Teacher Resource

Taxonomy

Focus Questions

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

1. How many new plants and animals are being added to Australia's National Species List?
2. What is taxonomy?
3. Which rank comes first in the order of biological classification?
4. If you discover a new species, you can name it after yourself. True or false?
5. How did the Venomius tomhardyi get its name?

Activity: What do you see, think & wonder?

After watching the BTN Taxonomy story hold a class discussion, using the following as discussion starters:

- What do you THINK about what you saw in the story?
- What does this video make you WONDER?
- What did you LEARN from the BTN story?
- Think of three QUESTIONS you have about the story.

Activity: Questions & Answers

All scientific discoveries start with a question! As a class, come up with some questions you think taxonomists and biologists ask and solve. Organise the questions into common themes. As a class, make a list of questions that you would like to ask a taxonomist. Use the internet to find answers to your class questions.

EPISODE 25
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KEY LEARNING
Students will learn about the concept of taxonomy, its importance, and the basics of classification in biology.

CURRICULUM
Science – Year 4
Living things have life cycles.

Science – Year 5
Living things have structural features and adaptations that help them to survive in their environment.

Science – Year 6
The growth and survival of living things are affected by physical conditions of their environment.

Science – Year 7
Classification helps organise the diverse group of organisms.

Science – Years 5 & 6
Scientific knowledge is used to solve problems and inform personal and community decisions.

Science – Year 7
Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.

Science – Year 7
People use science understanding and skills in their occupations, and these have influenced the development of practices in areas of human activity.

Activity: Glossary

Students will brainstorm a list of key words that relate to the BTN Taxonomy story. Here are some words to get them started.

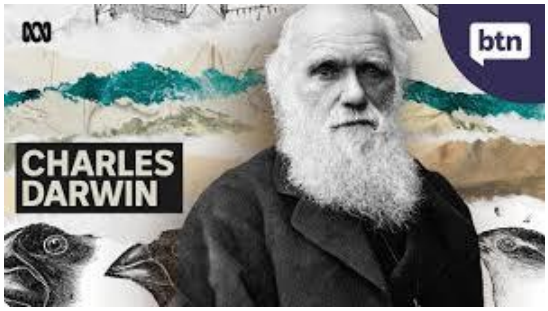
TAXONOMY	CLASSIFICATION	TAXONOMIST
SPECIES	LIVING ORGANISM	IDENTIFICATION

Ask students to write what they think is the meaning of each word (including unfamiliar words). They will swap definitions with a partner and ask them to add to or change the definition. Check these against the dictionary definition.

Further activities for students:

- Students will add to their glossary by downloading the transcript for the BTN Taxonomy story and highlight all the words that relate to the topic.
- What other words relate to this topic? Students will choose additional keywords and concepts to add to their class glossary. For example, biodiversity, common name, scientific name, kingdom, class, family, genus and rank. Students will find a definition and add to their 'taxonomy glossary'.
- What is the difference between a vertebrate and an invertebrate? Give some examples.
- Who explores taxonomy? To learn more about what taxonomists do, visit ABC Education!
- What is a naturalist? Explore the work of a famous naturalist – watch these BTN stories which focus on a Famous Naturalist Profile.

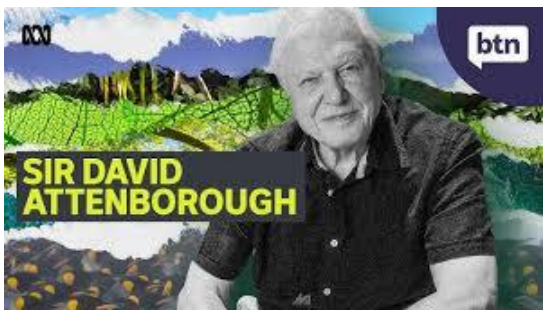
BTN Famous Naturalist Profiles



BTN Charles Darwin

BTN Mary Anning

BTN Dr Jane Goodall



BTN Sir David Attenborough

Activity: New Species Profile

Students will research and write a profile about a species that has recently been added to Australia's National Species List. Students can use the animal profile worksheet at the end of this activity to record their findings. Encourage students to use a range of sources to find their information.

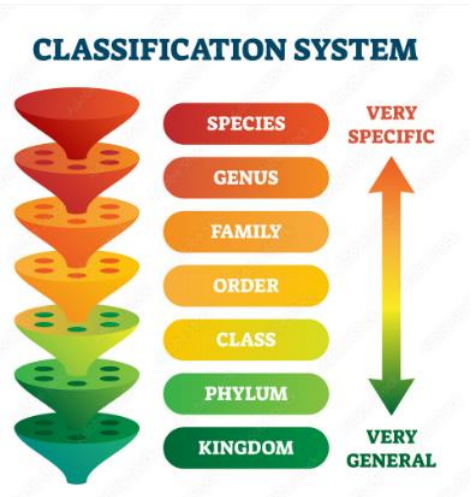
Research

Students will research the species and create a profile. Students can use the Animal Profile at the end of this activity.

- Illustration or photo
- Scientific and common name
- Classification (class, family, genus)
- Appearance
- Habitat
- Where is it found?
- Feeding and diet
- Behaviours and adaptations
- Predators
- Conservation status
- Interesting facts

Students will choose a species featured in the BTN Taxonomy story and complete one or more of the following activities:

- **Model** – Create a 3D model of the species using recycled materials. Display your model in your school.
- **True or false?** – Investigate the classification of the species. Create a quiz (true or false, multiple choice, fill in the blank) and test your classmates.
- **Children's book or comic** – Write and illustrate either a children's book or comic which tells the story of the species. Include another species in your story which shares the same family or genus.
- **Geography** – Where in the world does the species live? Show the species distribution on a map using shading.
- **Citizen Science** – Are there any citizen science projects that helps us better understand the species? Investigate.
- **Poster** – Create a poster which shows the classification of the species.



