



---

# Three Sisters Sprouts

---

## Based on the 2009 Native American \$1 Coin

---



### OBJECTIVE

Students will observe parts of a plant and seeds and how seeds grow into plants. Students will explore what seeds need to sprout and what plants need to grow. Students will examine and identify the differences between the Three Sisters seeds (corn, squash, and beans).



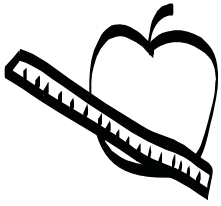
### MATERIALS

- 1 overhead projector (optional)
- 1 overhead transparency of each of the following:
  - “2009 Native American \$1 Coin” page
  - “How Our Seeds Grow” worksheet
  - “Three Sisters of Agriculture” information page
- 1 copy of each of the following:
  - “2009 Native American \$1 Coin” page
  - “Seed Comparison Chart” worksheet
  - “How Our Seeds Grow” worksheet
  - “Three Sisters of Agriculture” information page
- Images of corn, bean, and squash plants
- Large number of corn, bean, and squash seeds
- Bean seeds for sprouting (mung beans work well)
- Corn seeds for examining in pairs
- Magnifying lenses
- Chart paper
- Rubber gloves (check whether any students have latex allergies)
- Cotton balls
- Small cups



### PREPARATIONS

- Make an overhead transparency (or photocopy) of each of the following:
  - “2009 Native American \$1 Coin” page
  - “How Our Seeds Grow” worksheet
  - “Three Sisters of Agriculture” information page
- Make copies of each of the following:
  - “2009 Native American \$1 Coin” page (1 per student)
  - “Seed Comparison Chart” worksheet (1 per student)



# Three Sisters Sprouts

- "How Our Seeds Grow" worksheet (1 per student)
- "Three Sisters of Agriculture" information page (1 per student)
- Locate books or bookmark Internet sites that contain images of corn, beans, and squash for students to examine.
- Make up large cups of seeds (corn, bean, and squash) for the mosaic in Session 1 (1 cup per student).
- Make up small cups of seeds (one each of bean, squash, and corn per cup, 1 cup per student) for the students to examine in Session 2.
- Lay out rubber gloves (2 per student), wet cotton balls (5 per student), dry cotton balls (5 per student), and cups of mung bean seeds (10 seeds per cup, 1 cup per student) for the experiment in Session 3.



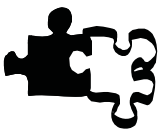
## GROUPINGS

- Pairs
- Whole group
- Individual work



## CLASS TIME

Four 20- to 30-minute sessions and five 5-minute follow-up sessions for the experiment



## CONNECTIONS

- Science
- Art



## TERMS AND CONCEPTS

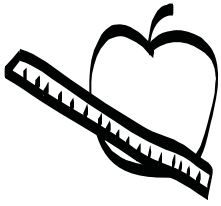
- Quarter
- Seed
- Squash
- Similarity
- Three Sisters of Agriculture
- Obverse (front)
- Beans
- Stalk
- Difference
- Reverse (back)
- Corn
- Sprout
- Native American



## BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

- Sorting and describing simple similarities and differences between objects
- Basic differences between plants and seeds



