

Controlled variable What will you keep the same	Independent variable What will you change?	Dependent variable What will you measure?

ETHOGRAM SCAFFOLD

Use this sheet to make more structured observations. Here you can think about the ways that you can collect an use data.

Name of Observer/s:	Date:
Animal/species observed:	

Inquiry Question: (perform your ad lib sampling on the left hand side below, does anything seem strange to you ? Develop a question for this and then conduct the focal sample on the right- e.g. *are chimpanzees more commonly left handed or right handed?*)

[illegible]

ETHOGRAM SCAFFOLD

Use this sheet to make more structured observations. Here you can think about the ways that you can collect an use data.

Name of Observer/s:	Date:
Animal/species observed:	

Inquiry Question: (perform your ad lib sampling on the left hand side below, does anything seem strange to you ? Develop a question for this and then conduct the focal sample on the right- e.g. *are chimpanzees more commonly left handed or right handed?*)

[illegible]

PERFORMING AN EXPERIMENT

If you visit Taronga's habitat classroom, an educator will guide you through this experiment

AIM

To determine which type of food the _____ (chosen animal) likes best

BACKGROUND INFORMATION

What do you know about this animal? Did the Zoo Education Officer tell you any important information about this animal that could impact the experiment?

HYPOTHESIS

Write a statement about what you think is going to happen based on the information you have been given.

DESIGN YOUR EXPERIMENT

How are you going to ensure this is a fair test? What are you measuring? What are you going to change/keep the same?

RESULTS

What data will you record? Is it the food that the animal spends most time at or the food that the animal goes to first?

CONCLUSION

Can you form a conclusion based on this one experiment? Will these results be the same for all animals of that species? What do you need to do to refine your experiment from here?

Further questions – is this a fair test?

PERFORMING AN EXPERIMENT

If you visit Taronga's habitat classroom, an educator will guide you through this experiment

AIM

BACKGROUND INFORMATION

HYPOTHESIS

DESIGN YOUR EXPERIMENT

RESULTS

CONCLUSION

Further questions

PERFORMING AN EXPERIMENT

If you visit Taronga's habitat classroom, an educator will guide you through this experiment

AIM

BACKGROUND INFORMATION

HYPOTHESIS

DESIGN YOUR EXPERIMENT

RESULTS

CONCLUSION

Further questions – is this a fair test?

NOTES

SUGGESTED ACTIVITIES

Pre- or Post-Zoo Visit

INVESTIGATE BIODIVERSITY INTERACTIONS WITHIN YOUR PLAYGROUND

Observe

Make a list of the birds that live in your playground.

Question

Do different species live in different parts of the playground or do they mix?

Do the birds come at different times of the day?
What attracts them?

Can you use the knowledge from your observations to attract birds to other parts of the playground?

Are there any other animals in your playground that you can make similar observations for?

HOW DOES HABITAT AFFECT SPECIES?

Some ideas...

1. Is there space to update some gardens at your school? Planting a collection of native plants, ground cover, small shrubs might attract different bird life and invertebrates to your gardens, What species do you think will be attracted to each plant and why?
2. Tree hollows are extremely valuable and important habitat. Unfortunately they take at least 80 years to form, while you may have some young trees in your playground a A nest box in some large trees may help local species. Birds mammals and reptiles can all benefit from nest boxes, do you think all animals would want the same size shape and opening?



DIGITAL RESOURCES FOR HOME

FrogID

FrogID is an app that encourages scientific investigation skills and helps to identify frogs based on their call. Not only is this a personal learning tool, but an active citizen science project, where audio recordings taken are analysed by scientists at the Australian Museum. The Frog ID app will let you know the different species you may be able to hear at different times of the year in your location.

Unfortunately as the climate changes, so do migratory and reproductive patterns of animals. Your discoveries will help the scientists, understand where species are surviving and potentially migrating to.

Inaturalist

Inaturalist is a citizen science app that allows you upload photos of species in your local area. Your contributions will be verified by experts in the field and help you use your working scientifically skills to analyse data and identify species.

LINKS:

[Frog ID](#)



[iNaturalist](#)

 [iNaturalist](#)

