Inch by Inch, Row by Row

Did you know that you can go to school to learn about agriculture?

Agriculture is the science of growing things. This includes harvesting crops and taking care of animals. Harvesting is when the farmers collect their crops. Farmers plant many different kinds of **crops**. Crops are plants or produce such as fruits and vegetables.

Warm weather crops like tomatoes, grow best in hot weather. You should plant these crops in late spring to early summer when the ground is nice and warm. Other warm weather crops are peppers, corn, and cucumbers.

Cool weather crops like potatoes, are plants that grow best in cool weather. You should plant these crops in early to mid spring when the ground is still nice and cool. Other cool weather crops are onions, carrots, and peas.

Farmers are hard at work long before plants and seeds go into the ground. Farmers need to know how much land they have, how much seed to buy, and much more! Farmers also need to know how much room their plants need to grow. This information helps them to figure out how to best use the land they have.

Before planting season, farmers use mathematics to figure out how many crops they can plant on their land. First, they decide on which crop they want to plant. Second, they find out how much space each seed needs to grow. Third, they add up the space needed for each seed to make sure it will fit in the area they have. Now they're ready to plant their crops!

DOODLE BUGS

In the reading, circle the time of year cool weather crops need to be planted.

Draw a box around what farmers need to know to calculate how many crops they can plant.

Which measuring tool would work best to draw the perimeter of a garden? (Circle one.)

Ruler   Measuring Tape

MATHEMATICS INVESTIGATIONS:
Rulers, Grids and Lines

You will need:	**Things to know:**
1 ruler	Potatoes are planted 1 foot apart
1 pencil	Each row should be 2 feet apart
	Potatoes cannot be planted on the edge of your land.

Your teacher will show you how to draw your garden. Then your group will measure the land you have to plant your potatoes. Before you measure your land, predict how many potato plants you think you will be able to grow. Once you know how much land you have, your group will then figure out how many potato plants you can plant. Read all the directions before you begin.

Measuring your land
1. Place the ruler on the edge of side A and measure.
2. Record the length of side A.
3. Measure each side of the box and record each measurement.
4. For this activity pretend 1 inch = 2 feet
5. Record how many feet each side equals.

Measuring your rows
1. Place your ruler on the edge of side A.
2. Make a mark ½ foot (0.25 inch) from side B and side D.
3. Place your ruler on the edge of side C.
4. Make a mark ½ foot (0.25 inch) from B and side D.
5. Use the ruler to draw a line and connect each mark with the one directly across it (parallel).
6. Place your ruler on the edge of side B.
7. Make a mark ½ foot (0.25 inch) from side A and side C.
8. Place your ruler on the edge of side D.
9. Make a mark ½ foot (0.25 inch) from A and side C.
10. Use the ruler to draw a line and connect each mark with the one directly across it (parallel).
11. Place a mark every 1 foot (0.5 inch) along each of the newly created horizontal parallel lines.
12. Connect each of the corresponding marks.
13. Place a mark every 2 feet (1 inch) along each of the newly created vertical parallel lines.
14. Connect each of the corresponding marks.
15. Now you have a grid for planting your potato plants.

MATHEMATICS INVESTIGATIONS:
Rulers, Grids and Lines (continued)

