



# Dichotomous Keys

In these exercises students will use dichotomous keys to classify animal groups and species of Australian frogs. The activity involves three exercises, where the complexity of the dichotomous keys gets incrementally more challenging. In the first exercise, students will look at a very simple dichotomous key that relies on pre-existing knowledge of the vertebrate classes. For this task teachers are encouraged to assist students in understanding how scientists use dichotomous keys to differentiate species. This is a preliminary look at dichotomous keys, and could be done as a whole class introduction. Students should be able to describe the basic features of each class of animals.

In the second exercise, students will be given photos of 6 Australian frog species and will have to determine the name of each species based on physical features. This is a more difficult challenge, so students could be encouraged to work in pairs or trios to complete the task.

In the third and final exercise, students will be given a list of 9 frog species that are present on the Australian Museum website. Using the Australian Museum's frog species profiles (found [here](#)), students will match up these frogs with an alphabetic code. This last part of the task involves research on the Australian Museum website and therefore access to the internet is required. Detailed descriptions for the activities are included below.

## **Exercise 1**

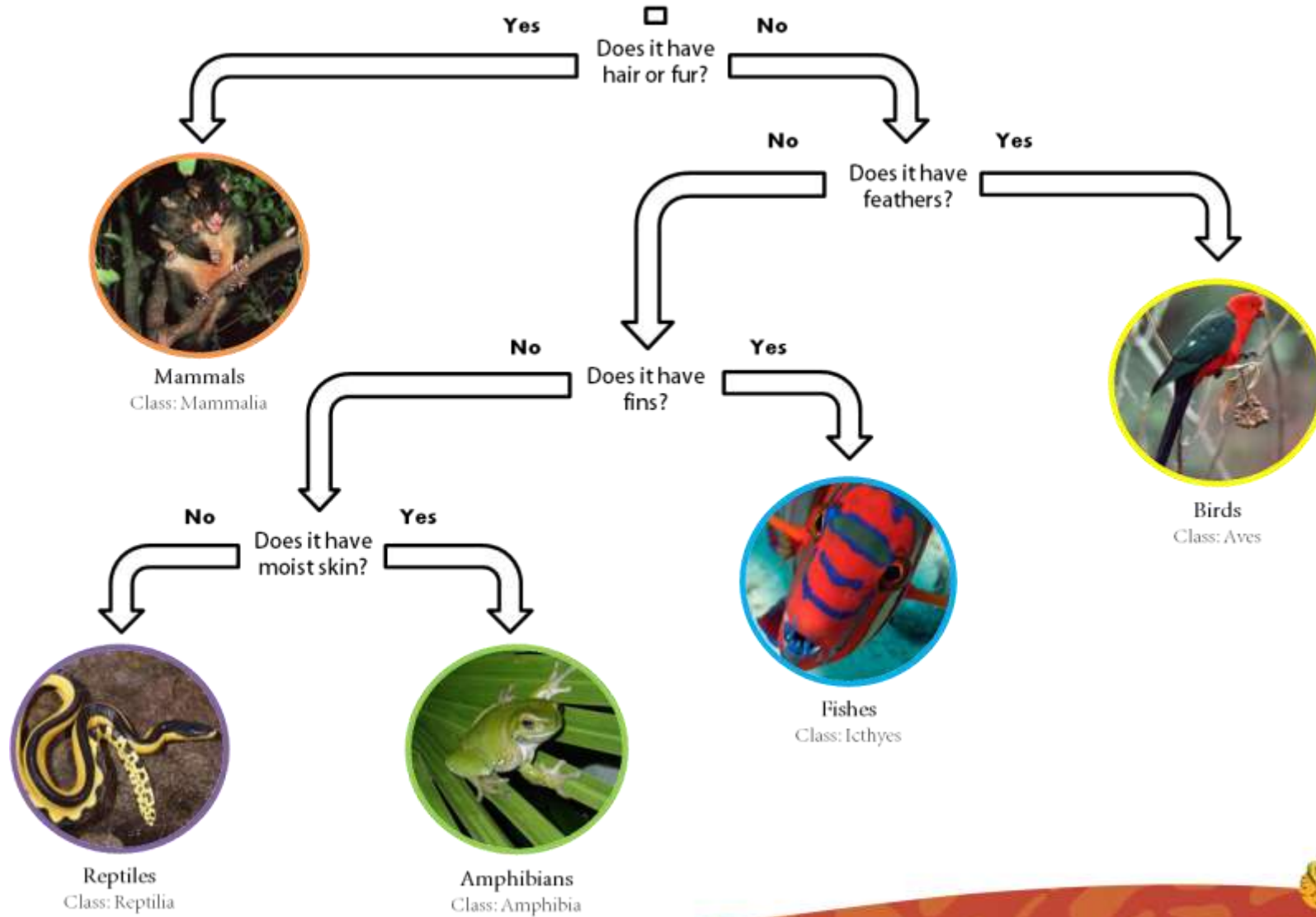
### *Instruction for educators*

Students should be refamiliarised with the five classes of vertebrates (fish, mammals, reptiles, amphibians, birds), and how 'class' fits within biological taxonomy (i.e. kingdom, phylum, class, etc.). The dichotomous key will be introduced here, during a brief discussion as to why it is a useful classifying tool in the biological sciences.. Students should be reminded that a proper dichotomous key question must have two possible answers to a classifying question e.g. yes/no, feature present/absent. Students should be able to use this key to describe the features of each class of animals.



Exercise 1 Activity – Vertebrate Dichotomous Key

Classifying Vertebrates  
with a dichotomous key



**Exercise 2**

*Instruction for educators*

In this second exercise, students will work independently or in groups to identify some frog species based on their physical features, matching photos of frogs with their common and scientific names. Below are three attachments: photos and magnifications of 6 frog species photos, the dichotomous key students will use to identify these species and a table for students to fill in their answers. Educators can print out and distribute all of these attachments or project one or more of them at the front of the class. Students can be asked to copy and fill out the table into their workbooks.

*Instructions for students*

Use the physical features of these unidentified frogs to respond to the dichotomous key below. By correctly interpreting the dichotomous key, identify the species of frogs and construct a table to match the frog photos with a scientific and common name.





**Exercise 2 – Frog Dichotomous Key (Physical Features)**

Attachment 1 – Frog photos (magnified features are shown below each frog)

