



Bulbs

Planting a bulb takes little effort or maintenance and yields glorious results. However, bulbs are expensive and many are non-native. To farm sustainably with bulbs, one must be able to cover the costs of planting them. This might mean being willing to cut them in the spring to sell as cut flowers. Or, making the long-term commitment to dig them up in the fall, overwinter the bulbs in a cool, dark indoor space, harvest the bulblets and replant the next fall. In this lesson, we plant new bulbs.

SUMMARY

Bulbs are planted outdoors. Some classes may choose to make their activity scientific and to utilize technology by participating in Journey North as a part of the lesson.

FOCUS QUESTION

What is a bulb, how does it grow, what do bulbs need?

OBJECTIVES

See listing of NC Objectives in grey area on the left of page two.

MATERIALS

(15) Trowels for pairs of students

(15) Rulers

Bulb Booster

Prepare the ground ahead if it is hard.

Be sure there is adequate drainage.

SPECIFIC OUTCOMES

- Farming involves postponing gratification.
 - Plants follow cycles of growth aligned with the seasons.
- Farming means waiting many months to recoup your investment.
- Some garden projects require a large investment up front.
- Farming is a skill learned through practice and hard work.
- Farmers are life-long learners.

MAKING CONNECTIONS

Sustainable Agriculture is defined as farming that is: environmentally sound, economically viable, and socially responsible. In this lesson, all three of these aspects are covered:

- Environmentally sound: Planting bulbs enhances the schoolgrounds, and raises appreciation of gardening, thereby aiding in buy-in and ownership of the school community. Also, bulbs need minimal inputs as they gather



Grade Level K - 5
(Adjust according to your students.)

Subject Areas Science

Key Concepts Form and function of the bulb. Parts of the bulb. Other underground structures: tubers, corms.

Key Cognitive Skills

Group Size 25 - 30

Duration 50 minutes to plant/draw

Setting Garden bed

Background Information:

See Journey North diagram of bulb in Appendix for Anatomy of a bulb. Bulbs store all the energy they need within themselves. When ordered, they can be kept for several weeks stored at a cool temperature and in the dark. Generally they can be planted in the fall and welcome in the Spring and Summer. There are differences between bulbs, tubers, corms and rhizomes. The garlic is a corm while and onion is a true bulb. A potato is a tuber and rhizomes looks like gnarled roots.

Extension: As a part of this lesson, participate in an on-line Scientific Study called Journey North. For more, see: www.learner.org/journenorth/tulips

CURRICULAR GOALS

NC Standard Course of Study Science Objectives

Kindergarten: The learner will build an understanding of similarities and differences in plants and animals.

1.01 Identify the similarities and differences in plants:

Appearance. Growth. Change. Uses.

Grade One: The learner will build an understanding of the needs of living organisms.

1.01 Determine the needs of plants:

Air. Water. Nutrients. Light.

Grade Two: The learner will build an understanding of plant and animal life cycles.

1.01 Analyze the life cycle of plants:

Reproducing. Developing into an adult.

Eventually dying.

1.02 Compare and contrast life cycles of different plants.

Grade Three:

1.01 Determine that the quantities and qualities of nutrients, light, and water in the environment affect plant growth.

1.02 Observe how environmental conditions can determine how well plants grow and survive in a particular environment.

1.03 Analyze plant structures for specific functions: Growth. Survival. Reproduction.

1.04 Determine that new plants can be generated from:

Seeds. Tubers. **Bulbs.** Cuttings.

Grade Four: Systems have boundaries, components, resources flow and feedback.

Grade Five: Energy transfer and resource use; how a bulb stores energy.

MATH:

Use of a ruler for depth measurements.

and store their own energy. They set a great example!

- Economically viable: Saving bulblets season to season, as well as planting bulbs which naturalize means little additional investment for ongoing flowers.

- Socially responsible: Bulb planting is accessible to every age and almost guarantees success. Success translates into raised self-esteem.

PROCEDURE

ENGAGE (5 Minutes)

Gather in outdoor classroom. Introduce Farmers who ask what students they already know about bulbs. Show a big poster of a bulb. (See appendix for 8X10). Hand out bulbs (handle gently!) Review parts of bulb and other background info.

EXPLORE (5 Minutes)

Teacher helps students get into pairs. Break into groups, assign master gardener/farmer to each group. Walk to tulip patch planting area.

Review instructions for planting. Considering needs of the bulb (drainage, depth) students choose a spot.

EXPLAIN (5 Minutes)

Students learn that bulbs prefer to be planted at a depth 3X their diameter. Students are challenged to determine that depth. They use rulers to measure how deep to dig. (Extension: Read directions from Journey North about how to plant their bulb.)

EXPAND (5 Minutes) "Let's Take it One Step Further"

As students plant, and finish, keep the conversation focused on bulbs. Review the importance of the tunic, that the bulb contains all it needs, the cycle of the bulb etc. Have an onion and a garlic in you pocket.

EVALUATE (5 Minutes) "You Tell Me"

Students draw and label bulbs in their Garden or Science journals. They research the typical life cycle of their bulb and make predictions about when the bulb will sprout and when it will bloom. They then check on the bulbs every few weeks to look for progress. As Spring approaches, look more often. Have them plant one at home and compare growth times. For older students, challenge them with how they will recuperate the monies laid out for bulbs. Will they cut and sell flowers? Will they dig up the bulbs the next fall and harvest bulblets? Could you find someone to adopt-a-bulb for the school?