

# Regenerating Australia - The Importance Of Planting Native Plants



Name

Class

## Teaching Sequence

Work through this resource material in the following sequence:

<b>10 minutes</b>	Part A: Photosynthesis and transpiration
<b>10 minutes</b>	Part B: Measure transpiration
<b>20 minutes</b>	Part C: Incursion – Identifying exotic and native plants
<b>20 minutes</b>	Part D: Plan and perform an experiment
<b>Lunchtime</b>	Part E: Protect your research
<b>30 minutes</b>	Part F: Making conclusions and sharing implications

## Part A: Photosynthesis and transpiration

### Step 1.

Begin this lesson by sharing the following images with students and inviting them to discuss the importance of plants. Lead students to identify any plants that may be familiar to them (e.g. gum trees and grasses). Discuss the importance of plants and how they produce food and oxygen (photosynthesis). Name some animals which may be found in and around these plants. Use the plastic bag image as a stimulus to introduce the process of transpiration.

See the image below as an example:



### **Step 2.**

On their worksheet, students complete an image of a plant showing the process of transpiration. They will need to show that sunlight and water are essential for photosynthesis. The sun provides the energy to drive the process. Water is taken up by the roots from the soil and travels up the stem and out through the leaves. They then list all the benefits that plants bring to our Earth.

## **Part B: Measuring transpiration**

### **Step 1.**

Discuss with students a method to measure transpiration.

- Why should the bag be transparent? (Allows the sunlight to get through)
- Why does the bag need to be tied off? (Prevents water vapour from leaving the bag)
- Why should it be placed on the sunny side of the plant? (Speeds up the process)

### **Step 2:**

To consolidate learning, ask students why they think brown paper bags won't work in this experiment. (They won't let light through, and the paper material will soak up and absorb the water).

## **Part C: Incursion - Native and exotic plants**

### **Step 1.**

As a class, walk around the playground to discuss the various plants. Attempt to classify into two groups – native and exotic. Native plants tend to have smaller, spindly leaves. The leaves may be pretty waxy, or even hairy! Exotic plants tend to have larger, softer and greener leaves.

### **Step 2.**

Show students the image below and invite your class to share which plants they think may have higher transpiration rates and why.

Exotics – large, soft leaves





Natives – small, narrow leaves





## Part D: Plan and perform an experiment

### Step 1.

Challenge the students to design an experiment to determine which group of plants has the higher rate of transpiration. Discuss how to perform a fair experiment, and then students can plan and carry out their experiment using the anagram, "Cows Moo Softly".

- **Cows** – What are they going to **CHANGE** in their experiment? (Native trial and an exotic trial)
- **Moo** – What are they going to **MEASURE**? (The amount of water collected in the bag)
- **Softly** – What are they going to keep the **SAME**? (The size of bag and clump of leaves, length of time, exposure to sunlight).

### Step 2.

Students form small groups and complete the simple method on their worksheet as a team.

### Step 3.

Students then go into the playground with their groups and set up their experiments as a team.

## Part E: Protect your research

### Step 1.

This should be done at lunchtime. Students can take turns guarding their experiments (this will give students a sense of importance and responsibility). Students from other years will be keen to ask questions about why all the plants have plastic bags on them! This will excite students who will be eager to do the experiment for themselves in the following years and contribute to a culture of learning.