Unknown  
Species 1



Unknown  
Species 2



Unknown  
Species 3



Unknown  
Species 4



Unknown  
Species 5

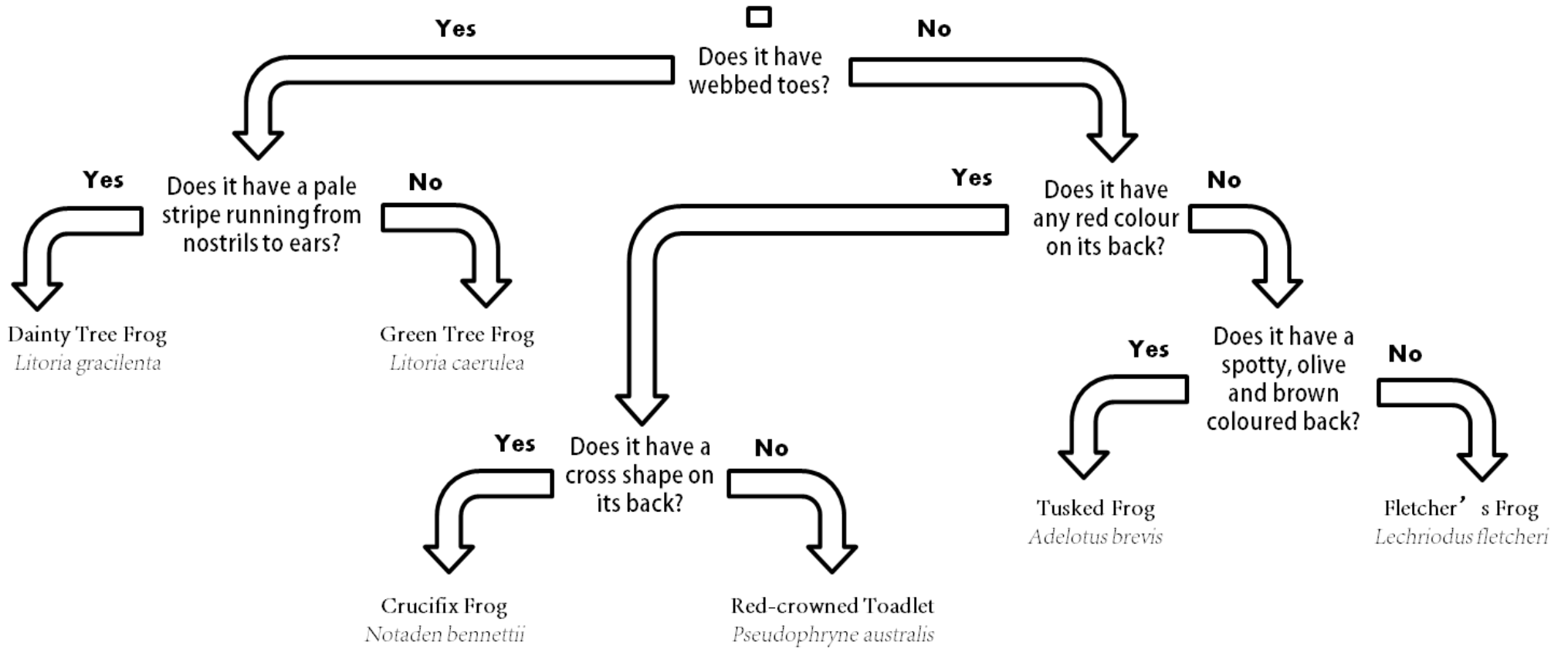


Unknown  
Species 6



Attachment 2 – Dichotomous key

### Classifying Amphibians with a dichotomous key



Attachment 3 – Example table for students to complete

| Unknown Species   | Species Common Name | Species Scientific Name |
|-------------------|---------------------|-------------------------|
| Unknown Species 1 |                     |                         |
| Unknown Species 2 |                     |                         |
| Unknown Species 3 |                     |                         |
| Unknown Species 4 |                     |                         |
| Unknown Species 5 |                     |                         |
| Unknown Species 6 |                     |                         |

Answers to key (for Educator)

| Unknown Species   | Species Common Name | Species Scientific Name       |
|-------------------|---------------------|-------------------------------|
| Unknown Species 1 | Dainty Tree Frog    | <i>Litoria gracilentia</i>    |
| Unknown Species 2 | Tusked Frog         | <i>Adelotus brevis</i>        |
| Unknown Species 3 | Fletcher’s Frog     | <i>Lechriodus fletcheri</i>   |
| Unknown Species 4 | Red-crowned Toadlet | <i>Pseudophryne australis</i> |
| Unknown Species 5 | Green Tree Frog     | <i>Litoria caerulea</i>       |
| Unknown Species 6 | Crucifix Frog       | <i>Notaden bennettii</i>      |

### Exercise 3

#### *Instruction for educators*

In this exercise, students will use the frog profiles on the Australian Museum website (found [here](#)) to research the habitats and physical adaptations of each species and match each frog to a code letter in the dichotomous. An example table is provided, where students must fill in the code letter in the left-hand column that the matching frog species in the right-hand column.

#### *Instruction for students*

There has been a mix up at the Amphibian Exhibit at the State Zoo, and as the new Head Amphibian Keeper, you have to solve it! The Amphibian Exhibit has nine different habitat enclosures for their nine frog species. Last week, the exhibit was closed so that the enclosures could be cleaned and updated and the frogs were temporarily removed from their habitats. But now that the enclosures have been updated, no one can figure out which frog goes in which habitat.

You have been left a dichotomous key and the name of each frog species by the team that updated the enclosures. Use the Australian Museum frog profiles (<http://australianmuseum.net.au/frogs-amphibians>) to gather information about each species and use the key to match each frog to its new enclosure. Make sure the frogs are comfortable in their own habitat and make sure you keep your job!

