

FILL THE BILL

Aim

By observing the shape of the food and water containers, students will decide which tools can be used to get the food and drink out of the container. This is same as the association between the food source and beak shape of birds that students need to understand

In addition, the practice of using Atlas of Living Australia software on the website will help to locate the habitats and food sources of different bird species. Students will have to link the information together to determine the relationship between the appearance, food source and living location of different birds, and able to applicate this knowledges to different animals.

ACTIVITY 1 – The Best Tools to use for Different Food Sources

Materials

- 6 eyedroppers or straws
- 3 envelopes or small fishnets
- 2 large scoops or slotted spoons
- A narrow vase filled with water
- Large container filled dry oatmeal (approximately 2 cups)
- 1/2 a cup of fake worms (lollies are probably easiest)
- 4 pairs of chopsticks or forceps
- 3 nutcrackers
- 2 strainers
- 1 cup of whole walnuts or other nuts
- 2 pairs of tongs

- 1 packet of dried macaroni
- 1 aquarium or big tub filled with water
- 1 packet/1 cup of puffed rice
- 1 cup of popped popcorn or small marshmallows
- 1 packet of rice
- 1 packet of cherries (approximately 8 cherries)
- 1 roll of string

Methods

There are 8 stations that have been set up with different sources of food and tools on the side. Your job is to decide which tools will be the best to use in each station. Write down your answer in table in result section.

Hazards

There is no dangerous tools, hazardous and flammable chemicals in use.

Results

Station	Best Tool
1	
2	
3	
4	
5	
6	
7	
8	

Extension of Results

Base on your findings in results, draw a beak shape that would best suit each type of food in table below.

Food	Beak Shape
Nectar	
Worms in mud	
Seeds	
Fish	
Tiny aquatic organisms	
Flying insects	
Caterpillars and insects	
Fruits	

Discussion

Question 1. How do their beaks compare with your drawings?

To what extent do you think this modelling activity allows you to understand bird beak adaptation?

Question 2. What do these models **not** show about bird beak adaptation?

Question 3. How do these activities represent the way that scientists study adaptations?

Question 4. Can you link this modelling activity to the scientific practice of palaeontology (scientists interpreting dinosaur fossils)?

ACTIVITY 2 – Atlas of Living Australia Practice

TASK A:

Methods

1. Go to the Atlas of Living Australia <http://www.ala.org.au/>
2. Click the browse location tile and type the Geelong into the Search field.
3. Set the radius to 10 km.
4. Use the list under the heading Species: Common Name to find each of the birds listed in previous page of the website.
5. Find how many recorded sightings there have been of each bird in table below and describe the habitat/s in which the bird has been sighted.

