

The Art of Growing Things

Background

The Pilgrims carried seeds from England to help them start their first crops in the Massachusetts colony. Later immigrants, arriving from distant lands, carried their precious seeds in their pockets and sewn into the linings of their clothes and suitcases.

There were no stores where early settlers could go to buy seed. Those who had not brought seeds with them or saved them from the last year's crop had to order them from England. This could be a huge expense for a struggling frontier family.

For frontier families, saving seed for the next year's crop was as important as getting the crop in. They became highly skilled at choosing the largest, best-looking seeds to use for the next planting season. Seeds were sometimes used for barter or as payment for services.

As the country became more settled, general stores opened and began selling seed in bulk. Seeds sold in bulk are stored in large containers, like wooden barrels or bins. The customer tells the clerk how much he or she needs, usually according to weight, and the clerk measures it out.

Some seed and feed stores still offer garden seeds and other grain crops to be purchased in bulk. These are usually seeds that grow well in the local climate and have proven to be popular with the public. Most garden seed is sold by the ounce, because most home gardens are small.

Farmers buy bulk seeds for field crops by the bushel. Sometimes they buy certified seed in 50-pound bags. In order to be certified, seeds must be approved by a certifying agency. Seeds are certified based on a certain set of standards designed to maintain a satisfactory level of genetic identity and purity.

Farmers may also save seeds from crops that produce particularly well. In that case, the farmer can hire someone to clean twigs and insect parts from the seeds, and then store the seed until it is time to replant. Stored seeds for crops must be dry and are often treated with chemicals to control fungus and keep insects from eating them. Big round metal bins with concrete floors and air blowers keep the seed grain safe and dry until the farmer is ready to plant the new crop.

The Shakers, a religious group in New York, started the first commercial seed nursery in the US. They placed their seeds in small paper packets called "papers." Most garden seeds today are still sold in packages very similar to those first papers.

Early seed packets were decorated with beautiful line drawings. Today, seed packets sold in stores are usually decorated with photographs of the

P.A.S.S.

Grade 3

Reading—2.4; 3.1;
4.1a,2bc; 6.1,2

Writing—2.1,6

Oral Language—2.3

Visual Literacy—3

Social Studies—1.1; 3.2;
5.2

Math Process—1.2,5; 4.4

Math Content—1.2

Science Process—1.1,2;
2.1

Life Science—2.1,2

Visual Arts—2.1,2; 3.2

Grade 4

Reading—1.4; 2.2;
3.1,2abd; 5.1

Writing—1.5; 2.2

Oral Language—2.5; 3.3

Visual Literacy—1; 3

Math Process—1.2,5; 4.4

Math Content—5.2

Social Studies—1.1; 4.4

Science Process—1.2; 2.1;
4.1,4

Life Science—3.1,2

Visual Arts—2.2,4; 3.1

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P.A.S.S. (Cont.)

Grade 5

Reading—1.4; 2.2;
3.1ab,2abe; 5.1

Writing—1.6; 2.1,2

Oral Language—2.4,5

Visual Literacy—2.1,4; 3

Math Process—1.2,5; 4.4

Math Content—5.1b

Social Studies—3.3

Science Process—1.2; 2.1;
4.1,4

Life Science—2.2

Visual Arts—2.2,3; 3.1

Grade 6

Reading—1.3.ab; 2.2;
3.1ab,2ac; 5.1a

Writing—2.7

Oral Language—2.3

Visual Literacy—2.2; 3

Math Process—1.1,3; 4.1

Math Content—5.1

Science Process—1.1; 2.1;
3.3; 4.1; 5.1,3

Visual Arts—2.1,3; 3.1,2

plants the seeds will produce. Besides the common name and sometimes the scientific name of the plant, the seed packet will also include information about suggested planting depth, spacing between plants and other information about care and use. Most seed packets also include a map of the United States showing the different frost or growing zones.

