The Book Planter

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Ag in the Classroom

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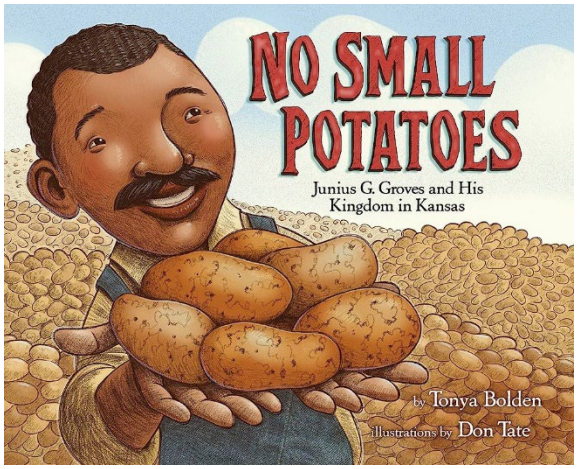

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No Small Potatoes:
Junius G. Groves and His Kingdom in Kansas

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Junius G. Groves came from humble beginnings in the Bluegrass State. Born in Kentucky into slavery, freedom came when he was still a young man and he intended to make a name for himself. Along with thousands of other African Americans who migrated from the South, Junius G. walked west and stopped in Kansas. Working for a pittance on a small potato far was no reason to feel sorry for himself, especially when he's made foreman. But Junius G. did dream of owning his own farm, so he did the next best thing. He rented the land and worked hard! As he built his empire, he also built a family, and he built them both on tons and tons and tons of potatoes. He never quit working hard, even as naysayers doubted him, and soon he was declared "Potato King of the World" and had five hundred acres and a "castle" to call his own. This is a tale of perseverance that reminds us no matter where you begin, as long as you work hard, your creation can never be called "small potatoes."[1]

Discussion Questions

1. How did Junius G. receive his education?
2. Why do you think Junius G. left Kentucky?
3. Who were Exodusters?
4. What river is in Kansas?
5. How long did Junius G. walk? How did he afford the trip?
6. How much money did Junius G. promise to pay towards his land?
7. What does the author mean by calling Junius G.'s children "stair-step kids?"
8. What are some potato pests?
9. If Junius G. grew 12,000 more bushels of potatoes than everyone else, and 1 bushel of potatoes equals 60 pounds, how many pounds did his grow above everyone else?
10. What are the ways the people cooked potatoes?
11. How did the potatoes get shipped across America and beyond?
12. What other crops did the Groves family grow?
13. What other types of ventures was Junius G. responsible for?
14. What was Junius G.'s favorite room in his house? Why?

Vocabulary[1]
Acre: a measurement of land equal to 43,560 sq. ft.
Blister beetle: an insect that can devour potato leaves and produces a substance that causes blisters on a person's skin.
Bushel: a unit of volume for dry measure equal to 2,150 cubic inches. Also, a vessel with that capacity, as in a bushel basket.
Exodusters: the name given to black people who left the South for the Plains in the 1870s and 1880s in search of a better life.
Foreman: a person in charge of a crew of workers.
Furrow: a long, narrow trench, or rut, usually made with a plow.
Helpmate: a good buddy and helper.
Hill: to draw soil around the roots or base.
Oxbow bend: a U-shaped bend or curve in a body of water.
Piddling: small
Spud: a nickname for the potato. "Tater" and "earth apple" are two others.
Spur: a short stretch of train track that branches off the main line.
Till: to prepare land for growing crops as by plowing. Also, to weed.

Engage[2]

1. Hold up a potato for students to see. Ask if they can tell you what it is and what people use it for. (It's a potato that's used for food.)
2. Make a list on the board of all the different ways students can think of to eat potatoes. They might reference ways mentioned in *No Small Potatoes*. Ask how many recipes they think there are for cooking potatoes.
3. Do a live Google search for potato recipe and show students how many results there are (millions!)
4. Ask students if they can tell you where potatoes come from. Prompt them to discuss that potatoes grow from plans that are cultivated by farmers and gardeners. Explain that they will be learning more about potatoes and where they come from in the following lesson.

