

FIND YOUR VOICE

Summer 2023



An iREAD Summer Reading Companion
from



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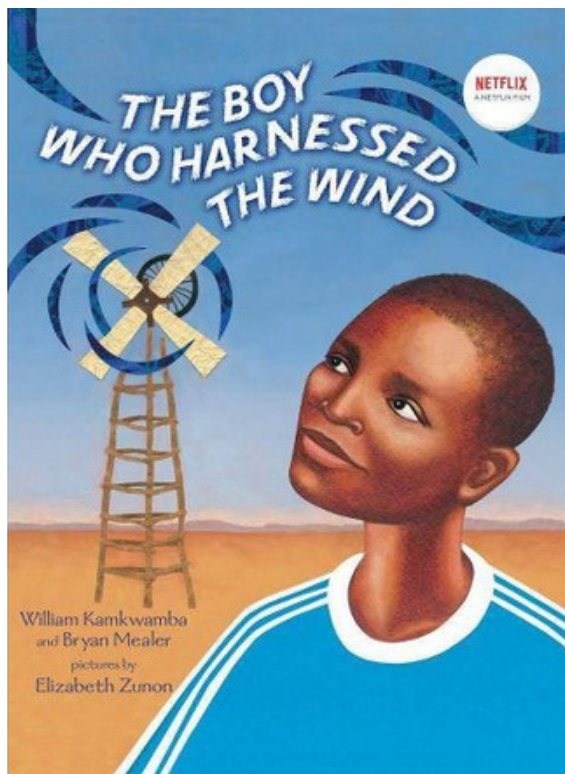
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An iREAD Summer
Reading Companion
from

Illinois
AGRICULTURE
in the ClassroomSM

AG-ACCURATE BOOK RECOMMENDATION:



The Boy Who Harnessed the Wind

William Kamkwamba & Bryan Mealer

When a terrible drought struck William Kamkwamba's tiny village in Malawi, his family lost all of the season's crops, leaving them with nothing to eat and nothing to sell. William began to explore science books in his village library, looking for a solution. There, he came up with the idea that would change his family's life forever: he could build a windmill. Made out of scrap metal and old bicycle parts, William's windmill brought electricity to his home and helped his family pump the water they needed to farm the land.

ACCOMPANYING IAITC LESSON:

A Windy Lift

Learn about sustainable energy with this windmill inquiry activity!

See following page(s) for lesson plan!



A WINDY LIFT

Grade Level

2-6

Length of Lesson

60 minutes

Objective

By the end of this lesson, students will have a better understanding of force, air friction, and mechanical engineering.

Materials Needed

- Copy of [*The Boy Who Harnessed the Wind*](#) by William Kamkwamba and Bryan Mealer
- Scissors
- Hole Punches
- Small binder clips
- String
- Pipe cleaner-cut into thirds (3 per student)
- Pipe cleaner-cut into halves (1 per student)
- Pencils (1 per student)
- 16oz disposable cup
- 6oz disposable cup
- Crayons, colored pencils, markers
- Copies of student worksheet

Standards

NGSS

K-PS2-1; K-PS2-2; 3-PS2-1; 3-PS2-2; 5-PS1; MS-PS1

Lesson Summary

This lesson is a fun, hands-on activity designed to help students understand motion and what causes objects to move. This is also a great lesson to introduce renewable energy and how farmers around the world rely on various machinery and energy sources to grow their food and raise their animals.

Suggested Sequence of Events:

1. Set Up: Cut the pipe cleaners into thirds and halves so that each student has three (3) thirds and one (1) half. For younger students or to save time, hole punch the small, 6 oz disposable cup so that there are two holes on opposite sides of the cup. Finally, print enough copies of the student worksheet so that each student has one. It is better to print on cardstock, but normal printing paper will work.
2. Read through the IAITC Renewable Energy Ag Mag to learn more about renewable energies! Interactive online versions can be found on our website.
3. Complete the activity following the procedures:
 - Read *The Boy Who Harnessed the Wind* aloud to your class. You can use our suggested pre-activity questions on the teacher resources page.
 - Give each student their own windmill blade template and have them decorate it. Then have them follow the directions to cut it out.
 - Carefully push the pencil through the center hole and then bend each corner backwards onto the pencil. Don't crease the paper during this stage! It is easier to have the pencil sharpened and to put the pointed side of the pencil through the holes.
 - Carefully push the blades to the other end of pencil. The pencil will be slightly larger than the holes, so be careful not to rip the paper. You now have a pinwheel!
 - Place the 16 oz cup upside down and lay the pencil pinwheel on top. Use the three (3), 1/3 pieces of pipe cleaner and create an arch shape with them. Push each arch over the pencil to hold the pinwheel in place. Now you have a windmill!
 - Hole punch two holes in your small cup, one on either side. Slide the one (1), 1/2 piece pipe cleaner through the holes, forming a small bucket handle. Bend the sides upward to hold the handle in place.
 - Tie one end of your string around the pencil, and the other end around the bucket handle.
 - Attach the binder clip to the end of the sharpened end of the pencil to keep the string in place.
 - Now blow on the blades and lift the small cup!
4. Whole class discussion and reflection of activity.

TEACHER RESOURCES

Pre-Activity Discussion Questions:

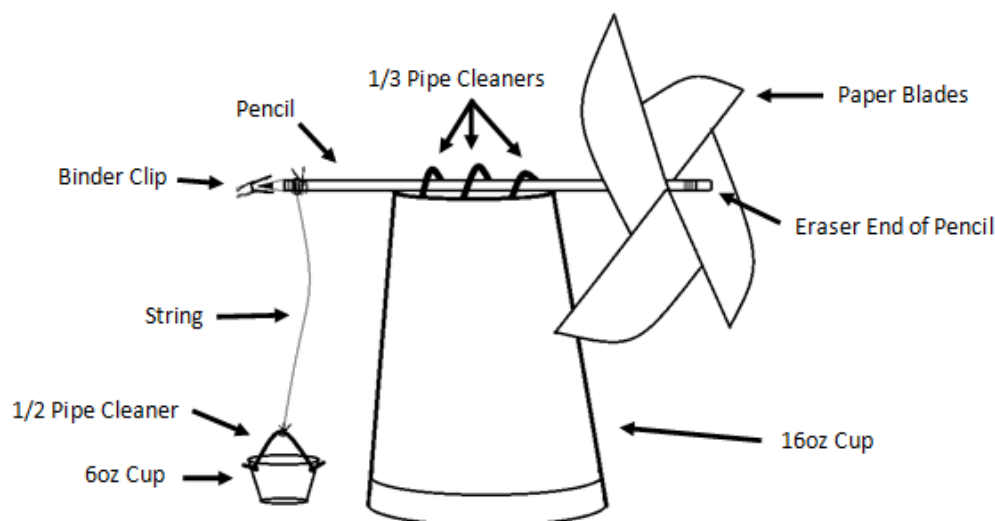
- Ask students what caused the mill to start moving?
- Why did the wind cause the blades to start moving?
- What was the purpose of building the windmill?

Post-Activity Discussion Questions:

- What was the maximum number of pennies your windmill lifted?
- How much time did it take to lift your bucket with no pennies? What about with eight pennies? Why would there be a difference?
- What improvements could be made to help your windmill be stronger or lift the bucket faster?
- What type of motion caused the windmill to start moving? Was it balanced or unbalanced?