# Three Sisters Sprouts



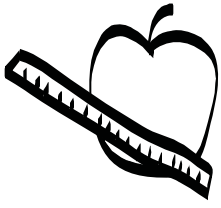
## STEPS

### Session 1

1. Describe the Native American \$1 Coin Program for background information.
2. Display the “2009 Native American \$1 Coin” overhead transparency. Tell the students that the back of a coin is called the reverse and “obverse” is another name for the front. With the students, examine the coin design, which is on the reverse of the 2009 Native American \$1 Coin.
3. Distribute a “Three Sisters of Agriculture” information page to each student. Display the “Three Sisters of Agriculture” overhead transparency and read the description aloud while the students follow along. Ask the students for ideas about why the Native Americans chose the name “sisters” for the three seeds.
4. Have the students examine some photos of corn, squash, and bean plants from any online source or book. Have them guess which plant is which and explain their answer using evidence from the reading. Guide student responses by asking about which plant in the photos is the tallest, has the largest leaves, grows close to the ground, and grows on poles or fences or other plants.
5. Lead them to conclude that the tall stalks are corn, the climbing plant is bean, and the low vine is squash.
6. Distribute a “2009 Native American \$1 Coin” page to each student and one large cup of corn, bean, and squash seeds to each student. Have the students use the “2009 Native American \$1 Coin” page as a template and glue the corn, bean, or squash seeds onto the template to make a seed mosaic of the design. Display student work around the classroom.

### Session 2

1. Review the information from the previous lesson about the Three Sisters of Agriculture. Pass out a small cup of three seeds to each student and a magnifying lens to each pair of students. Have them take out the corn seed inspect it.
2. Point out the hard shell and ask the students to locate and examine the tiny hole that allows water to enter into the seed to help the seed to sprout.
3. Ask the students if they know what it means to sprout. Explain that they will be learning about sprouting.
4. Distribute a “Seed Comparison Chart” worksheet to each student. Have the students examine the corn, bean, and squash seeds and record the similarities and differences on the worksheet.

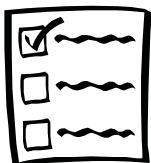


# Three Sisters Sprouts

5. On chart paper, create a T-chart and label one column “similarities” and one column “differences.” Title the T-chart “Seed Comparison Chart.” Lead a class discussion and have the students share some of the similarities and differences they observed. Record the student answers on the chart paper.
6. Collect the students’ worksheets.

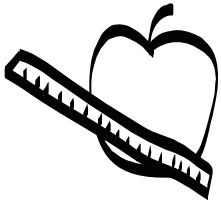
## Session 3

1. Review the T-chart from the previous session.
2. Explain to the students that they will be conducting an experiment. Give each student the following items:
  - 2 rubber gloves
  - Small cup with 5 damp cotton balls
  - Small cup with 5 dry cotton balls
  - Small cup with 10 dry mung bean seeds
3. Have the students place the first 5 beans into 5 wet cotton balls and then place the wet cotton balls into the fingers of one of the gloves. Help students with this as needed. Call the gloves “garden gloves” and tape the gloves to each student’s desk.
4. Have the students place the second 5 beans into the 5 dry cotton balls and then place the dry cotton balls into the fingers of the other glove. Tape the second glove to each student’s desk.
5. Distribute a “How Our Seeds Grow” worksheet to each student. Tell the students that they are going to observe their garden gloves every day as a class and look for changes. Lead the students in a discussion about what kinds of differences they might look for.
6. Take a few minutes each day for the next 5 days to have the class check the gloves and tell you what changes they notice. Have each student record these changes on the “How Our Seeds Grow” worksheet.
7. After most of the students have at least one sprouting seed in their glove, lead a class discussion on how the seeds have changed over time.
8. Have the students fill out the “How Our Seeds Grow” question sheet at the end of the 5-day experiment. Lead the students to conclude that seeds can sprout if they have water.



## ASSESSMENT

Use the students’ class participation, worksheets, and “garden gloves” to evaluate whether they have met the lesson objectives.



# Three Sisters Sprouts



## ENRICHMENTS/EXTENSIONS

- Bring in some corn, beans, and squash for students to see what the fruits of the fully grown plants look like.
- Have students create a school “Three Sisters Garden” in a sunny spot.
- Have students continue the experiment by growing all three kinds of seeds in cups and comparing the growth and changes in each kind of seed.
- Have students act out the parts of the sprouting seeds with a creative movement activity. Have them reenact the story of a seed as it sprouts and goes from seed to plant.



## DIFFERENTIATED LEARNING OPTIONS

- Have students who have difficulty with the garden glove activity use a resealable plastic food storage bag and let the seeds sprout as a class project.
- For students with reading difficulty, display visuals of corn, bean, and squash plants in a garden during the reading.