Activity 1: Potato Life Science[2]
Materials:

- 2 large potatoes, preferably an early-maturing variety like Yukon Gold
- Potato Pattern (full link address in Links section)
- Paper plate
- Large pot (any container that is at least 12" deep and 12" wide with drainage holes will work)
- Potting soil (choose a potting soil that has nutrients to feed for at least 2 months)

- Lamp or lights (any lamp or light that can be positioned to shine closely and directly on the growing potato will work)
- Watering can or pitcher

1. Provide each student with 10 copies of the Potato Pattern, and ask them to cut out each one. Explain that they will be using these cutouts to make a journal, and they should color the front and back covers. Ask them to write their names and the title "Potato Journal" on their front covers. Then staple the cutouts together on the top or left side.
2. Place one of the large baking potatoes on a paper plate in a location where students can easily make observations.
3. Ask students to examine the potato and describe it on the first page of their journals. They should make sure to note the date on which observations are made.
4. Ask students if they think the potato is living or nonliving. Discuss the characteristics of living and nonliving things.
5. Using the information provided in the *Background Agricultural Connections*, discuss how potatoes grow with students.
6. Explain to students that they will observe the potato to find the number of days that pass before the eyes begin to sprout. The potato contains enough nutrients, energy, and water for the plant to begin to grow without any soil.
7. Tell students that they will also observe a potato planted in soil and compare its growth to that of the potato with no soil. Show students the bag of potting soil and ask them if it is living or nonliving. Point out that the soil contains nonliving nutrients that the potato will use as it grows.
8. Plant and care for the potato as follows:
    - Fill the pot approximately one-quarter full of potting soil. Place the potato on top of the soil and cover with three to four inches of soil or until the pot is about half full.
    - Position light to shine on pot.
    - Water lightly. Do not over water or the potato may rot. After green sprouts appear, pay attention to the soil moisture and water when dry.
    - As shoots appear and get tall, cover them with more soil, and tie them to a stake.
    - When flowers start to appear, stop watering to prevent the potatoes from rotting.
    - As the potato grows, it may push up the dirt around the stem or even crack the container in which it's planted.
    - After six to eight weeks, when the potato plant has finished flowering or the top starts to die, harvest the potatoes by gently pulling the plant out of the pot.
    - Lay the plant on newspaper.
    - Have students sift through the dirt to find any potatoes left behind in the pot.
9. Instruct students to document their observations of the potatoes in their journals at regular intervals (e.g., once a week).
10. As the potatoes grow, or after harvesting the first new potatoes from the potted plant, discuss the differences that students observe between growing a potato with and without soil. Discuss the importance of soil to plants as an example of the interaction between living and nonliving things. Ask students if they can think of any other nonliving things that affect plants (e.g., light, water, temperature).

Activity 2: Potato Geography[2]

1. Discuss with students the *Background Agricultural Connections* information regarding the origin and history of potatoes.
2. As you are discussing the origin and history of potatoes, provide each student with a World Map and instruct them to:
    - Locate and label Bolivia, Peru, and the Andes Mountains in South America. This is where the potato was first domesticated. A great variety of potatoes is still grown in this region.
    - Draw a line connecting South America to Europe. Early explorers brought potatoes to Europe, but it took some time for Europeans to develop a taste for potatoes.
    - Draw a line connecting Europe to the United States. After Europeans began growing and eating potatoes, the crop then began to catch on with settlers in North America.
    - Locate and label Ireland. From 1845 to 1852 there was mass starvation, disease, and emigration from Ireland due to the failure of potato crops.
    - Locate and label China, India, Russia, and the Ukraine. China is now the world's top potato producer, followed by India, Russia, and Ukraine. The United States is the fifth largest producer of potatoes in the world.
    - In the United States, label the approximate location of the states Idaho and Washington. This is the greatest potato-producing region in the United States.
3. Potatoes grow best in cool climates with fertile soils. Have students compare the geography of different potato-growing regions of the world.
    - Using a relief map, look at the terrain of Bolivia, Peru, and Idaho to see what they have in common. Look at the terrain of China, India, Russia, and Ukraine.
    - Compare and contrast these places to find what features they have that would make potatoes an important crop there (e.g., cool climate, mountains). You may wish to use the National Geographic Mapmaker which includes layers for climate and weather.
    - Discuss cultural, economic, and social factors that might affect potato production in the different countries. For example, India does not have a cool climate, but there is demand for potatoes, which means farmers can make money by growing them. They grow potatoes in the winter months and plant varieties that are suited to their climate.