Extension Ideas:

- Have students add a penny to their small cups and see if their windmill will lift it. Continue adding pennies and see whose windmill will lift the most! If you don't have pennies, use popcorn kernels, dry beans, etc.
- Use a timer to record how long it takes for the bucket to be lifted with a different amount of pennies. Does it take longer to lift no pennies, four pennies, or eight pennies?
- Use the pennies to learn about the life of Abraham Lincoln.
- Use a fan to move the blades. Does this make a difference in the amount of weight the windmill can lift? Does it make a difference on how quickly the bucket is lifted?
- For higher level students, have them work backwards and draw a blueprint of the windmill before construction.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



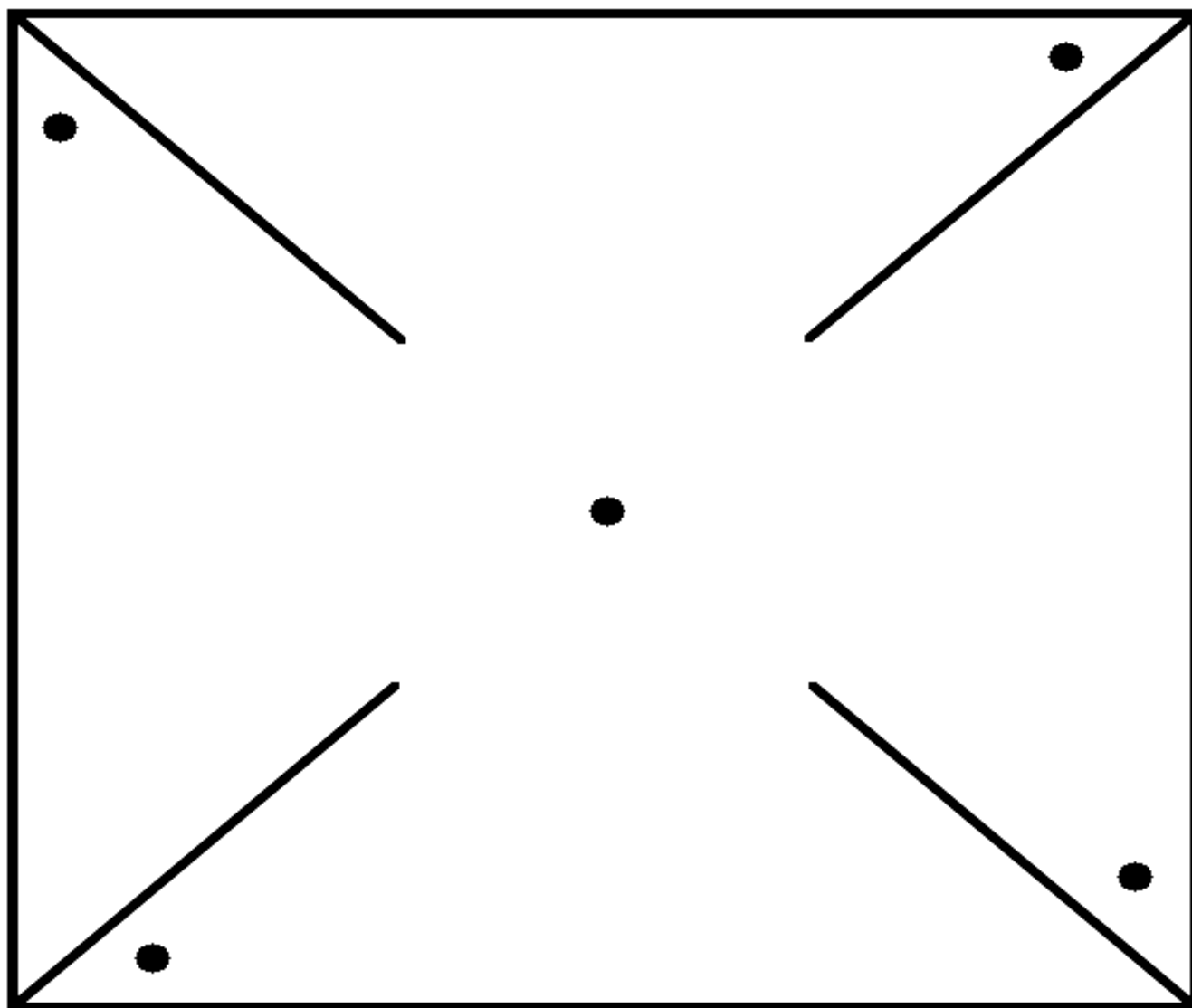


A WINDY LIFT

STUDENT WORKSHEET

Directions:

1. Decorate!
2. Cut on all **solid** lines.
3. Use the hole punch to make a hole on all of the black dots.
4. Wait for your teacher for further instructions.



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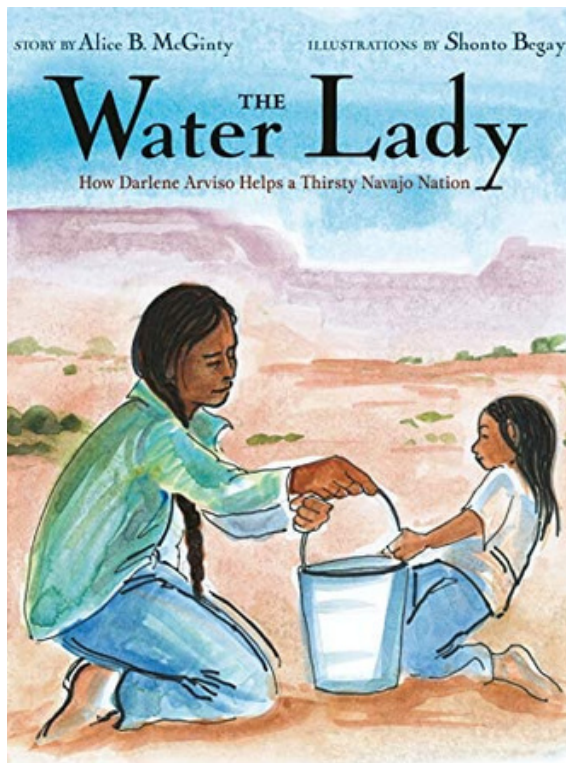
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AG-ACCURATE BOOK RECOMMENDATION:



The Water Lady Alice McGinty

Underneath the New Mexico sky, a Navajo boy named Cody finds that his family's barrels of water are empty. He checks the chicken coop-- nothing. He walks down the road to the horses' watering hole. Dry. Meanwhile, a few miles away, Darlene Arviso drives a school bus and picks up students for school. After dropping them off, she heads to another job: she drives her big yellow tanker truck to the water tower, fills it with three thousand gallons of water, and returns to the reservation, bringing water to Cody's family, and many, many others. Here is the incredible and inspiring true story of a Native American woman who continuously gives back to her community and celebrates her people.

ACCOMPANYING IAITC LESSON:

Water Cycle in a Bag

See the water cycle happen right before your eyes using a few simple materials and a ziplock bag!

See following page(s) for lesson plan!



Science



Math

WATER CYCLE IN A BAG

Grade Level

1-5

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will have a basic understanding of the water cycle.

Materials

- Sandwich-sized zipper seal bags
- Permanent markers
- Aquarium rocks
- Tablespoon
- $\frac{1}{4}$ cup measuring cup
- Water
- Packing tape
- Copies of the water cycle template

Standards

Common Core

Mathematics:

CCSS.Math.Content.3.MD.A.2

NGSS

Earth's Systems: 2-ESS2-3

Lesson Summary

This lesson is a fun, hands-on activity that allows students to develop their observation skills while learning the stages of the water cycle. This is also a perfect activity to introduce the three states of matter: solid, liquid, and gas.

Suggested Sequence of Events:

1. Set Up: Print and cut out water cycle illustrations. Then place illustrations in a plastic bag for each student.
2. Read: "[Water is Water](#)" by Miranda Paul to capture student interest.
3. Read through the IL AITC Water Ag Mag to learn more about the importance of water. Interactive versions can be found on our website.
4. Complete the activity following the procedures:
 - Give each student a baggie with the water cycle template inside.
 - Using permanent markers, have students trace over all the black lines, including the numbers.
 - After completely tracing everything, remove the paper from the bag.
 - Add two tablespoons of aquarium rock to the bottom of the bag.
 - Next, Add $\frac{1}{4}$ cup water to the bag.
 - Using wide, clear packing tape, affix the bag to a window in direct sunlight and watch the water cycle work over the next few days!
5. Whole class discussion and reflection of activity. Pair students together and have them share what they learned about the water cycle.