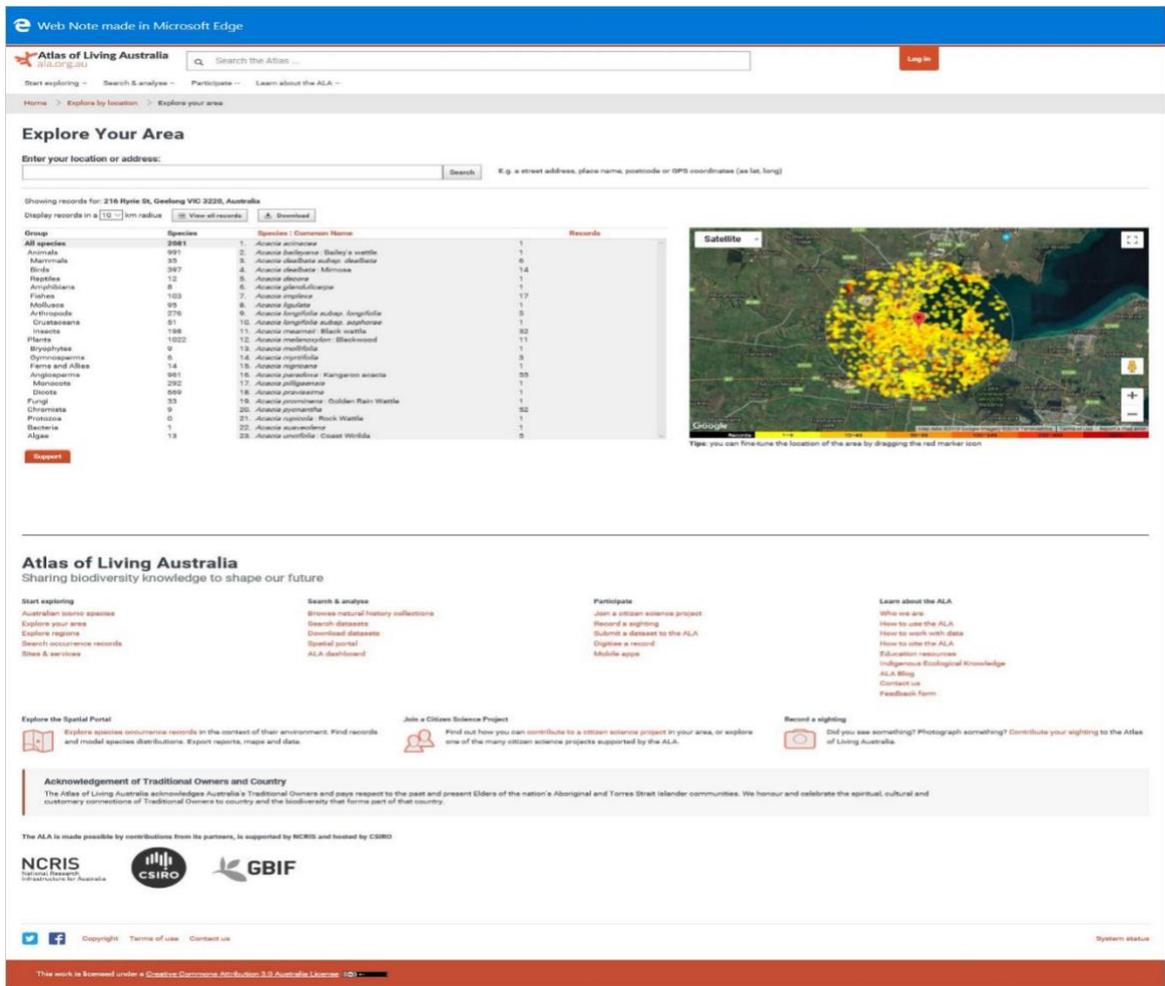


Figure. The ALA 'Explore Your Area' web page with the location set to Geelong with a radius of 10km.

Results

Bird	No. of Records	Habitat(s)
<i>Anas platyrhynchos</i> Common Mallard		
<i>Manorina melanocphala</i> Noisy miner		

<i>Turdus merula</i> Common blackbird		
<i>Pelicanus conspicillatus</i> Australian pelican		
<i>Rhipidura leucophrys</i> Willie wagtail		
<i>Cacatua galerita</i> Sulphur-crested cockatoo		
<i>Anthochaera carunculata</i> Red wattle bird		
<i>Cracticus torquatus</i> Grey butcherbird		

TASK B:

Methods

Except for the Mallard the birds listed so far are relatively common, look through the list and pick out 6 birds that are rare (10 – 30 recorded sightings).

List these rare birds in the blank parts of the table together with their habitats.

Results

Bird	No. of Records	Habitat(s)

ACTIVITY 3 – Case Study

In developing your report to the council, you have consulted a scientist who has advised against you using some of the information on the birds recorded in the Atlas of Living Australia. The scientist said that the dots on the maps are not an accurate representation of the distribution of the birds, that some of the information is unreliable and out of date.

The scientist has provided a list of birds in the table below as evidence of her claims. Examine the list of records and identify how recent the sightings of the birds were made and who has recorded those sightings.

Methods

The scientist has provided a list of birds in the table below in Results as evidence of her claims. Use ALA website, examine the list of records and identify how recent the sightings of the birds were made and who has recorded those sightings.

Results

	Dates of Record	Number of difference	Useful data for Report (Yes/No)
Regent honeyeater			
Australian bustard			
Rufous songlark			
Rainbow bee-eater			
Australian king parrot			
Chicken hawk			

Discussion

Question 1. Decide whether you think that the information on the location of each bird is current and reliable enough to use in your submission to council.

Question 2. Choose one of the above that is unreliable.

What could be done to generate more accurate data about

a) Distribution

b) Habitat

Question 3. If a scientist is to work for the Geelong City Council in recommending habitat management what range of things should they consider? For example, food sources.

Question 4. A local Councillor objects to spending money on bird preservation. He suggests that the money would be better spent on upgrading the football ground/facilities. How would construct an agreement in support for bird preservation?

Conclusion

In 50-100 words, write about the learning outcomes that you have achieved through activities about the relationship between birds' beak shape and food source as well as the application of Atlas of Living Australia in animal's study and research.

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