Activity 3: Potato Dress Up Contest[2]

1. Hold a Great Potato Dress Up Contest! Give each student a potato, access to arts materials, and the following directions:
    - Choose a country/time period discussed in the previous activity, such as Ireland in the 1800s, ancient Peru, or modern India.
    - Research how people traditionally dressed (or commonly dress) in your chosen area and time period.

- Dress up your potato (without cutting it) in the traditional or common dress of your chosen area and time period. You may dress it in a costume, paint it, add different things to it, etc.
- Think of a name for your potato

2. After students have finished dressing up their potatoes, give each student an index card, and ask them to write the following things on it:
   - Potato's name
   - Where and when is your potato from?
   - Short description (1-3 sentences) of what your potato is wearing
3. Place all of the potatoes in an area where students can see them and have students vote on their favorites.

Extension Activities

1. **Make Potato Stamps**
   - Cut potatoes in half.
   - Have students create simple designs to carve into the flesh of the potato (e.g., star, heart, circle).
   - Help students carve the designs in the potatoes using plastic knives.
   - Mix water-based paints in aluminum pie pans or other shallow dishes.
   - Instruct students to dip the potato surface into the pain, press to the surface of paper, and carefully lift the potato, leaving the print of the paper.
2. **Use one or more of the following activities to integrate math with this potato lesson.**
   - Have students conduct a survey of students in their school to find the most popular way to eat potatoes—as French fries, potato chips, mashed potatoes, etc.—and graph their results.
   - Review your school menu as a class to see how many times a week potatoes are served and the different ways they are cooked.
     - Have students use tally marks to record findings.
     - Then, have students use the data they have collected to make bar graphs comparing the different ways potatoes are cooked with the total number of times they are served.
   - Have students tear potato shapes from brown construction paper and then:
     - Measure the length and width of the potato shapes in inches and centimeters, and find the perimeter of the shapes.
     - Use non-standard units of measure (beans, seeds, etc.) to measure the area of the potato shapes by first estimating how many units it will take to fill the potato shapes and then filling in the shapes and recording the data.

Links

Activity 1:

- Potato Pattern https://cdn.agclassroom.org/media/uploads/2016/09/28/potato_pattern.pdf

Activity 2:

- World map: https://cdn.agclassroom.org/media/uploads/2016/11/11/worldmap.pdf
- National Geographic Map Maker: https://mapmaker.nationalgeographic.org/#/

Sources

1. Bolden, T. (2018). No Small Potatoes: Junius G. Groves and His Kingdom in Kansas. New York: Alfred A. Knopf.
2. https://utah.agclassroom.org/matrix/lesson/524/

K-5 Subject Areas: English Language Arts, Math, Social Studies, and Science

English Language Arts (Reading and Writing)