## CONNECTION TO [WWW.USMINT.GOV/KIDS](http://WWW.USMINT.GOV/KIDS)

- Have students learn more about the sun and seasons through the 2008 New Mexico quarter lesson plan for grades 2 and 3 at [www.usmint.gov/kids/teachers/lessonPlans/50sq/2008/0203-2.pdf](http://www.usmint.gov/kids/teachers/lessonPlans/50sq/2008/0203-2.pdf).
- Have students learn more about the role bison played in the culture and art of American Indians with the 2005 American Bison Nickel lesson plan for grade 2 at [www.usmint.gov/kids/teachers/lessonPlans/wjns/2005/02-amerBison.pdf](http://www.usmint.gov/kids/teachers/lessonPlans/wjns/2005/02-amerBison.pdf).
- Have students learn more about the role that the bison played as a natural resource for American Indians by using the 2005 American Bison Nickel lesson plan for grade 3 at [www.usmint.gov/kids/teachers/lessonPlans/wjns/2005/03-amerBison.pdf](http://www.usmint.gov/kids/teachers/lessonPlans/wjns/2005/03-amerBison.pdf).



Name \_\_\_\_\_

# Three Sisters of Agriculture

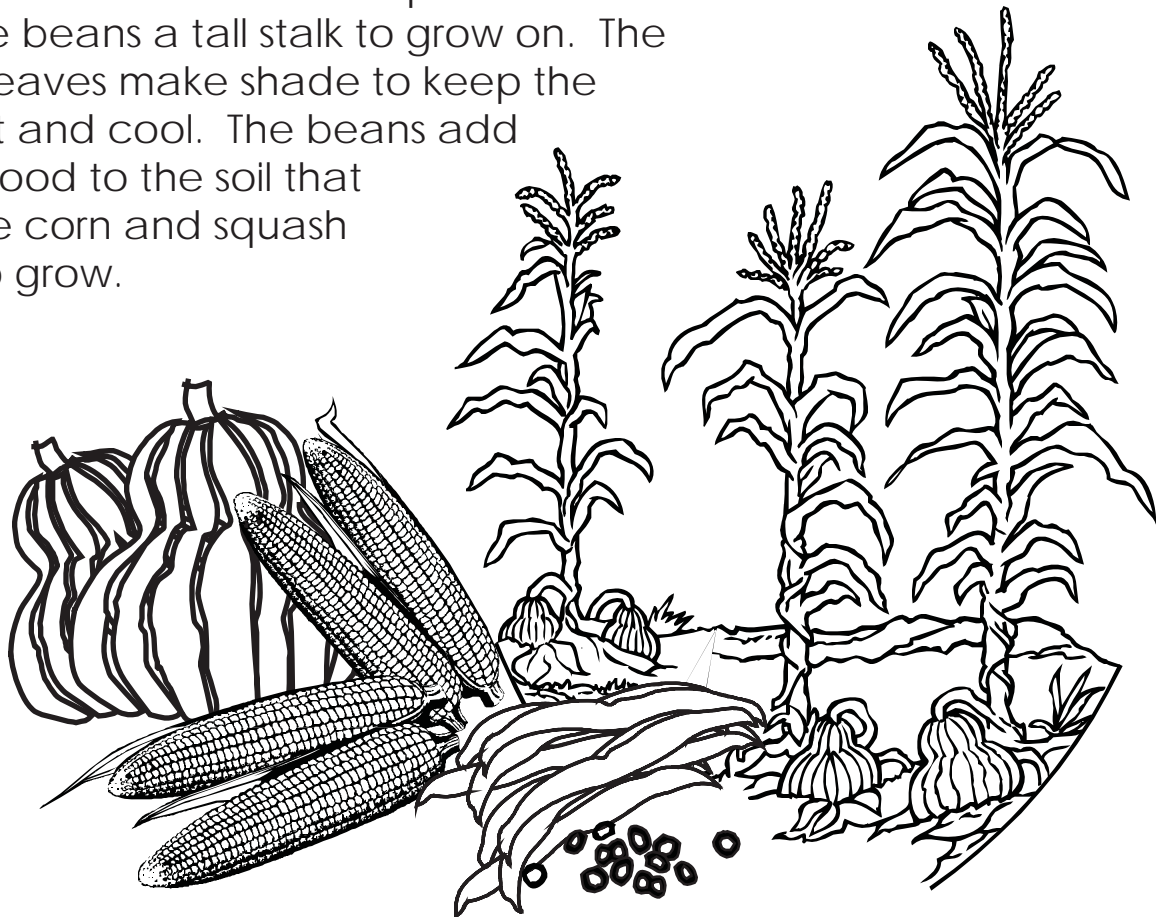
**C**orn, beans, and squash are called the “Three Sisters of Agriculture.” Native Americans plant these three kinds of seeds close to each other so they can grow together and help each other.

