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# Environmental Scientist

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**Overview:**

This lesson and activity are designed to give students hands-on experience identifying and growing wildflowers.

**Grade:** 3

**TEKS**

Scientific processes

3.2 (A, B, D, E)

3.3 (C)

3.4 (A, B)

Science Concept

3.5 (A)

3.8 (A, D)

3.10 (A)

3.11(B)

**Literature**

*Ann's Magic Seeds* by  
Mitsumasa Anno

**Vocabulary**

Dispersal

Seed

Wildflower

Germination

Inherited

**Materials**

Discovery Book

Clay

Compost

Wildflower Seeds

Water

## Wildflower Spheres

### Classroom Activity

1. Make a transparency of the "Texas Wildflower" resource page. Place it on the overhead projector and ask your students to alphabetize the words. Explain that some of the flower names have two parts just like a person's first and last name.
2. As the students are working, listen to see if any of your students are making connections between the words and common wildflowers found in East Texas.
3. Explain to your class that they will help plant wildflowers at the Eastman Nature and Wildlife Habitat Center by making "Wildflower Spheres" and dispersing them along the trail.
4. Gather the following ingredients:
  - Wildflower Seeds
  - Dry Compost
  - Dry Red Clay Soil
  - Water



5. In a plastic bowl, mix 1 part dry seeds, 3 parts dry compost 5 parts red clay. Mix all 3 ingredients until they are blended uniformly.

6. *It is recommended to do this step outside.* Slowly add 1 to 2 parts water. Be careful not to add too much water. Add just enough water to the soil, compost, and clay mixture to make a stiff dough. If the mixture is too wet just add more compost and clay to the mixture.
6. Have each student take about 1 cup of the dough-like mixture and roll small spheres about 10 to 15 centimeters in diameter. The "wildflower spheres" pictured below (24 spheres) were made from the supplies pictured on the on the previous page.



7. Allow the "wildflower spheres" to dry for at least 24hours. Place the dry "wildflower spheres" in a brown paper sack (breathable) and store until ready to use.
8. The "Wildflower Spheres" are like a small model of an ecosystem. Discuss with your class how the "model" they created is like or not like the Earth. Can your students find other examples?



9. When planting your wildflower spheres it is not necessary to dig a hole for the seed. The seeds are surrounded by soil. All you have to do is scatter the "Wildflower Spheres." Here are a few suggestions:
  - Walk around your school and toss them as you walk.
  - Toss the "Wildflower Spheres" as you walk along the Eastman nature trail.
  - Walk through a city park and toss them in flowerbeds.
  - Give the "Wildflower Spheres" a gift.

Ask your students to list other ways to disperse the "Wildflower Spheres."

10. Close the lesson by reading Mitsumasa Anno's book *Anno's Magic Seeds*. Lead your class in a discussion about plants and how they reproduce. Why are there so many seeds in an apple? How many seeds are in an apple vs. an orange? Why does an avocado have only one large seed? Discuss with students the concept of germination and how a plant increases its survival by having a large number of seeds.
11. Prior to visiting the Eastman Nature Trail, take your class on a virtual tour of the Eastman nature trail at <http://www.eastman.com/EastmanOutdoors/trail.htm>.

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# In the Field

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## Wildflower Spheres

1. Prior to leaving your school make sure you have the following items.
  - Discovery Books
  - Ziploc Baggies (1 gallon size)
  - Pencils (inexpensive mechanical pencils are excellent)
  - Wildflower Spheres
  - Thermometer
  - Water
  - First Aid Kit
  - Sack Lunch or light snack
  - Camera
  - Backpack
2. Before getting on the trail, remind students their observations and data collected will be used back in the classroom to create charts and graphs of their observations.
3. Set your behavior expectations before leaving the parking lot. Explain how students are to behave along the trail and in small groups. State specifically what behaviors you want to see along the trail. Remind students the higher their voices are the less likely they will see wildlife along the trail.
4. Distribute Discovery Books to students and record weather data observations. Teachers a gallon size ziploc baggie make an excellent container for pencils and Discovery Books during lunch or at the end of the day.
5. Walk through the gate and follow the trail. Remember to go slow and listen to your students' observations along the trail.
6. If you have enough adult supervision, divide your class into two groups. Have each group go in opposite directions along the trail. This will help reduce the noise level and also give your students an opportunity to share their observations when the class comes together at the halfway point. This is a good opportunity reinforce the idea that scientists share data too.

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# Post Eastman Activities

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## Wildflower Spheres

- Discuss with your students their experiences making the "Wildflower Spheres" and dispersing them at the while at the Eastman Nature and Wildlife Habitat Center.
- Conduct an experiment using different materials to make the wildflower spheres.
- Write a narrative about their experiences at the Eastman Nature and Wildlife Habitat Center.
- Have your students create charts and graphs of the data they collected while at the Eastman Nature and Wildlife Habitat Center. Compare the Eastman data with the data collected at your school.
- Create a wildflower garden at your school.
- Photograph and research the wildflowers around your school. Create a PowerPoint presentation based on your research.
- Students create an "Environmental Report" based on their Discovery Book observations.
- Write a Haiku about wildflowers and making "Wildflower Spheres."
- Make "Big Books" about the life cycle of a wildflower.
- Maintain an Environmental Journal for 1 school year.
- Conduct experiments growing bluebonnets. What happens to the germination rate when you soak the seeds in warm water overnight? Compared the results to seeds just planted in potting soil without soaking in warm water.

Texas primrose, Dandelion

Mexican Hat, Indian Paintbrush

Black-eyed Susan, Flowering Dogwood

Bluebonnet, Indian Blanket

Spiderwort, Wild Onion

Buttercup, Polkweed

Common Blackberry



# Resources

## Publications

*Anno's Magic Seeds* by Mitsumasa Anno, 1995.

*The Legend of the Bluebonnet* by Tomie DePaola, G.P. Putnam's Sons, 1983

*The Legend of the Indian Paintbrush* by Tomie DePaola, G.P. Putman's Sons, 1988

*Field Guide for the Eastman Nature Trail* by Eric L. Taylor, Ph.D

*The ABC's of Texas Wildflowers* by Glenna Gardiner Grimmer

*Roadside Flowers of Texas* by Howard S. Irwin

## Web Pages

Lady Bird Johnson Wildflower Center

<http://www.wildflower.org/>

Acorn Naturalists

<http://www.acornnaturalists.com/store/>

Common Wildflowers of Texas

[http://www.tpwd.state.tx.us/kids/wild\\_things/wildflowers/index.phtml](http://www.tpwd.state.tx.us/kids/wild_things/wildflowers/index.phtml)

Field Guide to the Eastman Nature Trail

<http://www.eastman.com/EastmanOutdoors/trail.htm>

Wildflower Photos

<http://aggie-horticulture.tamu.edu/wildseed/wildflowers.html>

Wildflower Key

<http://2bnthewild.com/phvsixsc.htm>

Wildseed Farms

<http://www.wildseedfarms.com/>