- RL.K.1 With guidance and support, identify details in familiar stories.
- RL.K.3 With guidance and support, identify characters and settings in a familiar story.
- RL.K.4 With guidance and support, identify feeling words within a familiar story.
- RL.1.1 Identify details in familiar stories.
- RL.1.2 With guidance and support, recount key details in familiar stories.
- RL.1.3 Identify characters and settings in a familiar story.
- RL.1.4 With guidance and support, identify sensory or feeling words in a familiar story.
- W.1.1 With guidance and support, select a topic and use drawing, dictation, or writing to state an option about it.
- W.1.2 Select a familiar topic and use drawing, dictating, or writing to share information about it.
- RL.2.1 Answer who, what, and where questions to demonstrate understanding of details in a familiar text.
- RL.2.3 Identify the actions of the characters in a story.
- RL.3.1 Answer who and what questions to demonstrate understanding of details in a familiar text.
- RL.3.3 Identify the feeling of characters in a story.
- W.3.2 Write to share information by selecting a topic and writing about it, including one or more facts or details.
- RL.4.1 Use details from the text to recount what the text says.
- RL.4.2 Identify the theme of a familiar story, drama or poem.
- RL.4.3 Use details from the text to describe characters in the story.
- RL.4.4 Determine the meaning of words in a text.
- W.4.2 Write to share information supported by details.
- RL.5.1 Identify words in the text that answer a question about explicit information.
- RL.5.2 Identify the theme of a story, drama or poem.
- RL.5.4 Determine the meaning of words and phrases as they are used in a text.
- W.5.2 Write to share information supported by details.

Math

- K.CC.1 Know number names and recognize patterns in the counting sequence
- K.C.2 Count forward from a given number within the known sequence, instead of having to begin at 1.
- K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20, with 0 representing a count of no objects.
- K.CC.5 Count to answer “How many?”
- K.CC.7 Compare two numbers, within 10, presented as written numerals.
- K.MD.1 Describe measurable attributes of objects; and describe several different measurable attributes of a single object.
- K.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.
- K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of objects using positional terms.
- K.G.6 Compose larger shapes from simple shapes.
- 1.OA.1 Represent and solve addition and subtraction word problems, within 20, with unknowns, by using objects, drawings, and equations with a symbol for the unknown number to represent the problem, when solving: • Add to/Take from-Change Unknown • Put together/Take Apart-Addend Unknown • Compare-Difference Unknown
- 1.OA.2 Represent and solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings, and equations with a symbol for the unknown number.
- 1.OA.3 Apply the commutative and associative properties as strategies for solving addition problems.
- 1.NBT.7 Read and write numerals, and represent a number of objects with a written numeral, to 100.
- 1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

- 1.MD.2 Measure lengths with non-standard units. • Express the length of an object as a whole number of non-standard length units. • Measure by laying multiple copies of a shorter object (the length unit) end to end (iterating) with no gaps or overlaps.
- 1.MD.4 Organize, represent, and interpret data with up to three categories. • Ask and answer questions about the total number of data points. • Ask and answer questions about how many in each category. • Ask and answer questions about how many more or less are in one category than in another.
- 2.MD.1 Measure the length of an object in standard units by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- 2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
- 2.MD.10 Organize, represent, and interpret data with up to four categories. • Draw a picture graph and a bar graph with a single-unit scale to represent a data set. • Solve simple put-together, take-apart, and compare problems using information presented in a picture and a bar graph.
- 3.OA.3 Represent, interpret, and solve one-step problems involving multiplication and division. • Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem. • Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.
- 3.MD.2 Solve problems involving customary measurement. • Estimate and measure lengths in customary units to the quarter-inch and half-inch, and feet and yards to the whole unit. • Estimate and measure capacity and weight in customary units to a whole number: cups, pints, quarts, gallons, ounces, and pounds. • Add, subtract, multiply, or divide to solve one-step word problems involving whole number measurements of length, weight, and capacity in the same customary units.
- 3.MD.3 Represent and interpret scaled picture and bar graphs: • Collect data by asking a question that yields data in up to four categories. • Make a representation of data and interpret data in a frequency table, scaled picture graph, and/or scaled bar graph with axes provided. • Solve one and two-step “how many more” and “how many less” problems using information from these graphs.
- 4.MD.1 Know relative sizes of measurement units. Solve problems involving metric measurement. • Measure to solve problems involving metric units: centimeter, meter, gram, kilogram, Liter, milliliter. • Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units.
- 4.MD.3 Solve problems with area and perimeter. • Find areas of rectilinear figures with known side lengths. • Solve problems involving a fixed area and varying perimeters and a fixed perimeter and varying areas. • Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- 4.MD.4 Represent and interpret data using whole numbers. • Collect data by asking a question that yields numerical data. • Make a representation of data and interpret data in a frequency table, scaled bar graph, and/or line plot. • Determine whether a survey question will yield categorical or numerical data.
- 5.MD.2 Represent and interpret data. • Collect data by asking a question that yields data that changes over time. • Make and interpret a representation of data using a line graph. • Determine whether a survey question will yield categorical or numerical data, or data that changes over time.