## Part F: Sharing conclusions and implications

### Step 1.

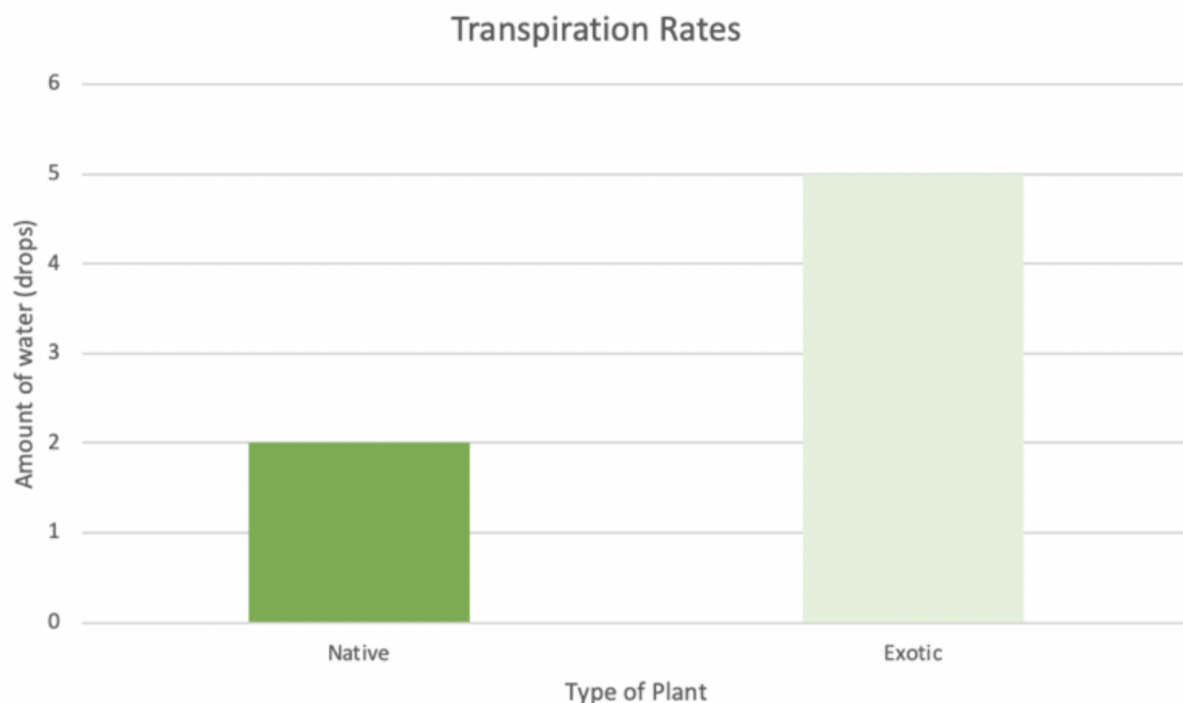


Students go and collect their plastic bags from the playground. Advise them to shake the plastic bag vigorously while it is still on the plant to help collect the water in the corner of the bag. Students will have to do their best to determine how many drops of water have been collected in each bag. They will carry this out with their dropper and record the results on their worksheets.

## Step 2.

Each group completes a column graph on their worksheet to show how many water drops they collected from the native vs the exotic plants.

Below is an example from previous results:



## Step 3.

As a class, share the main findings and discuss any generalisations that can be drawn from the results.

## Step 4.

Discuss with students what the implications of their findings are to regenerate Australia. Students can research in groups and find information to help further stimulate their thinking. You may like to provide students with their very own [Regeneration Factsheet](#) and watch '[What is Regeneration](#)' (password: EDU\_RA) as a class to inspire their thinking and refresh their understanding of regeneration.



**Once you have read and watched the video, facilitate a brief conversation and discuss the questions below. While students are talking ensure you write their words on a board, create a mindmap or categories their thoughts so that they can "see" the connection and importance of taking good care of our country.**

- Which group of plants may be best suited to Australian conditions?
- Which plants provide the best habitat and food for native animals?
- Which plants require less water and less fertiliser?
- Are there native plants in their area suitable for Bush Tucker?

## Reflection

Invite your students to reflect on the following:

- What went well?
- What could have been better?
- What changes would you make to improve the lesson?

## Differentiated learning

### Extension

Invite students to research the common and scientific names of different plants they found in the playground.



## Provisions for learning support

Organise students into groups and ask them to investigate how the plant functions. For example, students pull a weed (excavating it very carefully) and draw the plant and the root system. They could label the drawing or research the different jobs that the roots, the stem, and the leaves do to keep the plant healthy and circulate nutrients and water around the plant.

## Teacher reflection

**Take this opportunity to reflect on your own teaching:**

- What did you learn about your teaching practice today?
- What worked well?
- What didn't work so well?
- What would you share?
- Where to next?
- How are you going to get there?