TEACHER RESOURCES

Extension Ideas:

- Sing the Water Cycle Song (to the tune of “Oh, My Darlin”):

Evaporation, (Push both palms up, palms parallel to the floor.)

Condensation, (Push with arms straight out to the side.)

Precipitation on my head. (Pretend to “rain” on head.)

Accumulation, (Make arms sweep back and forth in front.)

Water Cycle, (Arms rotate in circle in front.)

And we start all over again. (Turn around in place in a circle.)

- Have students record their observations of their water cycle bags each day.
- Have students write a short summary describing the water cycle.
- Have students draw a comic strip following a drop of water through the water cycle. Introduce or strengthen the use of descriptive language.
- Have students act out the water cycle!
- Complete our Water Cycle Bracelet activity to strengthen their understanding of the water cycle.
- Talk more about all the places water can go.
- For upper grades, dig deeper with the three states of matter and introduce molecules.
- Learn more about water use around the world. How can we sustain clean water? How can we eliminate wasting water? What are the types of water pollution? Why is it important to keep our water clean? What does it take to clean our water?
- Invite someone from your local water treatment center in to talk with the class.
- Have students compare and contrast fresh water and salt water.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

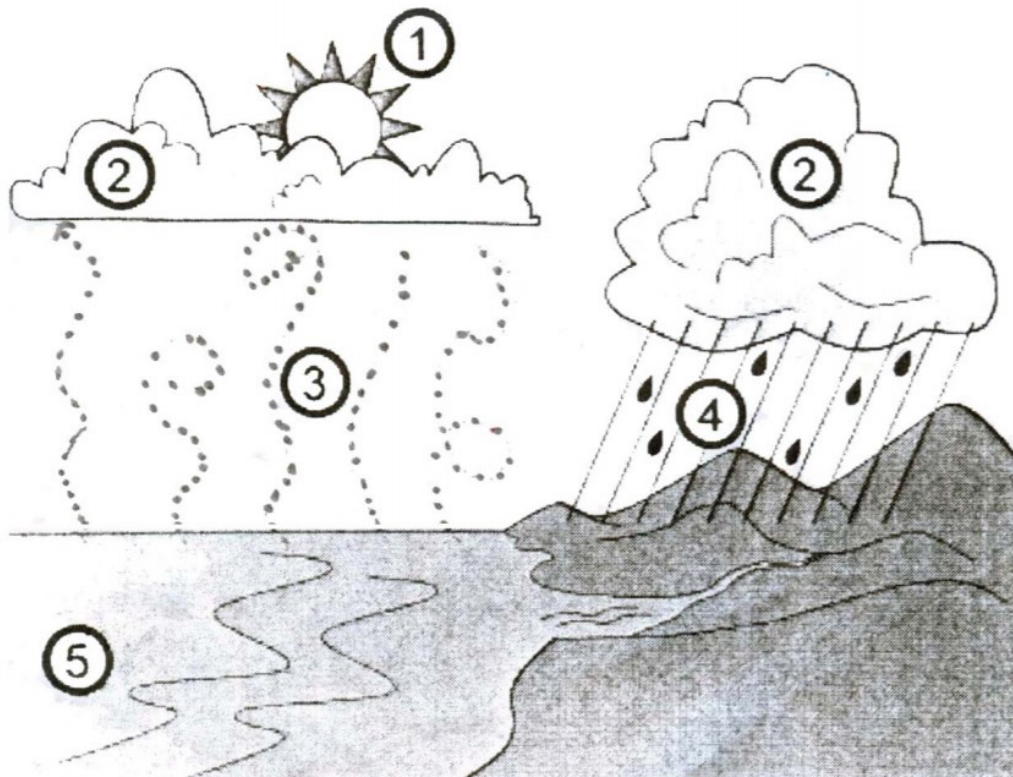
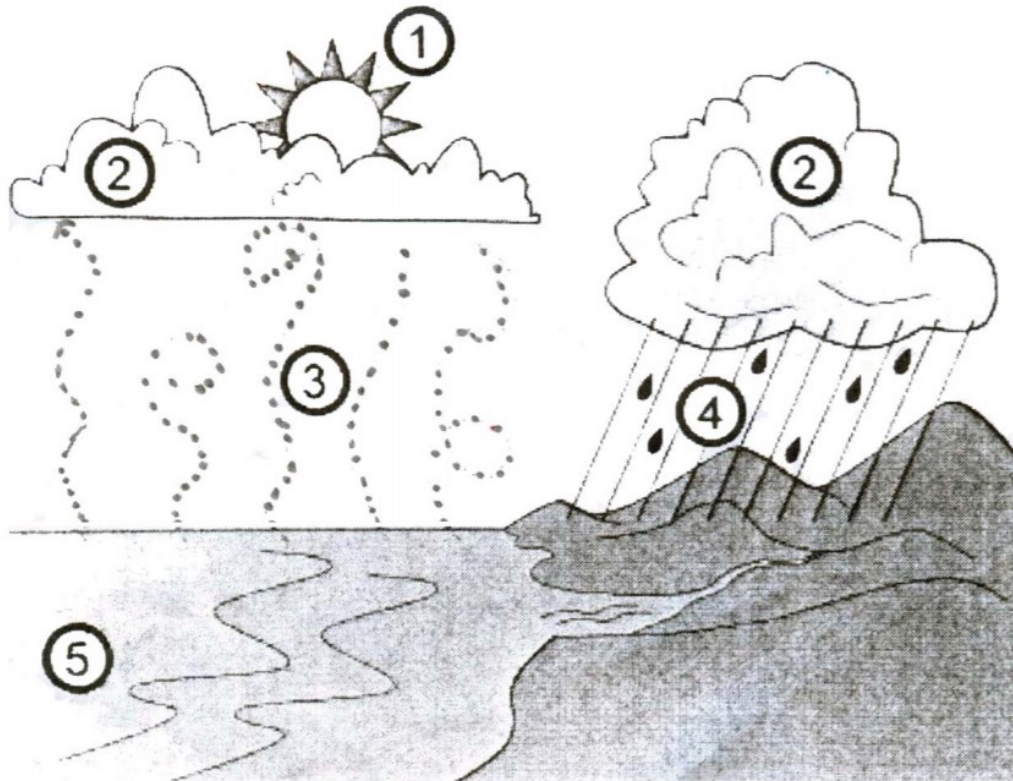


Science



Math

WATER CYCLE TEMPLATE



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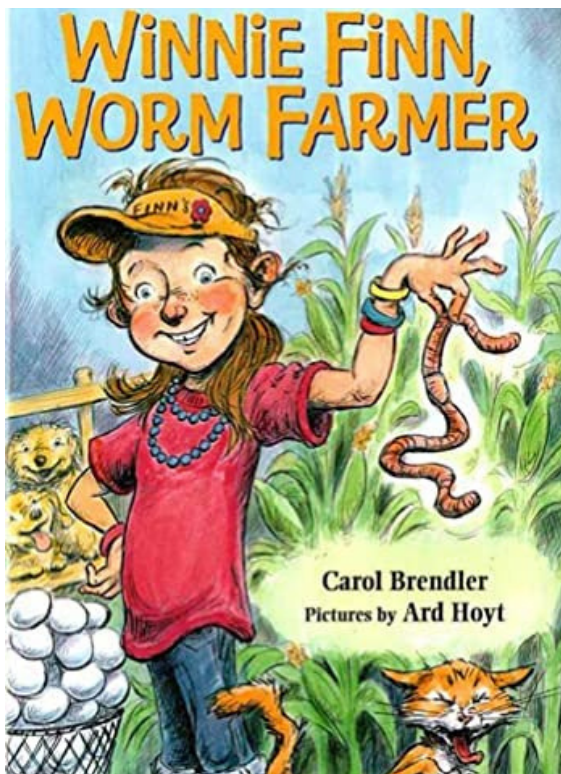
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AG-ACCURATE BOOK RECOMMENDATION:



Winnie Finn, Worm Farmer
Carol Brendler

Winnie Finn is crazy about earthworms and knows everything about them. When spring arrives in Quincy County, all she can think about is the county fair coming up. This year, she would like nothing more than to win a prize for her worms so that she might buy a shiny new wagon for transporting them around. Trouble is, there's no prize at the fair for worms . . .

