



SCIENTIST IN RESIDENCE PROGRAM™

Science Unit *Explore the Wonder of Nature With Our Senses*

Lesson 1 *Growing Paperwhites*

Authors	Lea Elliott (scientist), Julie Gelson (teacher) and Melanie Moore (teacher)
Grade level	K – 3
Class time needed	1 hour and 20 minutes
Delivery date	December 1 st , 2015

LEARNING OBJECTIVES

1	Observe paperwhite bulbs as they grow roots, shoots and flowers.
2	Learn what bulbs need to grow.
3	Ask questions about paperwhite bulbs.

SUPPLIES

- One paper white bulbs per students.
- One clear jars or container per student (500ml is a good size) .
- Enough pea gravel to fill each jar with 5cm of gravel.
- Book: *That's not a daffodil* by Elizabeth Honey.

BACKGROUND INFORMATION

Some plants, such as tulips, grape hyacinths and daffodils, grow from bulbs. Bulbs are plants that store their entire lifecycle in a fleshy vessel underground. Usually, we plant bulbs outside in the fall. The bulbs spend the winter under the soil, in the dark and cold. In spring, as temperature and daylight increase, the bulbs are triggered to start growing.

Paperwhites are a type of daffodil that can be “tricked” into growing in the winter. When we purchase the bulbs in November they’ve already been kept in a cool and dark place for a few months. When we plant them inside in the winter they “think” it’s spring. After we put the bulbs in the light and give them water the roots and leaves will begin to grow. In a few weeks flower buds will form and open.

The paperwhite bulbs teach us about plant lifecycles, the wonder of nature and hone our observation skills. We can observe the different stages as the plant grows. We can also use our sense of smell to observe the beautiful fragrance of the paperwhite flower.

In November, paperwhite bulbs can be purchased at your local garden store. Plant the bulbs three to five weeks before you want them to bloom. To have flowers before winter break plant the bulbs in mid-November.



SCIENTIST IN RESIDENCE PROGRAM™

THE LESSON

The Hook	<ul style="list-style-type: none">• Read <i>That's not a daffodil</i> by Elizabeth Honey.• Let students in on the secret that the bulbs will be white, smaller than a yellow daffodil and will smell beautiful.• Describe today's hands-on activities. Which side of the bulb is the top?
Hands-on Activity 1	Act out a bulb as it grows <ul style="list-style-type: none">• Be a bulb, grow a stem, grow a bud and open the flower bud (repeat).
Hands-on Activity 2	Plant our bulb <ul style="list-style-type: none">• Place about 5cm of gravel into each jar.• Stand one bulb in the gravel with the roots down and shoot up.• Lightly water each bulb.• Draw the bulb before it begins to grow.• Place the jar on a windowsill.• Make periodic observations as the paperwhite grows.
Wrap Up	Wonder wrap-up <ul style="list-style-type: none">• What do you wonder about your bulb?

VOCABULARY

Bulb	A plant that store its entire lifecycle in a fleshy vessel underground.
Fragrance	A pleasant sweet smell.
Observe	To notice details by paying close attention.
Senses	Our senses of sight, hearing, smell, touch and taste help us observe our surroundings.
Sprout	When a new plant grows from a seed or bulb.

REFERENCES

Honey, E. 2011. *That's not a daffodil*. Allen and Unwin.

Will, M.J. 2015. When to force bulbs indoors. Paperwhite forcing calendar. <http://empressof dirt.net/timing-forced-bulbs-indoors/> (accessed Jan 9, 2016)