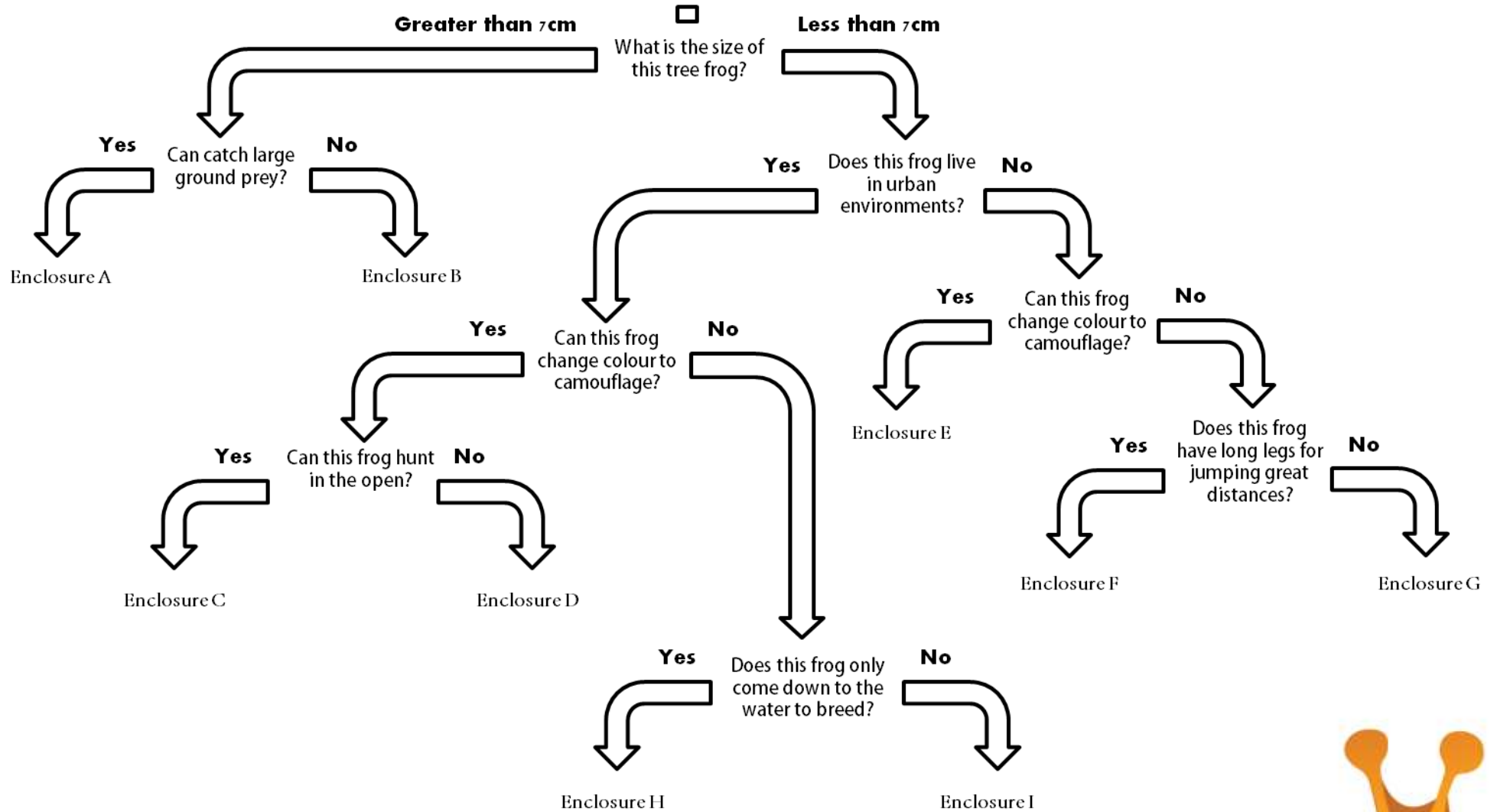
| Frog Species               | Enclosure Code |
|----------------------------|----------------|
| Peron's Tree Frog          |                |
| Leaf Green Tree Frog       |                |
| Red-eyed Tree Frog         |                |
| Dainty Tree Frog           |                |
| Eastern Sedgefrog          |                |
| Rocket Frog                |                |
| Jervis Bay Tree Frog       |                |
| Green and Golden Bell Frog |                |
| Green Tree Frog            |                |



# Classifying Amphibians with a dichotomous key

Stage 3 Activity – Frog Dichotomous Key

(Research Task)



FrogID

| Frog Species               | First Q. | Second Q                       | Third Q                            | Fourth Q   | Letter |
|----------------------------|----------|--------------------------------|------------------------------------|--|--------|
| Peron's Tree Frog          | <7 cm    | Can live in urban areas        | Changes colour to camouflage       | Does hunt in the open                              | C      |
| Leaf Green Tree Frog       | <7 cm    | Can live in urban areas        | Changes colour to camouflage       | Doesn't hunt in the open                           | D      |
| Red-eyed Tree Frog         | <7 cm    | Can live in urban areas        | Cannot change colour to camouflage | Only comes down from trees to breed                | H      |