ACCOMPANYING IAITC LESSON:

Classroom Vermicomposting

Learn about using worms to convert food waste into rich soil by building and maintaining a classroom "vermicomposter."

See following page(s) for lesson plan!



CLASSROOM VERMICOMPOSTING

Grade Level

K-8

Length of Lesson

Ongoing

Objective

By the end of this lesson, students will have a better understanding of vermicomposting and soil health.

Materials Needed

- (2) large, opaque plastic containers
- Replacement drain for cooler
- Drill & drill bits
- Newspaper
- Small amount of compost or soil
- 1/4 lb red wiggler worms
- Copy of the Weekly Log Sheet (optional)

Standards**NGSS**

K-2-ETS1-1; K-LS1-1; 4-LS1-1-2; 4-ESS3-1; 5-LS2-1; MS-LS2-3

Lesson Summary

This lesson is a fun, hands-on activity designed to introduce students to the exciting world of vermicomposting—making compost with the help of worms! Students will help construct and maintain a classroom vermicomposter. As an alternative or supplemental lesson, students can make their own “desktop” composters as well.

Suggested Sequence of Events:

1. **Set Up:** Assemble all necessary materials. Teachers may want to mostly prepare the vermicomposting tubs beforehand and have students help with adding the worms.
2. Read through the IAITC Soil Ag Mag to learn more about soil health! Interactive online versions can be found on our website.
3. To prepare the composting bins, follow these steps (diagrams can be found on the Teacher Resources page):
 - Use the drill and a 1” drill bit to cut two holes near the top on each long side of one of the tubs. These holes will serve as ventilation for the worms.
 - Then, use the same 1” drill bit to drill a hole near the bottom on the short side of the other tub.
 - Attach the cooler drain through this hole. This will allow you to drain any liquid “worm tea” that collects in the bottom tub. Worm tea can be added to gardens and planting containers as fertilizer as well.
 - Return to the initial tub with the ventilation holes and flip the tub over. Switch to a 1/8” drill bit and drill a series of holes in the bottom of the tub. The holes should be large enough for liquid to drain, but not large enough to allow the worms to travel out of the tub.
 - Place this tub inside of the other tub to complete your vermicomposting bins!
4. To set-up your vermicomposting bins, follow these steps:
 - Have students tear the newspapers into small pieces.
 - Add the newspaper and compost/soil to the bin with the drain holes. Then, add a small amount of food waste. Avoid meat, dairy, and citrus products in your worm composter.
 - Finally, add the worms to your bin. Depending on how you received your worms, you may need to follow the directions included with them to “re-hydrate” the worms before adding them to your bin.
5. Your worm composter is now complete. Read the attached Teacher Resources page to learn more about maintaining your classroom composter.

TEACHER RESOURCES

- Watch our video about building our own vermicomposter on YouTube: <https://youtu.be/U7d7zek6lEM>

Maintenance:

- A vermicomposter takes little work to maintain in your classroom. Follow these tips to help your worms do their best work:
 - Add approximately the same weight in food as you have worms in your bin. For instance, if you start with 1/4 lb. of worms, add about 1/4 lb. of food scraps every week.
 - Food scraps that are in small pieces will be easier for the worms to digest quickly. Adding scraps of varying sizes may be a fun experiment to test how long it takes the worms to break down different materials.
 - Add shredded newspaper bedding as needed to keep the food scraps covered and help the pile retain moisture.
 - Burying the food scraps in the bin will help the worms digest the materials more quickly and will also eliminate the chance for bad smells.
 - The worm bin should have similar moisture to a damp sponge. Additional liquid should drain into the bottom bin, though this often isn't even necessary.
 - The worms will self-regulate their population. As the population grows, you will need to add more food each week. Eventually, the worm colony can be split to create an additional worm bin.

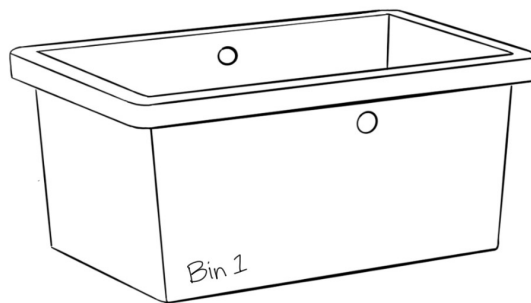
Extension Ideas:

- Students can perform various experiments and inquiry activities with the vermicomposter:
 - Use the attached weekly log for students to fill out with what they added to the worm bin, what they noticed inside the worm bin, what the worms are currently decomposing, etc. Assign different students to fill out the log each week.
 - Weigh the worms at various points in time to determine how quickly they are multiplying.
 - Experiment with adding different size food scraps to see how quickly the worms can decompose them.
 - Once the worms are creating compost, extract some and use it with garden or container plantings. See how plants grown with the vermicompost grow differently than plants grown with other types of soils.
 - Take a sample of your vermicompost and submit it for a soil sample to see what nutrients are present in the worm castings. Compare this with a soil test taken from soil around the school yard.
 - Have students research the benefits of vermicomposting and composting.
- Variation: Students can also create their own “desktop” vermicomposters using large plastic cups with lids. Worms prefer to work in the dark. Use construction paper to make a collar to block the light from the cup. Then, students can remove the collar to view the worms and their progress.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

TEACHER RESOURCES

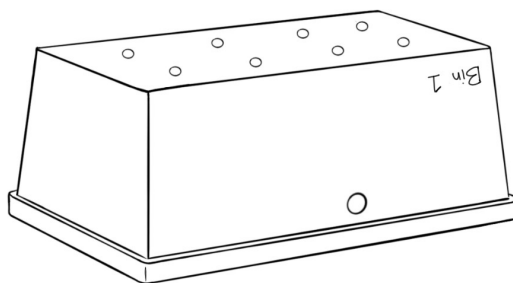
HOLES FOR VENTILATION

1" drilled holes
Top, 2 sides of the first bin



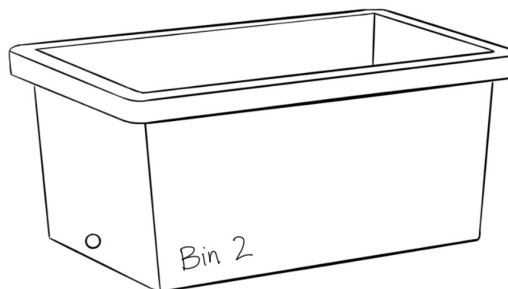
HOLES FOR DRAINAGE

1/8" drilled holes
Bottom of the first bin

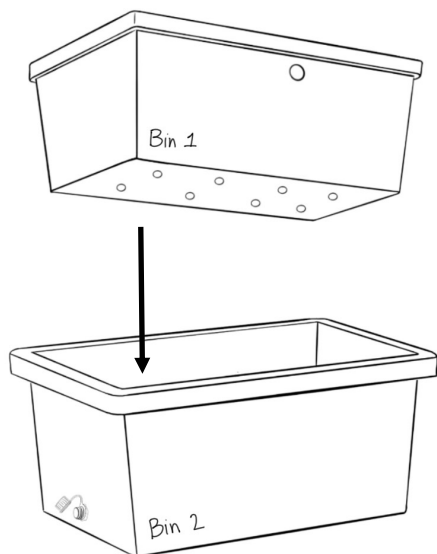


HOLE FOR COOLER DRAIN

1" drilled hole
Bottom edge, 1 side of the second bin



(Cooler Drain)



ASSEMBLY

Secure the cooler drain in the hole drilled at the bottom of the second bin. Then, place the first bin into the second bin.

Your vermicomposter is ready for its materials and tenants!