Activity: How do animals get their names?

During this activity students will become taxonomists and name a new species. Students will imagine they have discovered a new species of animal which has never been discovered before and give it a scientific name.

Class Discussion

Find a range of pictures of animals and ask your students if they can name any of them. Write their scientific names on the whiteboard.

Introduce the concept of scientific naming, which is used to name all living organisms. Animal names are often made up of combinations of Greek or Latin words that describe the animal's appearance, characteristics, or behaviours of the animal. Some animals are named after the people who discovered them, and others are named after the place where they were discovered. Explain that the Genus name (the first word) is capitalised, and the species name (the second word) is in lowercase.

> *Why was the orb-weaver spider named "Venomius tomhardyi"?*
> It was named after the Marvel Comics character Venom, with its species name referencing actor Tom Hardy, who portrayed the character in Sony's Spider-Man Universe. The genus name came from the black spots on the spider's abdomen, which reminded the authors of Venom's head.

Below are some Greek and Latin words which have been used in animal names.

Word (Greek or Latin)	Meaning
venomius	*poisonous*
litoria	*grassy*
ridibunda	*laughing*
tyranno	*tyrant*
rex	*king*
planigale	*having few teeth*

Group Activity

In small groups students will use their imagination and come up with a list of scientific names for new species of animals. Students will follow the structure (Genus species) and consider the animal's appearance or behaviour. Student will share their scientific names and explain their meanings.

Individual Activity

Students will choose one name from their list and then respond to the following questions:

- What have you named your species? Explain the origins of the name. Is it named after a person or a place? Is the name something that describes its characteristics or behaviour?
- What does your species look like? Describe any interesting or unusual features.

Activity: Create a new species

Working individually or in pairs, students will use their imagination and create a new species of their own. They will imagine they have discovered a new species which has never been seen before. Use the following as a guide for this activity:

- Illustrate the new species using only a black felt-tip pen on a piece of A4 art paper – include as much detail as you can.
- Give your new species a common and scientific name.
- What group of animals does it belong to? Is it an invertebrate, fish, amphibian, reptile, bird or mammal? What is the classification of the species?
- Describe what it looks like – what are some of its physical features?
- What does it eat? Does it have any predators?
- Include any adaptations it has that helps the species survive in its environment.

Activity: Scientific Exploration

Citizen scientists play a big part in the discovery of new species. Explain to your class how the Western Laughing Tree Frog was discovered.

The story of the Western Laughing Tree Frog's discovery

A citizen scientist heard a "laughing" sound coming from the backyard. They recorded the sound and submitted it to a citizen science database, FrogID. Scientists listened to this laugh-like recording, along with thousands of others, and discovered the sound came from a "charismatic" new species of creature – the Western Laughing Tree Frog.

Explore the sound of Western Laughing Tree Frog

- As a class visit the Australian Museum website to listen to a recording of the new frog species.
- Compare the sound and appearance of the Western Laughing Tree Frog with the Roth's Tree Frog.
- How are the species similar or different?

Get to know the biological sounds in your area

As a class, plan a visit to your local park or simply visit your school yard. Students will write a list of things they may need for the exploration, for example: pen and paper for taking notes, clipboard, and a device to record sound. Students will predict what they think they will hear during their exploration. Students will then respond to the following:

- *Describe* – describe what you hear in the environment. Record and describe as many biological sounds as you can hear. Can you see the animal? Do you notice any behaviours displayed by the animal? If you can't hear any animals, what other sounds can you hear?
- *Identify* – can you identify the animal that belongs to the sound? Identify and classify what you found.
- *Research* – learn more about the species. Why do they make these sounds? Is it a native or introduced species?
- *Share* – report your findings to the class. Compare and contrast your findings. Create a library listing all the biological sounds your class detected.
- *Citizen science* – find a citizen science project where you can share what you've found in your local area. Here are some example citizen science projects: FrogID, Australasian Fishes project or Virtual Reef Diver.

Activity: Taxonomy Quiz

1. What is it called when animals are sorted into groups with similar features?

A. Evolution

B. Classification

C. Organisation

2. Which group of animals does the Western Laughing Tree Frog belong to?

A. Mammal

B. Amphibian

C. Reptile

3. An invertebrate has a backbone.

A. True

B. False

4. Which of these is NOT an invertebrate?

A. Snail

B. Prawn

C. Snake

5. Which rank comes first in the order of biological classification?

A. Family

B. Species

C. Kingdom

6. Animals and plants are in the same kingdom.

A. True

B. False

7. A scientific name contains information about an animal's...

A. Kingdom and species

B. Family and species

C. Genus and species

8. What is the scientific name for the Western Laughing Tree Frog?

A. Litoria ridibunda

B. Frogus humourous

C. Litoria rothii

9. Which of the following pairs are MOST closely related?

A. Wolves and coyotes

B. Gorillas and chimpanzees

C. Jellyfish and starfish

10. Humans belong to the Animalia kingdom.

A. True

B. False

Quiz Answers: 1B, 2B, 3B, 4C, 5C, 6A, 7C, 8A, 9A, 10A.

Useful Websites

- What is taxonomy? – ABC Education
- Evolution and Biodiversity – BTN
- The Australian National Species List – Biodiversity
- Funnier than the original: Introducing the Western Laughing Tree Frog – Australian Museum

ANIMAL PROFILE

Scientific Name

Common Name

APPEARANCE

ADAPTATIONS

Unique Features or Interesting Facts

HABITAT

THREATS