Corn is the oldest sister. When she grows, she will stand tall in the center.

Squash is the next sister. She will grow lower, near the ground.

Bean is the third sister. She will grow up through the squash and climb high on the stalk of corn.

This is how the three sisters help each other. The corn gives the beans a tall stalk to grow on. The squash leaves make shade to keep the soil moist and cool. The beans add special food to the soil that helps the corn and squash plants to grow.





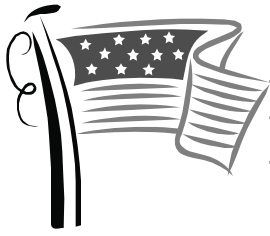
Name \_\_\_\_\_

# Seed Comparison Worksheet

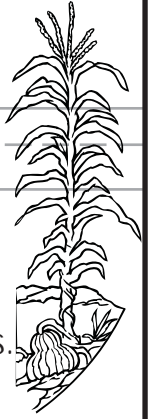
**Directions:** Look closely at your corn, squash, and bean seeds. How are they similar? How are they different? Write your observations in the columns below.

**Similar**

**Different**



# How Our Seeds Grow



## DAY 1

On the first day, we put our seeds in gloves with water and cotton balls.

## DAY 2

How have your wet seeds changed? \_\_\_\_\_

How have your dry seeds changed? \_\_\_\_\_

## DAY 3

How have your wet seeds changed? \_\_\_\_\_

How have your dry seeds changed? \_\_\_\_\_

## DAY 4

How have your wet seeds changed? \_\_\_\_\_

How have your dry seeds changed? \_\_\_\_\_

## DAY 5

How have your wet seeds changed? \_\_\_\_\_

How have your dry seeds changed? \_\_\_\_\_

1. How many days did it take for your seeds in the wet glove to sprout?

\_\_\_\_\_

2. Did all the seeds in your wet glove sprout?

\_\_\_\_\_

3. How many days did it take for your seeds in the dry glove to sprout?

\_\_\_\_\_

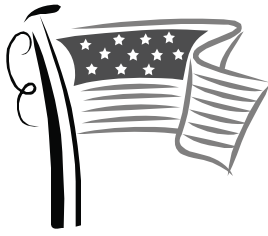
4. Did all the seeds in your dry glove sprout?