Science

CLASSROOM VERMICOMPOSTING

WEEKLY LOG

DATE	FOOD SCRAPS BEING ADDED	OBSERVATIONS OF COMPOST

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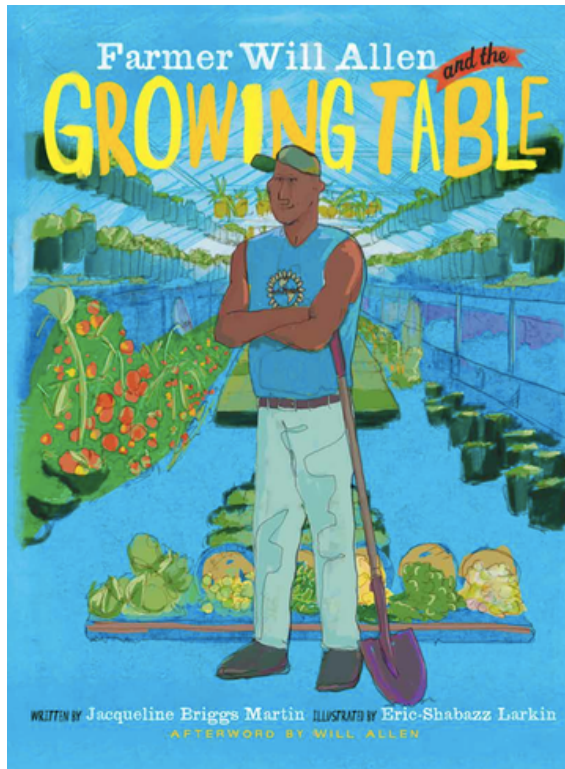
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AG-ACCURATE BOOK RECOMMENDATION:



Farmer Will Allen and the Growing Table
Jacqueline Briggs Martin

Will Allen is no ordinary farmer. A former basketball star, he's as tall as his truck, and he can hold a cabbage--or a basketball--in one hand. But what is most special about Farmer Will is that he can see what others can't see. When he looked at an abandoned city lot in Milwaukee he saw a huge table, big enough to feed the whole world.

No space, no problem. Poor soil, there's a solution. Need help, found it. Farmer Will is a genius in solving problems. In 2008, the MacArthur Foundation named him one for his innovative urban farming methods, including aquaponics and hydroponics.

ACCOMPANYING IAITC LESSON:

Design a Farmers Market Booth

Put your advertising and marketing skills to the test by designing a Farmers Market booth to attract the most customers!

See following page(s) for lesson plan!



Art



Science

DESIGN A FARMERS MARKET BOOTH

Grade Level

K-5

Length of Lesson

30-45 minutes

Objective

By the end of this lesson, students will have a better understanding of how farmers at the market design their booth spaces.

Materials Needed

- Scissors
- Tape or glue
- Crayons or colored pencils
- Copies of booth template

Standards

Visual Arts

VA:Cr2.3.3; VA:Cr3.1.1;

VA:Cr1.2.2

NGSS

3-5-ETS1-1

Lesson Summary

This lesson is a fun, hands-on activity designed to help students understand how farmers who sell at the farmers market make decisions about how to set up their booths to attract customers.

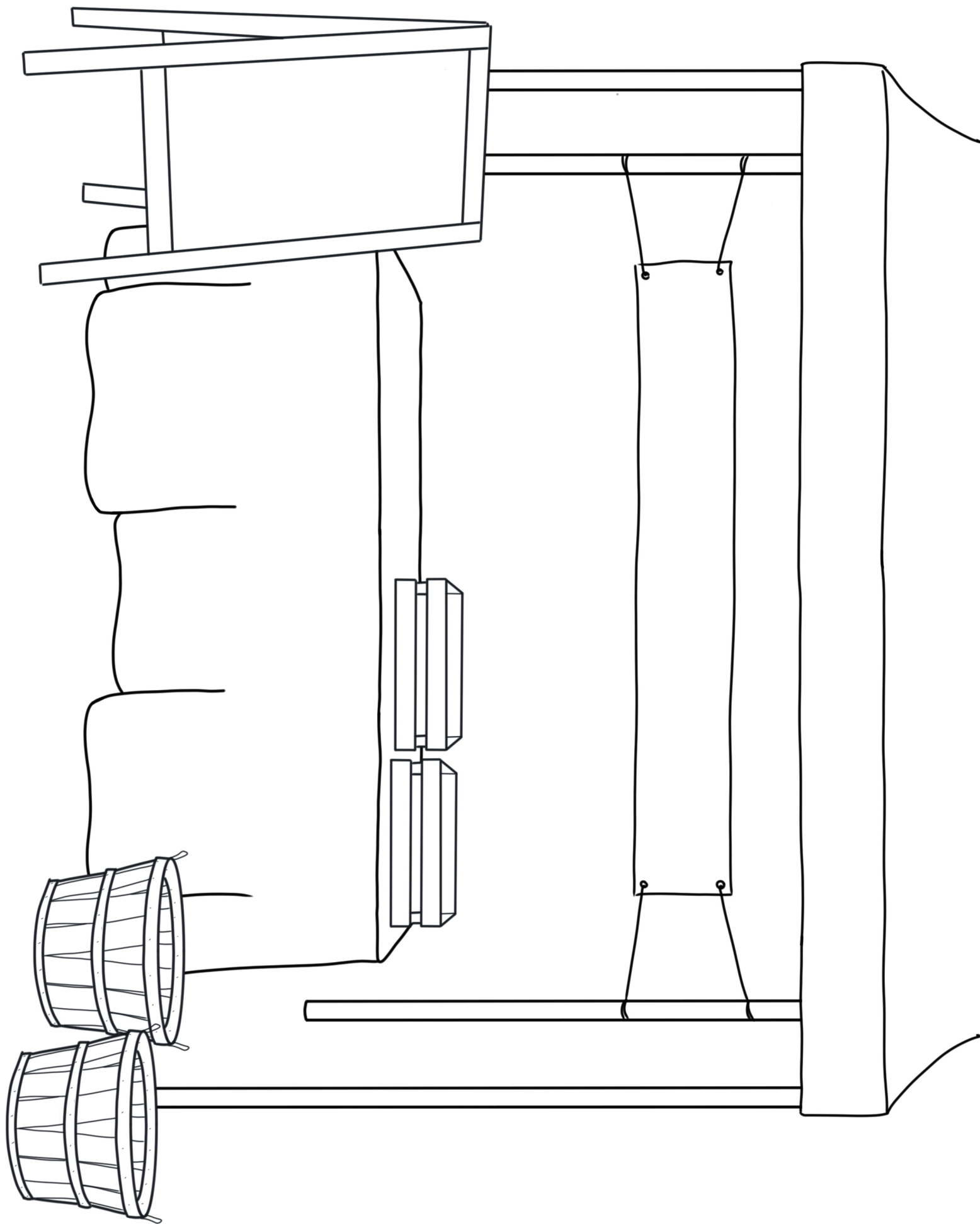
Suggested Sequence of Events:

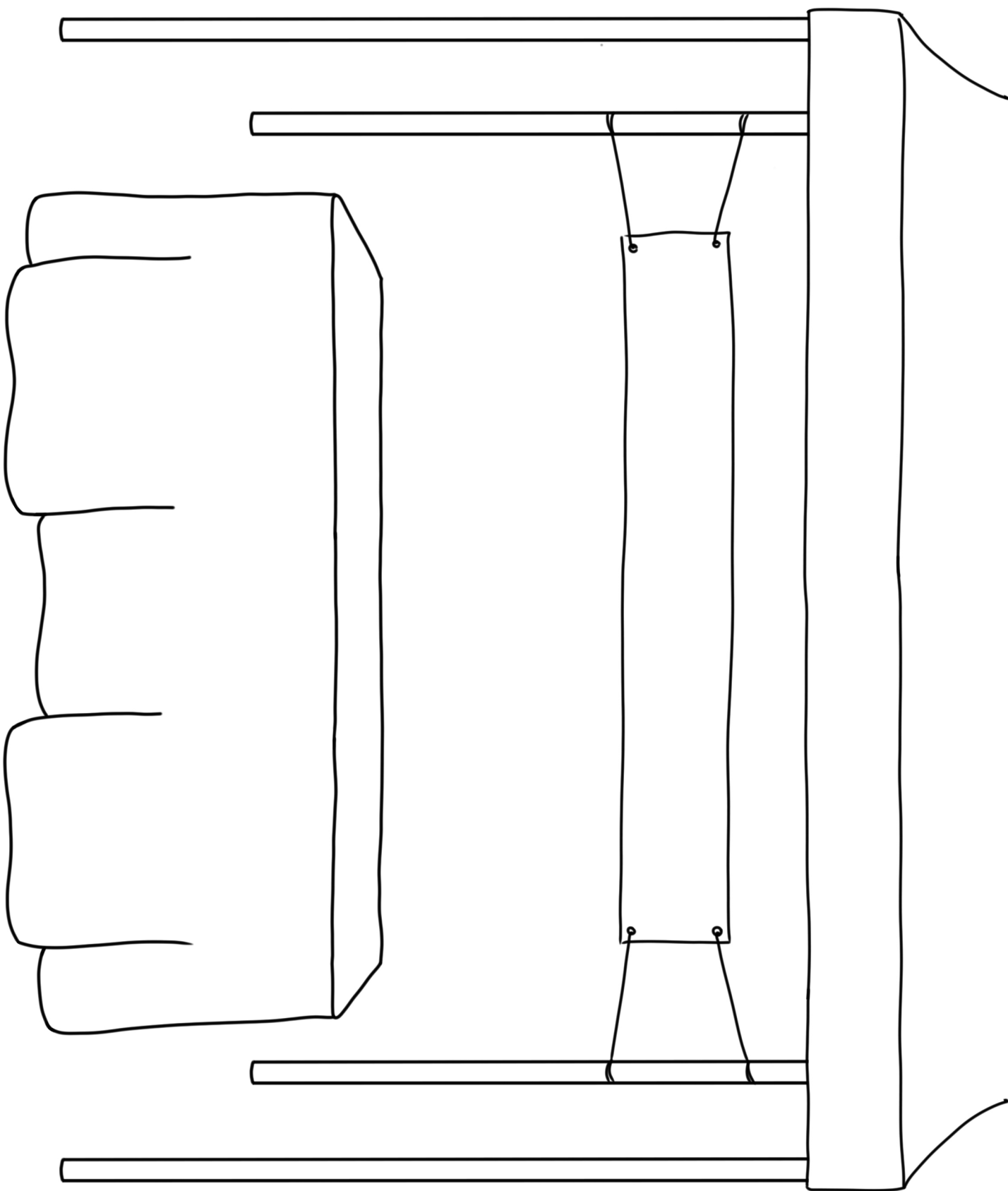
1. Set Up: Provide students with art supplies and the Farmers Market Booth Template sheets.
2. Read through the IAITC Farmers Market Ag Mag to learn more about the different specialty crops grown here in Illinois and how they are marketed at over 300 farmers markets across the state. Online versions of all IAITC Ag Mags available at agintheclassroom.org.
3. Complete the activity following the procedures:
 - Give 1 copy of each template sheet to each student.
 - Students should then create farm names, decide what crops they want to grow on their farms, and think about how best to showcase their products at the market.
 - Have students cut out additional baskets and containers as needed.
 - Then, have students design their booths by coloring in their crops and labeling what they are selling.
4. Whole class discussion and reflection of activity. Students can share their new market booths with the class and describe how they designed their setups.

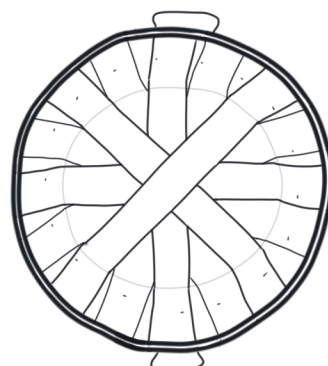
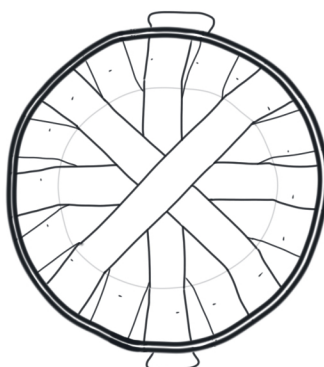
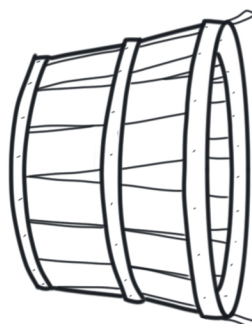
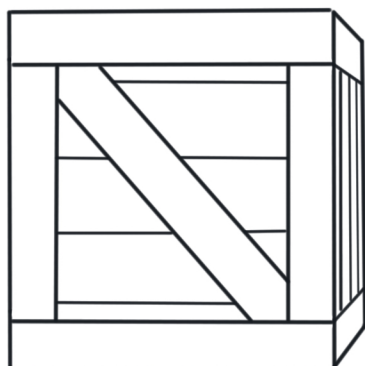
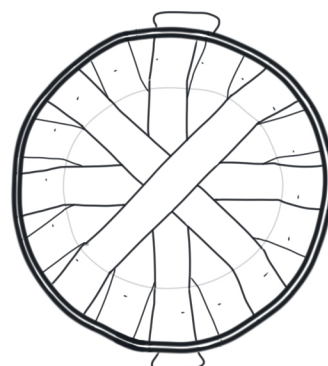
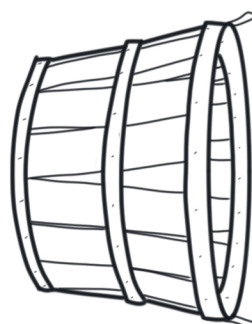
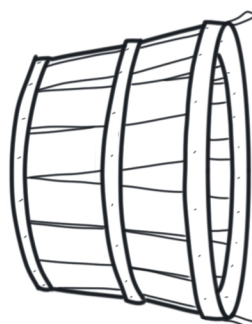
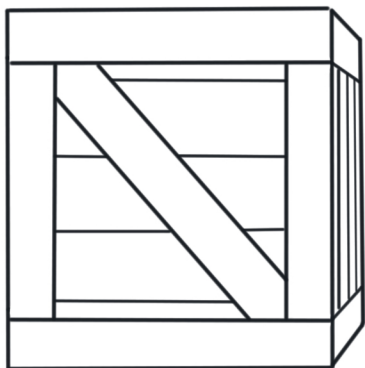
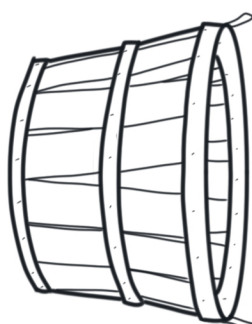
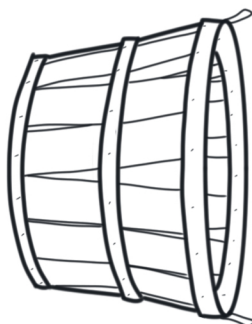
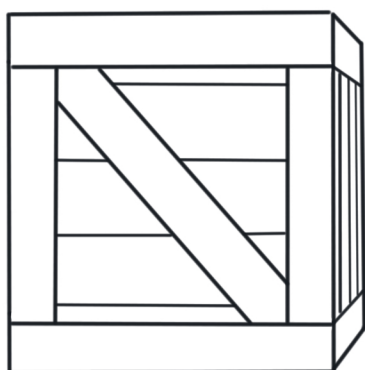
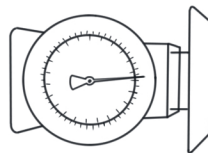
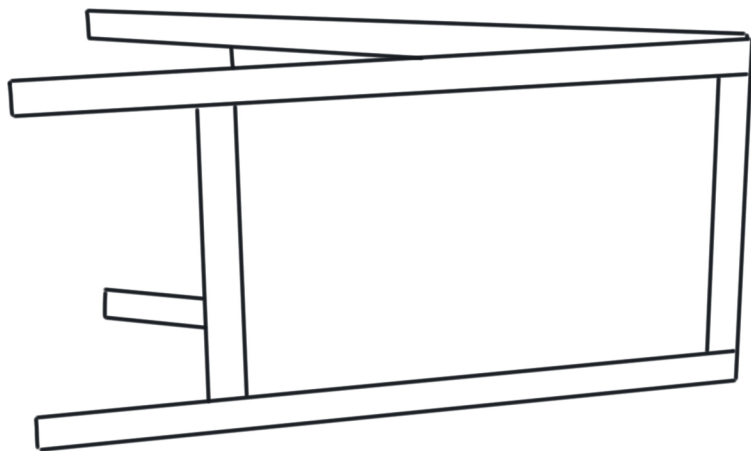
TEACHER RESOURCES