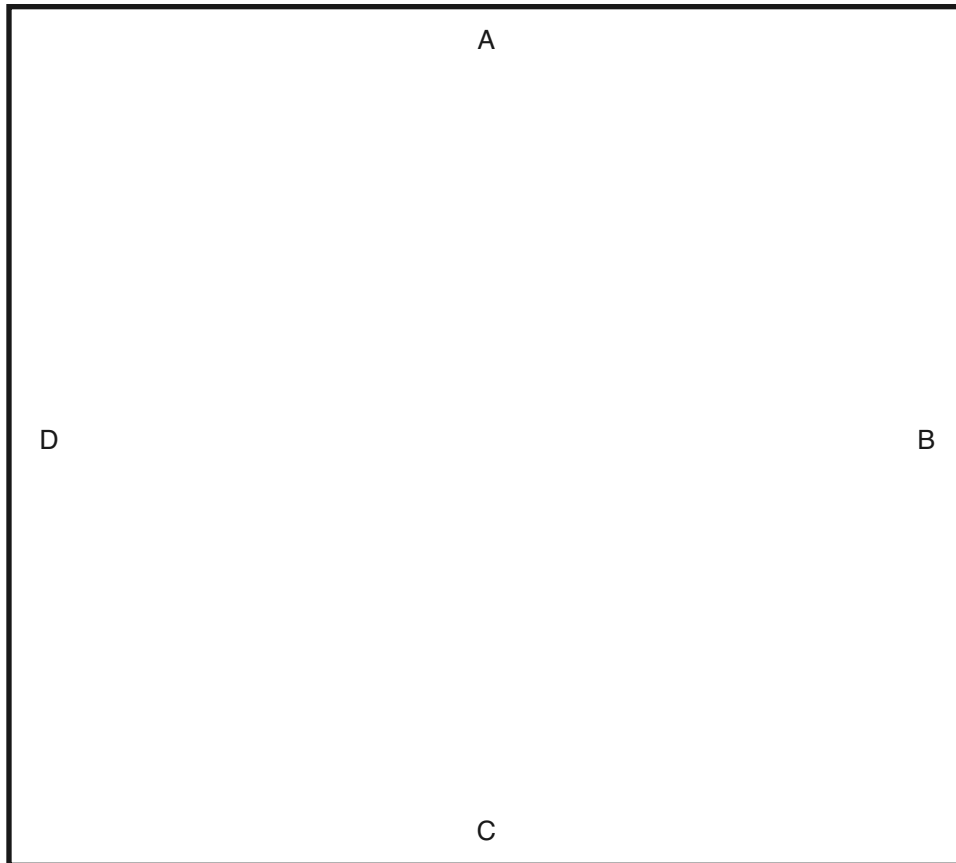## How many potato plants do you think will fit in your garden?
Write your prediction in the space provided below.

Prediction: _____

Planting potatoes
1. Place a dot on each line that crosses another line in the small square.
2. Include the dots on the perimeter.
3. Count the dots on each row.
4. Record how many dots are in each vertical row.
5. Add all the dots together to find out how many potatoes you can grow.
6. Record the total amount of potato plants you will grow in your garden.

Potato Garden

MATHEMATICS INVESTIGATIONS:
Rulers, Grids and Lines (continued)

1. Side A _____ inches

   Side B _____ inches

   Side C _____ inches

   Side D _____ inches

2. Side A _____ feet

   Side B _____ feet

   Side C _____ feet

   Side D _____ feet

3. Row 1 _____ dots

   Row 2 _____ dots

   Row 3 _____ dots

   Row 4 _____ dots

   Row 5 _____ dots

4. _____ potatoes

5. If two of your potato rows don't grow, how many potato plants will
   you be able to harvest?

   5   10   15   30

6. Was your prediction correct? Why or why not?

FUN WITH FOOD:
Sprouting Spuds

You will need:
1 potato with sprouts (also known as "eyes")

1 clear jar ¾ full of water   **PREP TIME: 5 minutes**

4-6 toothpicks   Help from an adult

You will observe how a potato grows and adjusts to its environment. Record its growth and describe how the environment determines how well your potato survives and grows.

Sprout your own potato!

1. Fill a clear jar with water ¾ full.

2. Stick the toothpicks into the potato on the opposite end of the sprouts.

3. Make sure the toothpicks are evenly spaced. They will be used to hold the potato up.

4. Place the end of the potato with the sprouts into the jar allowing the toothpicks to sit on the rim of the jar.

5. Place the jar on a windowsill that gets plenty of sun.

6. Make sure to keep the glass ¾ full with water for your potato to sprout. This will take a few weeks.

7. Once the potato sprouts leaves it is time to carefully transport your potato to soil. Carefully remove the potato from the jar and remove toothpicks. Plant it in the ground or in a pot. Make sure not to plant the leaves in the soil, only the potato. Watch your potato grow!

Fun Fact
Potatoes are high in carbohydrates. Carbohydrates supply your body with energy.

FUN WITH FOOD:
Sprouting Spuds

Record and draw your observations in the space provided below.

Week 1 _____

_____

_____

_____

Week 2 _____

_____

_____

_____

Week 3 _____

_____

_____

_____

Week 4 _____

_____

_____

_____

Proficiency Questions

Circle the best answer:

1. What subjects are useful in farming?
   a. science
   b. mathematics
   c. both
   d. none of the above

2. Name a warm weather plant.
   a. tomatoes
   b. onions
   c. peas
   d. carrots

3. Last season you grew 50 potato plants. This season you were able to grow 3 times more potato plants. How many potato plants were you able to grow this season?
   a. 100 potatoes
   b. 125 potatoes
   c. 150 potatoes
   d. 175 potatoes

4. If you have two rows that are 6 feet long and 2 feet apart, how many potatoes can you plant?
   a. 6
   b. 24
   c. 12
   d. 3