Social Studies

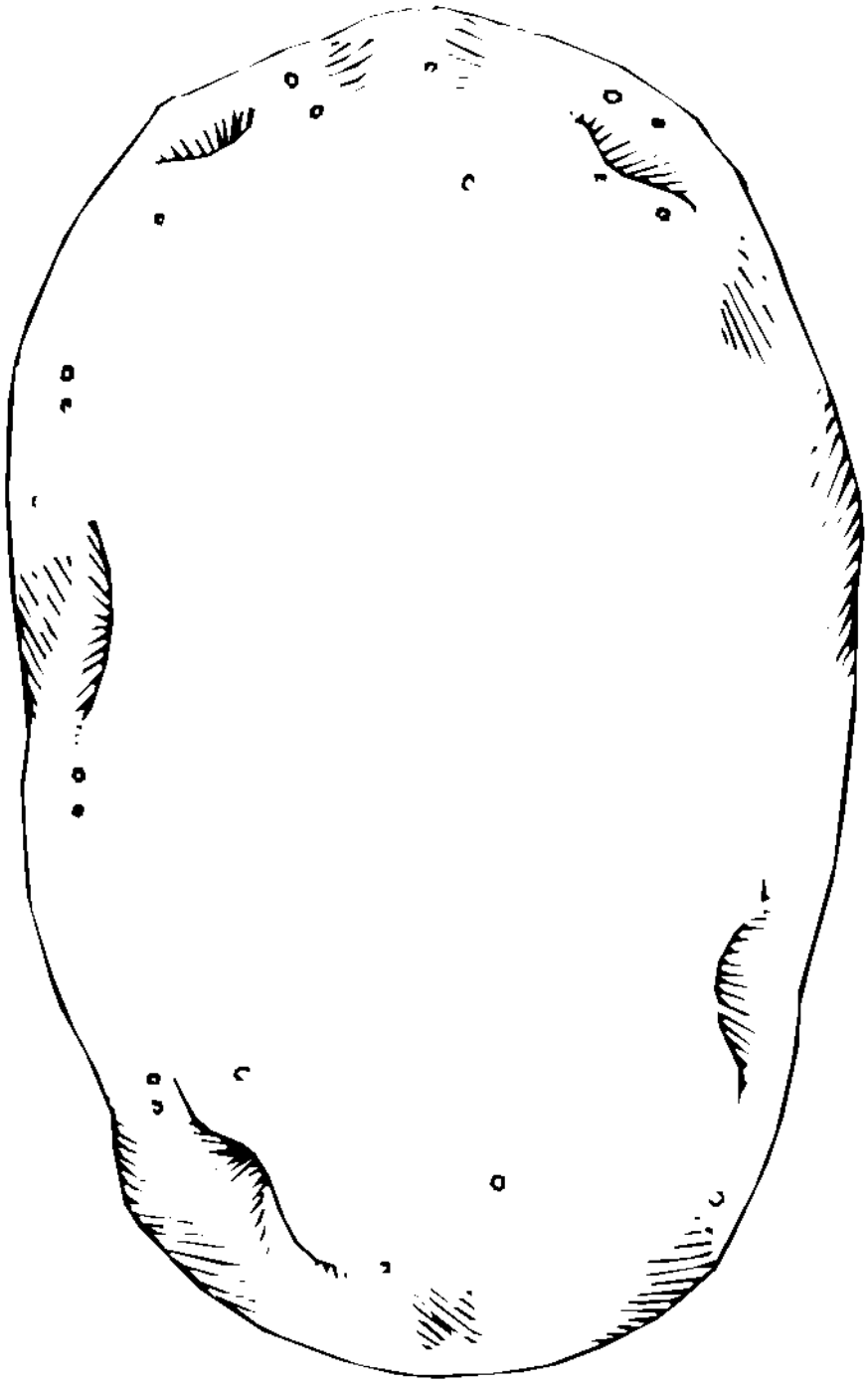
- K.B.1.1 Identify cultural practices in local communities and around the world.
- K.B.1.2 Compare cultural practices of people in local communities and around the world.
- K.B.1.3 Summarize stories that illustrate how positive character traits such as empathy, resilience, and respect, help people contribute to their communities.
- K.H.1.2 Explain how various events have shaped history.
- 1 B.1.1 Identify cultural practices and traditions in local communities and places around the world.
- 1 B.1.2 Summarize ways that culturally, racially, and ethnically diverse people help shape a community.
- 1.C&G.1.1 Exemplify ways individuals and groups play a role in shaping communities.
- 1.H.1.1 Explain how the experiences and achievements of people throughout history have helped contribute to the changes in various local communities and communities around the world over time.
- 2.B.1.1 Identify the various values and beliefs of diverse cultures that have shaped American identity.
- 2.B.1.2 Explain how belief systems of various indigenous, religious, and racial groups have influenced or contributed to culture in America.
- 2.G.1.1 Recognize absolute and relative location of various settlements, territories, and states in the development of the American nation.
- 2.G.1.3 Interpret how the movement of people, goods, and ideas has impacted the regional development of America.
- 2.H.1.2 Explain ways in which various historical events have shaped American history.
- 3.B.1.1 Explain how the values, beliefs, and cultures of various indigenous, religious, racial and other groups contribute to the development of local communities and the state.
- 3.B.1.2 Compare values, beliefs, cultural practices and traditions of various groups living in local and regional communities.
- 3.E.1.1 Explain how entrepreneurship develops local communities.
- 3.H.1.1 Explain how the experiences and achievements of women, indigenous, religious, and racial groups have contributed to the development of the local community. 3.H.1.2 Explain the lasting impact historical events have had on local communities.