Language Arts

1. Read and discuss background.
2. Hand out Student Worksheets B and C.
 - Students read Student Worksheet B.
 - Students look up the vocabulary words (words in bold print).
 - Students answer the questions on Student Worksheet C.
3. Provide a variety of seed packets for students to view and handle.
 - Students list the kinds of information they find on the packets as you write their observations on the chalkboard.
 - Students explain why each kind of information would be important to a gardener.
4. Each student selects a fruit or vegetable to research.
 - Seed packets, seed catalogs, gardening books, encyclopedia and the internet may be used as sources of information.
 - The student researches the fruit or vegetable.
 - The student writes a time-lapse diary, relating the experiences of the fruit or vegetable during its lifespan.
 - Students produce a written version for the teacher and give a dramatic reading to the class.
 - The oral presentation is videotaped for analysis and critique.
5. Discuss the impact of packaging on consumer choices.
 - Bring in examples of two or three brands of the same product.
 - Students choose one brand over another, based on packaging.
 - Students explain their choices.
 - Students answer the following questions: Do advertisers use certain colors and shapes more often than others? Why?
4. Provide old magazines.
 - Students view advertising for common brands of products and note changes in packaging between then and now.
 - Students discuss possible reasons for changes in advertising.
5. Provide samples of old packaging and let students compare it with new packaging.

Science

1. Students research to find five garden vegetables that will tolerate cool weather and five vegetables that must have warm weather to grow.
2. Students line the insides of glass jars with damp paper towels.
 - Dry cucumber seeds are inserted between the towel and glass.
 - Jars are placed around the classroom in varying amounts of sunlight.
 - Students record their hypotheses regarding projected growth results.

- Growth is observed, measured, recorded and used to develop line and bar graphs.
- Students give oral reports on their activities, with a representative of each group reporting after each observation.
- Students try the same experiment with sunflower seeds and then with a seed of their choice and compare results.

Math

- Students solve the following math problems:
 - A farmer has 20 acres that he wants to plant in wheat. He needs five bushels of wheat seed per acre. Certified wheat seed costs \$9 a bushel. How much will he have to pay for seed?
 - Sugar Pie pumpkin seed costs \$3 per ounce and \$5 for 1/4 pound. Which is a better value? What if you have a small garden and only need about 1 ounce of seed?
 - The length of the growing season is generally calculated by the number of days between the first and last frost. If the last frost in the spring is April 15 and the first frost in the fall is October 15, how many days is the growing season?

Social Studies

- Students find books in the library or search the internet to find information about the Shakers and other important inventions and contributions they have made.
- Students visit a local feed and seed store and ask the merchant to demonstrate the difference between buying in bulk and by the package.

Visual Arts

- Provide seed catalogs and gardening books for students to use as resources.
 - Each student chooses a plant and creates a seed packet design that would represent that plant.
 - Students research and write the general information that would appear on the back of the seed packet. (Useful downloadable resource:OSU Extension Fact Sheet “Oklahoma Garden Planning Guide” (<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1092/F-6004web.pdf>))
 - Once the preliminary designs have been created, students transfer artwork and information to the seed packet pattern on the student worksheet. Colors and extra details may be added at this time.
 - Designs are displayed on a bulletin board under the lesson’s title, “The Art of Growing Things.”

Materials

- assorted seed packets
- seed catalogs
- gardening books
- scissors
- crayons
- glue
- markers
- packaging — two or three examples (brands) of same product
- glass jars
- cucumber seeds, sunflower seeds and assorted other garden seeds

Vocabulary

certified seed— seeds approved by a certifying agency based on standards designed to maintain a satisfactory level of genetic identity and purity.

fungus—any of numerous plants lacking in chlorophyll, including yeasts, molds and mushrooms

genetic identity— all the characteristics of a particular breed that make it different from other breeds

growing zones— climatic division based on the length of the growing season in a given area

in bulk— method of buying and selling products that are not packaged

Shakers— a Christian group originating in England in 1747, which practices communal living

Extra Reading

Barry, Frances, *Big Yellow Sunflower*, Candlewick, 2009.

Carle, Eric, *The Tiny Seed*, Little Simon, 2009.

Eclare, Melanie, *A Harvest of Color: Growing a Vegetable Garden*, Ragged Bears, 2002.

Macken, JoAnn Early, *Flip, Float, Fly: Seeds on the Move*, Scholastic, 2008.

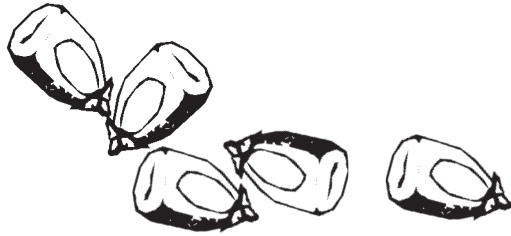
Noyes, Deborah, and Bagram Ibatoulline, *Hana in the Time of Tulips*, Candlewick, 2005.