Extension Ideas:

- Talk about students' favorite fruits and vegetables. Where are those crops grown? Are any of them grown in Illinois? Which state produces the most of those various crops?
- Invite a local specialty crop farmer who grows vegetables and sells at a local market into your classroom to talk about growing and selling food locally.
- Challenge students to complete the AITC Farmers Market Scavenger Hunt worksheet.
 - What other commodities besides fruits and vegetables can be found at a farmers market?
- Learn more about gardening and grow vegetables or flowers in your classroom.
- Have students design their own garden. What would the dimensions be? What would they plant in their gardens?
- Show students this video from Purdue Extension that focuses on how farmers prepare for and setup for the market each week: https://youtu.be/_GgLM4tZX0Y.
- Visit the IL Specialty Growers Association Live Local, Shop Local website to find farmers markets and local farms near you: <https://www.specialtygrowers.org/shop-local.html>.
- There are many excellent books about small farms and farmers markets. Check out some of these titles to pair with this lesson:
 - *Sleep Tight Farm: A Farm Prepares for Winter*, by Eugenie Doyle
 - *Right This Very Minute*, by Lisl Detlefsen
 - *Stepping Stones*, by Lucy Knisley
 - *On the Farm, At the Market*, by G. Brian Karas
 - *Rah, Rah, Radishes!: A Vegetable Chant*, by April Pulley Sayre
 - *Try It: How Frieda Caplan Changed the Way We Eat*, by Mara Rockliff & Giselle Potter
 - *Farmer Will Allen and the Growing Table*, by Jacqueline Briggs Martin
 - *Harlem Grown: How One Big Idea Transformed a Neighborhood*, by Tony Hillery
 - *To Market, To Market*, by Nikki McClure
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!







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AG-ACCURATE BOOK RECOMMENDATION:



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Transformed a Neighborhood*
Tony Hillery

Harlem Grown tells the inspiring true story of how one man made a big difference in a neighborhood. After seeing how restless they were and their lack of healthy food options, Tony Hillery invited students from an underfunded school to turn a vacant lot into a beautiful and functional farm. By getting their hands dirty, these kids turned an abandoned space into something beautiful and useful while learning about healthy, sustainable eating and collaboration.

ACCOMPANYING IAITC LESSON:

Plant Parts Logic Puzzle

Test students' knowledge of which part of the plant their favorite vegetables are with this mind-bending logic puzzle activity!

See following page(s) for lesson plan!



PLANT PARTS LOGIC PUZZLE

Grade Level

3-8

Length of Lesson

30 minutes

Objective

By the end of this lesson, students will have a better understanding of plant parts, and which parts of plants we eat.

Materials Needed

- Scissors
- Glue or tape
- Copies of activity sheets

StandardsNGSS

3-LS3-1; MS-LS2-2

Lesson Summary

This lesson is a fun, hands-on activity designed to help students understand how the plants we eat are derived from different parts of the plants they come from.

Suggested Sequence of Events:

1. Set Up: Print enough copies of the activity sheets that each individual or group has enough materials. Refer to the Teacher Resources page for more information.
2. Read through the IAITC Seasons Ag Mag to learn more about the different specialty crop grown here in Illinois.
3. Complete the activity following the procedures:
 - Students can work individually or in small groups of two to three depending on the ability of your students.
 - Hand out materials to each student/group, except the categories answer key worksheet.
 - The categories answer key page is optional, to be used to help with the logic puzzle if needed.
 - First, have them cut out the plant part labels and match them to the 'tagged' vegetables. Once they are confident they have them matched correctly, use glue/tape to secure the labels.
 - Next, have them cut out the vegetable cards. Have them mix up the cards and then try to fill the shopping bag grid with the squares. Each edge of the square needs to match the edge of the square adjacent to it. For instance, roots need to match with other roots, stems need to match up with other stems, etc.
 - Once they fill the board, have them remove the squares and try again!
4. Whole class discussion and reflection of activity.

NOTE: There are two versions of both the vegetable cards and the shopping bag worksheet, each labeled "beginner" or "advanced". Use the appropriate version for your students, or start with "beginner" and then test their ability with "advanced". The "beginner" vegetable cards *may be* used interchangeably with the "advanced" shopping bag worksheet and vice versa. Use your best judgement!

TEACHER RESOURCES

General Game Information:

- The categories worksheet included is optional to use. It can be used as an introduction to plant parts or to help aid them as they complete the logic puzzle.
- There are two versions of the vegetable cards. The harder version includes all the fruits and vegetables from the categories sheet. The easier version includes only one fruit/vegetable from each category.
- There are also two versions of the shopping bag puzzle board. The easier version is a 3x3 grid and the harder version is a 4x4 grid.
- Mix and match the versions of the cards and grids according to the ability of your students!

Extension Ideas:

- Read “On the Farm, at the Market” by G. Brian Karas and talk about how commodities get to farmers markets.
- Talk about their favorite fruits and vegetables. Where are those crops grown? Are any of them grown in Illinois? Which state produces the most of those various crops?
- Invite a local specialty crop farmer who grows vegetables into your classroom to talk about growing food.
- Learn about locally grown foods and farmers markets. Challenge students to complete the AITC Farmers Market Scavenger Hunt worksheet.
 - What other commodities besides fruits and vegetables can be found at a farmers market?
- Learn more about gardening and grow vegetables or flowers in your classroom.
- Have students design their own garden. What would the dimensions be? What would they plant in their gardens?
- Learn more about pollinators and their role in agriculture.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

Cut out the plant part labels on the next page and match them to the vegetables below according to which part we eat. Each one will be used only once!

artichoke



carrot



corn



kale



pumpkin



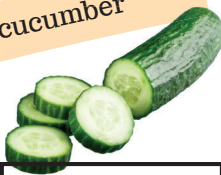
asparagus



cauliflower



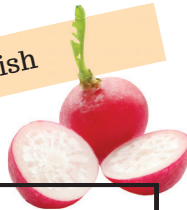
cucumber



lettuce



radish



tomato



beet



celery



green bean



pea



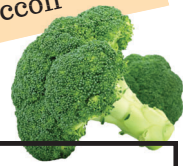
rhubarb



wheat



broccoli



cilantro



horseradish



pepper



spinach



Cut out these plant part labels and match them to the vegetables on the previous page according to which part we eat. Each one will be used only once!

root	stem	seed	flower
root	leaf	seed	flower
root	leaf	fruit	flower
root	leaf	fruit	seed
stem	leaf	fruit	
stem	seed	fruit	