- 4.E.2.1 Explain the way in which personal financial decisions such as spending and saving may affect everyday life.
- 5.E.1.2 Compare economic decisions in terms of benefits and consequences.
- 5.E.1.3 Explain the impact of production, specialization, technology, and division of labor on the economic growth of the United States.
- 5.E.2.1 Explain how personal financial decisions affect everyday life.
- 5.E.2.2 Explain the importance of developing a basic budget for spending and saving.
- 5.G.1.2 Explain ways in which voluntary and forced migration and slavery led to changes in the landscape of the United States, using maps.
- 5.G.1.3 Explain how technological innovation has impacted the geography of the United States.
- 5 G 1.4 Explain the reasons for forced and voluntary migration to, from, and within the United States.

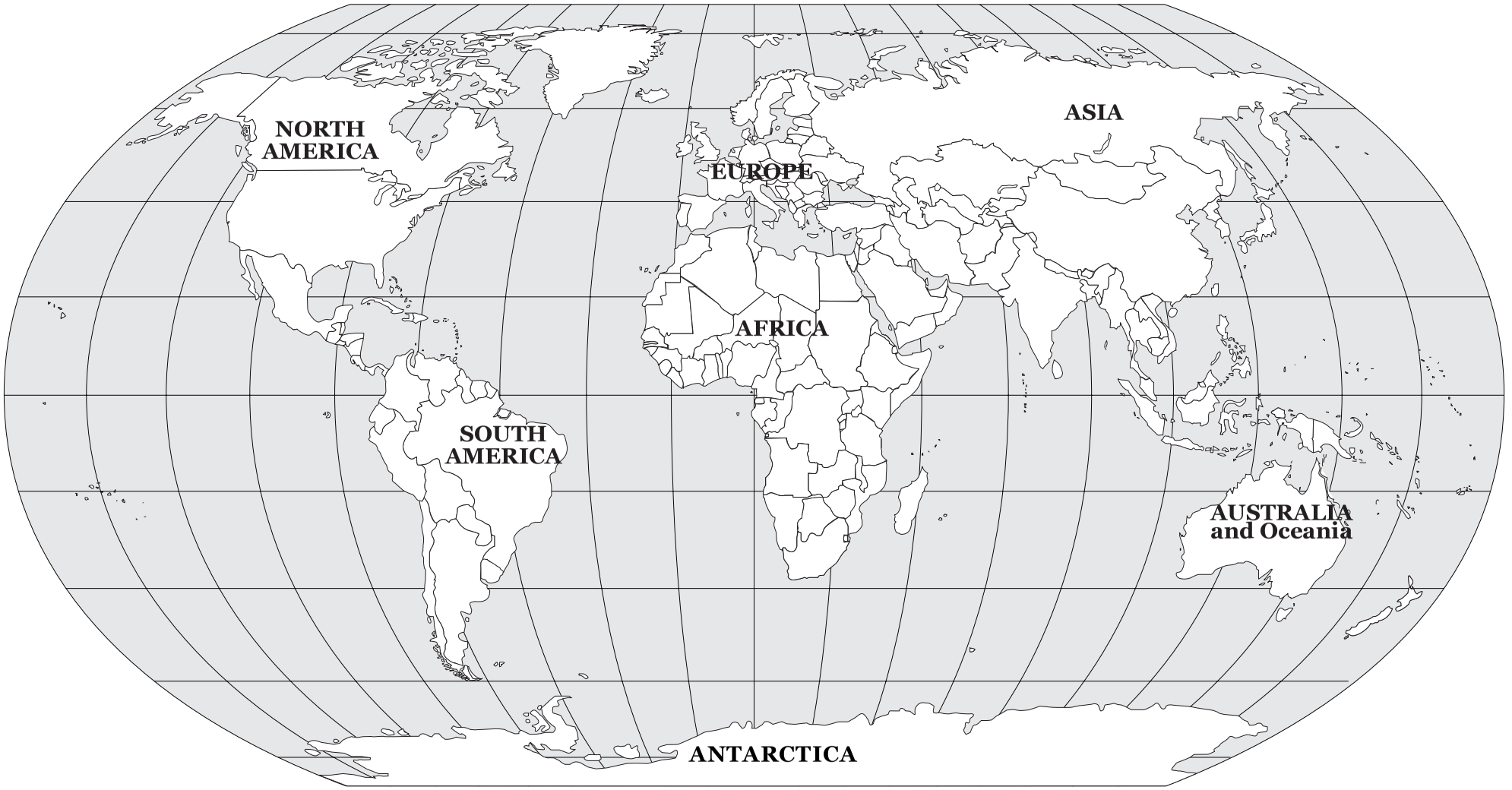
Science

- K.P.1 Understand the positions and motions of objects and organisms observed in the environment.
- **K.P.2** Understand how objects are described based on their physical properties and how they are used.
- **1.L.1** Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive.
- **1.L.2** Summarize the needs of living organisms for energy and growth.
- **3.L.2** Understand how plants survive in their environments.
- **4.L.1** Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.
- **5.L.2** Understand the interdependence of plants and animals with their ecosystem.

Potato Pattern



World Map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