Robbins, Ken, *Seeds*, Atheneum, 2005.

Name _____

The Art of Growing Things A

Use the pattern below to design a seed packet.



cut

fold here

Plant name _____

Price _____

Plant name: _____

Planting depth: _____

Space between plants: _____

When to plant: _____

cut

fold here

cut

fold here and glue flap

cut

fold here and glue flap

cut

drawing of plant



Name _____

The Art of Growing Things B

The **Pilgrims** carried seeds from England to help them start their first *crops*. Later *immigrants* from distant lands carried seeds in their pockets. Some sewed them into the linings of their clothes and suitcases. There were no stores where early **settlers** could go to buy seed. When they needed to buy seeds, they had to order them from England. This could be a huge **expense** for a struggling **frontier** family.

For frontier families, saving seed for the next year's crop was as important as harvesting the crop. They would choose the largest, best-looking seeds to use for the next planting season. Seeds were sometimes used for **barter**.

As our country became more settled, **general stores** opened and began selling seed in **bulk**. Seeds sold in bulk are stored in large containers, like wooden barrels or bins. The customer tells the clerk how many pounds or ounces he or she needs, and the clerk measures it out.

Some seed and feed stores still offer seeds for sale in bulk. Most garden seed is sold by the ounce, because most home gardens are small.

Farmers buy seeds in bulk by the **bushel**. Sometimes they buy seeds in 50-pound bags. Thousands of pounds of seed are needed to plant a crop like Oklahoma's number one **cash crop, hard red winter wheat**.

Sometimes farmers save seeds from crops that produce well. In that case, the farmer can hire someone to clean twigs and insect parts from the seeds. Then the seed will be stored until it is time to replant. Stored seeds for crops must be dry. Sometimes they are treated with chemicals to control fungus and keep insects from eating them. Big round metal bins with concrete floors and air blowers keep the seed grain safe and dry until the farmer is ready to plant.

The Shakers, a religious group in New York, started the first **commercial** seed nursery in the US. They placed their seeds in small paper packets called "papers." Most garden seeds today are still sold in packages very similar to those first papers.

Early seed packets were decorated with beautiful line drawings. Today, seed packets sold in stores are usually decorated with photographs of the plants the seeds will produce. The seed packet will include information about suggested planting depth, spacing between plants and other information about care and use. Most seed packets also include a map of the US the different frost or growing zones.



early seed packet

Name _____

The Art of Growing Things C

1. Why did early settlers and later immigrants carry seeds with them when they came to the New World?
2. After our country was more settled, farmers could buy their seed from the _____

3. Garden seeds are sold by the _____. Seeds for crops are sold by the _____ or the _____.
4. How is buying in bulk different from buying in packages?
6. What is the name of the religious group that first started selling seeds in packages?
7. What information is usually included on a seed packet?

What do you think?

Why would it be better to buy in bulk? Why would it be better to buy in packages? Write your answers on the back of this page.

Name _____

The Art of Growing Things (answers)

1. Why did early settlers and later immigrants carry seeds with them when they came to the New World?
Because there were no stores to buy seeds, and ordering them from England was expensive.
2. After our country was more settled, farmers could buy their seed from the
general stores
3. Garden seeds are sold by the ounce. Seeds for crops are sold by the
pound or the bushel.
4. How is buying in bulk different from buying in packages?
When you buy in bulk, you tell the clerk how much you want, and he or she measures it out. When you buy in packages, you buy the amount that is already in the package.
6. What is the name of the religious group that first started selling seeds in packages?
Shakers
7. What information is usually included on a seed packet?
Suggested planting depth, spacing between plants and other information about care and use. Most seed packets also include a map of the US the different frost or growing zones.

What do you think?

Why would it be better to buy in bulk?

Possible answers—You only get as much as you need, so there is less waste. Sometimes buying in bulk is cheaper because you don't have to pay for packaging and advertising.

Why would it be better to buy in packages?

Packages have the information to tell you how to plant. Packages have pictures of the plant, so you know what you are getting and can remember what kind of seeds they are.