| Dainty Tree Frog           | <7 cm    | Can live in urban areas        | Cannot change colour to camouflage | No. Eggs are often laid on plants                  | I      |
| Eastern Sedgefrog          | <7 cm    | Cannot live in urban areas     | Changes colour to camouflage       |  | E      |
| Rocket Frog                | <7 cm    | Cannot live in urban areas     | Cannot change colour to camouflage | Has long legs that allow it to jump long distances | F      |
| Jervis Bay Tree Frog       | <7 cm    | Cannot live in urban areas     | Cannot change colour to camouflage | Does not have long legs                            | G      |
| Green and Golden Bell Frog | >7 cm    | Can catch large ground prey    |                                    |  | B      |
| Green Tree Frog            | >7 cm    | Cannot catch large ground prey |                                    |  | A      |

### Answers to key (for Educator)

| Frog Species               | Enclosure Code |
|----------------------------|----------------|
| Peron's Tree Frog          | C              |
| Leaf Green Tree Frog       | D              |
| Red-eyed Tree Frog         | H              |
| Dainty Tree Frog           | I              |
| Eastern Sedgefrog          | E              |
| Rocket Frog                | F              |
| Jervis Bay Tree Frog       | G              |
| Green and Golden Bell Frog | B              |
| Green Tree Frog            | A              |