\_\_\_\_\_

5. What are you wondering now?

\_\_\_\_\_

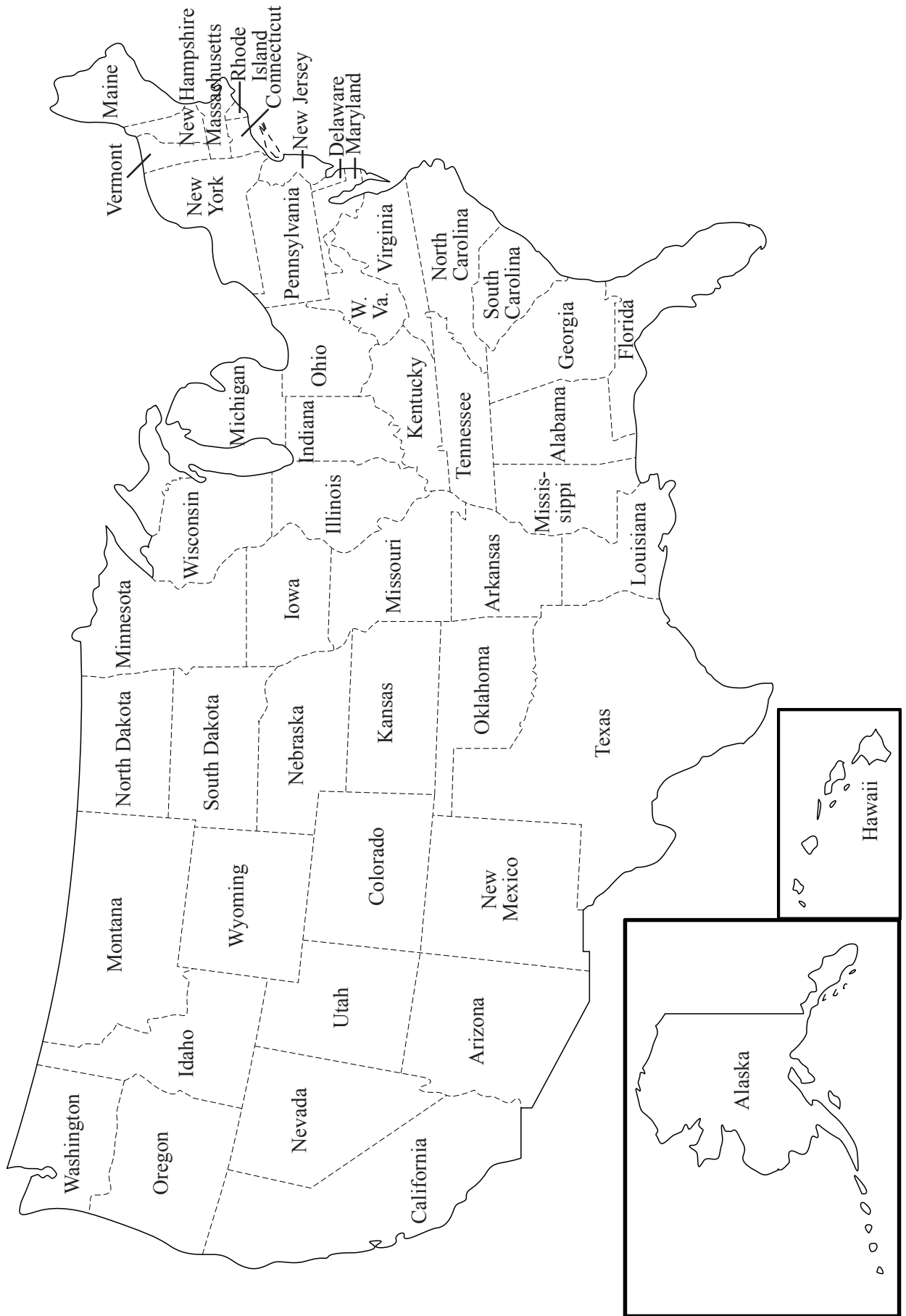




# 2009 Native American \$1 Coin



# The United States of America



# Reproducible Coin Sheet

## Obverse



Obverse © 1999 U.S. Mint  
All Rights Reserved

### TO MAKE DOUBLE-SIDED COINS

1. Print this page and the following page (reverses).
2. Put the two pages back-to-back and hold them up to a strong light to line up the dotted lines on all the coins.
3. Clip the pages together to keep them in position with two clips at the top.
4. Apply glue or glue stick to the backs, especially in the areas where the coins are printed. After pressing the pages together, check the alignment by holding them up to the light again, adjusting the alignment if possible.
5. When the glue dries, cut out the "coins."

# Reproducible Coin Sheet

## Reverse

