Turning over a new leaf (Updated Post Cyclone *Yasi*)

When identifying plants, botanists first complete a "plant profile", noting obvious features. Leaf characters are the feature most commonly used, as flowers and fruit may only be present for a short time during the year. Your tasks are:

1. Begin by completing the plant profile for **Tree A**. Your teacher will assist you with completing the plant profile and keying out for **Tree A.**
2. Start by deciding if your plant has simple or compound leaves (see the drawings in the plant profile on pages 2 and 3).
3. Complete the plant profile for the other six plants [B-F] around the Centre that are marked with tape.
4. Use this information to "key out" the six trees plants, using the identification key on page 4.
5. Record your identifications in the table below.
6. Answer the questions below and sketch one leaf.

Common name	**Scientific name (Genus)**	**Letter on tape label on tree**
Coral Tree	Erythrina	
Ironwood	Rhodomyrtus	
Northern Silky Oak	Cardwellia	
Bleeding Heart	Homalanthus	
Pink Ash	Alphitonia	
Grey Bollywood	Neolitsea	

Q.1 You have used leaf characters to identify your six trees. Which other features and characteristics of rainforest plants could be used to help identify them?

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Q.2 Foresters often identify rainforest trees by their bark.

a) Name one tree you have "keyed out" that could have been identified by its bark.

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b) Describes the characteristics of the bark of this tree.

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Q.3 Select one tree and sketch a leaf, annotating your scientific drawing with the leaf's characteristics.

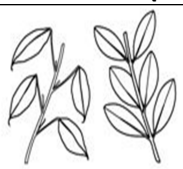
Australian Curriculum V4.0 Primary Years Science Content Descriptors

Year 1 Living things have a variety of external features (ACSSU017)
Year 3 Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044
Year 5 Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)
Year 7 There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111

Leaf character drawings are copied from the Australian Tropical Rainforest Plants online identification key

Study site location details/ Geographic Area:	**Date:**

Plant Features (Growth Habit) Write a (T) for a tree or an (S) for a shrub	**Plant Specimen Number**					
	A	**B**	**C**	**D**	**E**	**F**
Leaf Characters (✓)	**A**	**B**	**C**	**D**	**E**	**F**



Simple leaves have buds or shoots in all forks formed by petioles and twigs

Compound Leaves appear to have neither buds nor shoots in the forks formed by petioles or twigs.

Leaves alternate or spirally arranged

Leaves whorled (in a circle)

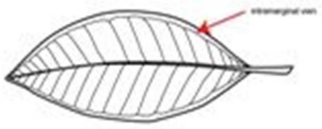
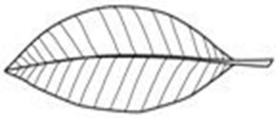
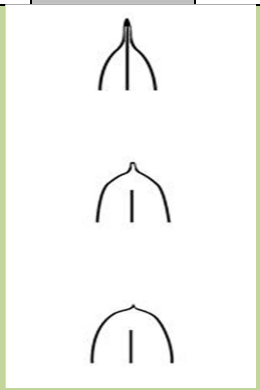
Leaves opposite each other

1. Leaf types – simple or compound. Simple leaves have buds or shoots in all forks formed by petioles or twigs. The apparent "leaves" in compound leaves are in fact leaflets, each a part of the compund leaf.						
1a Leaves simple						
1b Leaves compound						
2. Leaf arrangement. This is the positioning of the leaves on the stem. In the case of compound leaves, this refers to the whole leaf itself, not the leaflets.						
2a Leaves alternate or spirally arranged; leaves whorled						
2b Leaves opposite						
3. Compound leaf type – arrangement of leaflets						

Pinnate arrangement of leaflets

Three leaflets

3a Three leaflets						
3b Leaflets pinnate						
4. Undersurface colour of the leaf – the colour of the undersurface of the leaf (or leaflet) as compared to its upper surface						
4a Undersurface of the leave is white						
4b Undersurface of the leaf is not white						

Leaf Characters (✓)	Plant Specimen Number					
	A	B	C	D	E	F
5. Undersurface texture of the leaf (or leaflet) is smooth or hairy (Not illustrated)						
5a Undersurface of the leaf is glabrous (smooth)						
5b Undersurface of the leaf is hairy or sandpapery (use a lens).						
6. Undersurface texture of the leaf (or leaflet) is waxy or not waxy(Not illustrated)						
6a Undersurface of the leaf is glaucous (waxy); easily rubs off with a fingernail						
6b Undersurface of the leaf is not glaucous or waxy						
7. Veins are most easily seen by hold ing the leaf up to the light. The midrib is the middle vein. Other veins run out from the idrib towards the edge (margin) of the leaf. **An intramarginal vein** is a vein of constant thickness (much thinner than the midrib) just inside the margin and extending from the base of the leaf to the apex of the leaf blade.						
7a Intramarginal vein present 			**7b Intramarginal vein absent** 			
7a Intramarginal vein present						
7b Intramarginal vein absent						
8. "Oak" grain in twigs/ numerous brown **circular lenticels on twigs**. **Lenticels** are small pustules on the stems of many rain forest trees.						
8a "Oak grain" evident even in twigs						
8b No "oak grain" obvious						
9. Spines or hooks found on setms and branches, leaf blades or petioles - but not for climbing						
9a Conical prickles/ thorns evident on trunk and/or branches]						
9b No prickles/ thorns evident on trunk and/or branches]						
10. Old leaves often turn bright red. Petioles (leaf stems) are also often red.						
10a Old leaves and many leaf stems are red						
10b No old red leaves or red leaf stems						
11. A "drip tip" is an adaptation of many rainforest trees to heavy rainfall. The drip tip helps the leaf blade shed excess water, thus preventing growth of fungi and lichens that could impede photosynthesis. **Look for "drip tips" evident at the end (apex) of the leaf**			 **Examples of "drip-tips"**			
11a Leaflets have a distinct "drip-tip"						
11b Leaflets do not have a distinct "drip-tip"						

IDENTIFICATION KEY

1a Leaves **simple**……Go to 2
1b Leaves **compound**……Go to 3

2a Leaves arranged **alternately, spirally** or **whorled**……Go to 4
2b Leaves **opposite**……Go to 5

3a **Three leaflets** per compound leaf……Go to 9
3b Leaflets are **pinnate** ……Go to 8

4a **Undersurface** of the leaf **is white**……Go to 5
4b **Undersurface** of the leaf **is not white**……Go to 10

5a **Undersurface** of the leaf **is smooth** (glabrous)……Go to 6
5b **Undersurface** of the leaf **is hairy or sandpapery** (confirm using hand lens)……Go to 7

6a **Undersurface** of the leaf **is waxy** (glaucous);easily rubbed off with fingernail…**Grey Bollywood**
6b **Undersurface** of the leaf **is not waxy** (glaucous)……**Pink Ash**

7a **Intramarginal vein** present……**Ironwood**

8a **"Oak grain"** evident in twigs (look for **lenticels** using hand lens); **no distinct "drip tips"**……**Northern Silky Oak**

9a Conical **prickles or thorns** evident on the trunk or branches……**Coral Tree**

10a **Old leaves** and many **leaf stems** (petioles) **are red**……**Bleeding Heart**