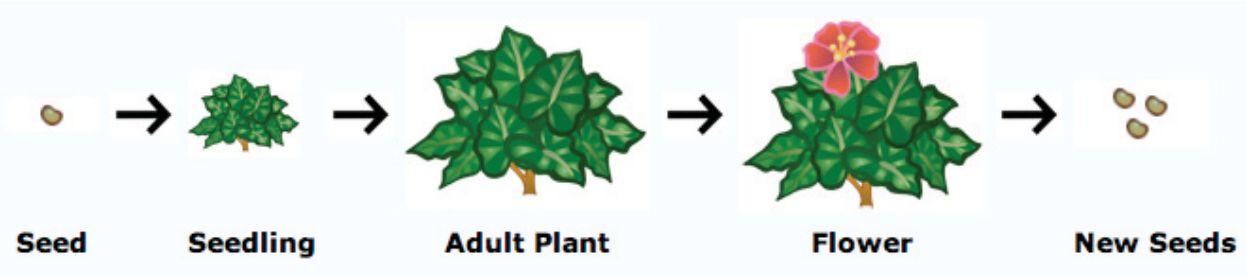
Guide to the Mystery Plants

The plants used in the **first five** Evolution Readiness activities have unique features that help students focus on the *Big Ideas* in evolution. This guide will help you better understand the features of the Mystery Plants and how they are uniquely adapted to certain environments.

Mystery Plant Life Cycle

Mystery Plants have a simple life cycle:

1) Seed
2) Seedling
3) Adult plant
4) Flower
5) Seeds scatter
6) Death of parent plant (with winter)



When a plant is in an environment that matches its needs, it will produce a flower, scatter seeds, and then die (in winter). If a plant is planted in an environment close to the one that matches its needs, it will grow, but it will be brown and wilted. Wilted plants will not flower.

Mature, healthy plants produce flowers and will drop seeds. The offspring seeds can have some variation. For example, a plant with Leaf Size 6 can produce seeds that vary by one leaf size. So, a Leaf Size 6 plant can produce seeds that will grow into plants of Leaf Size 5, 6, or 7. This rule also applies to root size. This is a Big Idea in evolution: not all offspring from the same parents look alike, even with respect to inherited traits.

Mystery Plants do not need a mother and father to reproduce. Only one parent plant is needed to produce seeds. This type of plant is called *monoecious,* meaning one household. The plants have both male and female organs on the same plant in the same flower.

Leaf Size

There are 10 varieties of Mystery Plants, differentiated by leaf size and flower color. The Leaf Size 10 plant has the largest, bushiest leaves. It can live in the shadiest flower box in the Virtual Greenhouse and

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in the shadiest part of the Virtual Field. The Leaf Size 1 plant has the smallest, narrowest leaves. It can live in the sunniest flower box in the Virtual Greenhouse and in the sunniest part of the Virtual Field. There are 8 additional varieties between these extremes. Healthy, mature plants will grow one flower. Plants will only flower if planted under the appropriate conditions. If a seed is planted in a neighboring environment to the preferred environment, the plant will grow, but it will be wilted and not produce a flower.

Note: Leaf Size does not refer to the number of leaves.

Leaf Size	Healthy Plant	Wilted Plant
Leaf Size 1		
Leaf Size 2		
Leaf Size 3		
Leaf Size 4		
Leaf Size 5		
Leaf Size 6		

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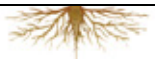
Leaf Size 7		
Leaf Size 8		
Leaf Size 9		
Leaf Size 10		

Root Type

Activity 5 introduces Mystery Plant roots. Like leaf size, there are ten types of roots. The roots range from wide, shallow roots that are common on plants that grow in wet environments to deep taproots often seen on desert plants. Each plant variety can have any one of the 10 root types. Below are the root types.

Root Size 1	Root Size 2	Root Size 3	Root Size 4	Root Size 5
				

Root Size 6	Root Size 7	Root Size 8	Root Size 9	Root Size 10

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