Categories Answer Key

Roots



Stems



Leaves



Seeds



Flowers

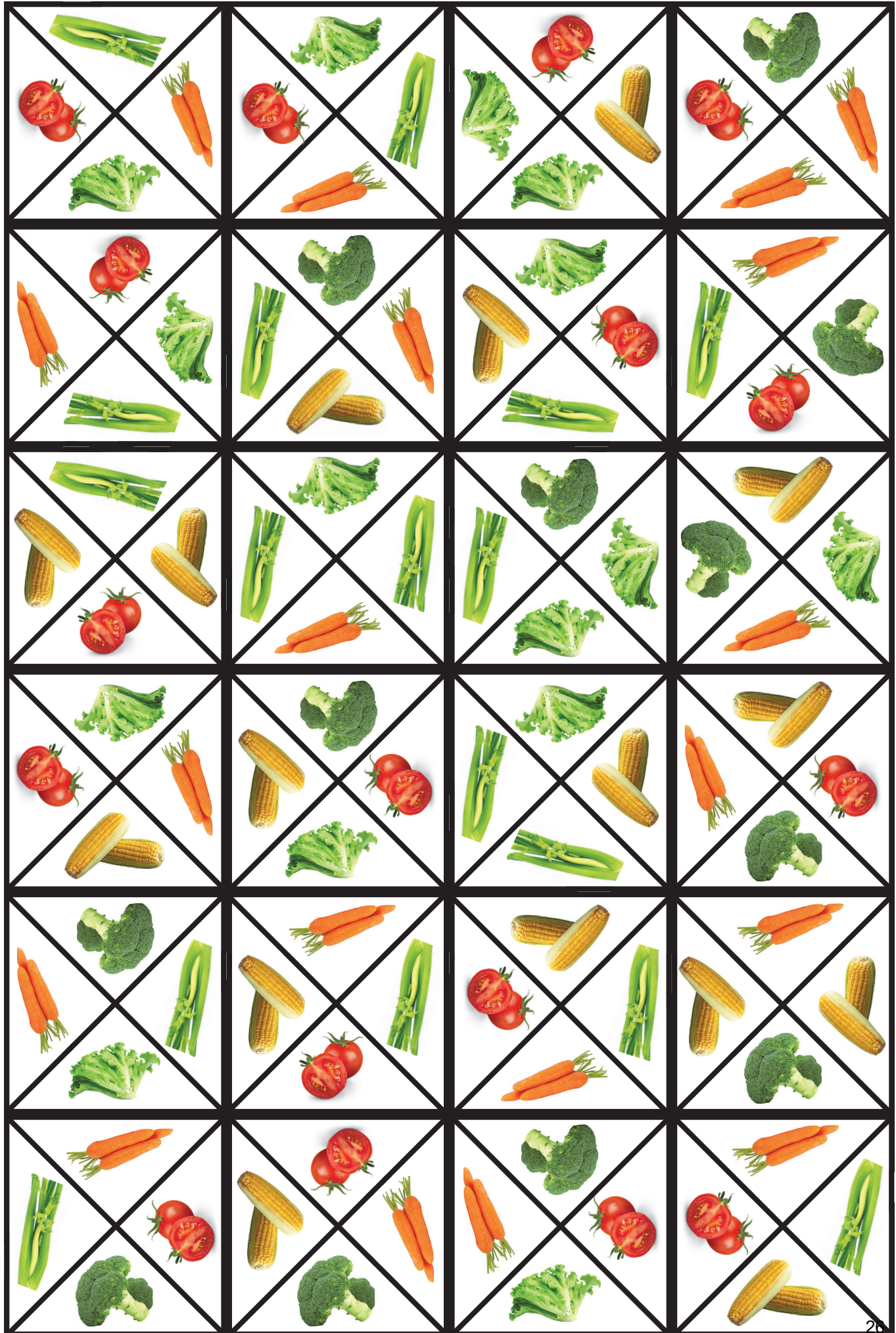


Fruits



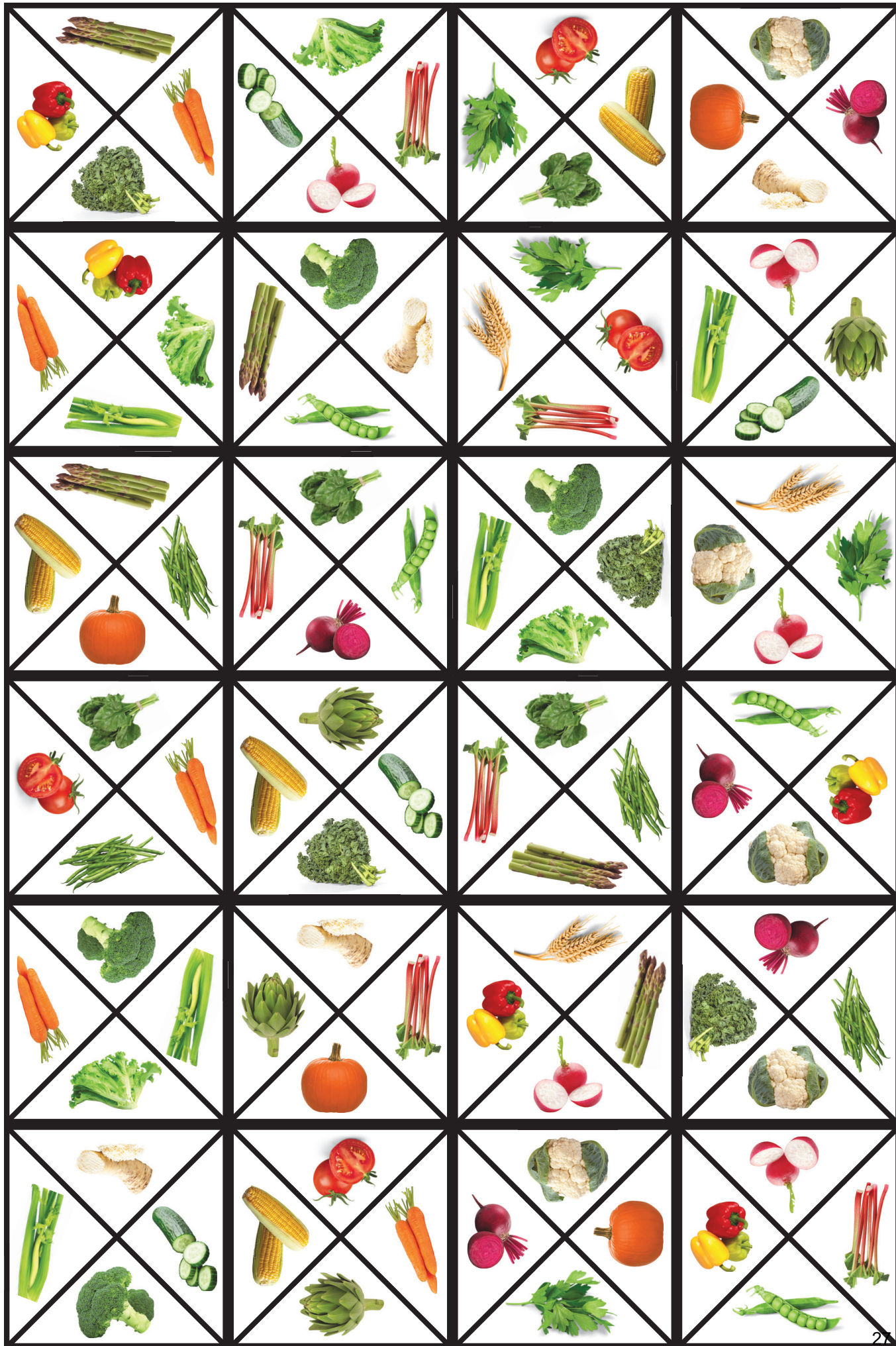
BEGINNER

Instructors: Cut out these Vegetable Cards along the THICK lines. You will end up with 24 square cards! These are the playing cards for the review activity.



ADVANCED

Instructors: Cut out these Vegetable Cards along the THICK lines. You will end up with 24 square cards! These are the playing cards for the review activity.



Time to go shopping at the Farmers Market
and put your knowledge to the test!

BEGINNER

Arrange the Vegetable Cards into
the shopping bag below so that
"like" plant parts are touching each
other (i.e. - stems touching stems,
roots touching roots)

Time to go shopping at the Farmers Market
and put your knowledge to the test!

Arrange the Vegetable Cards into
the shopping bag below so that
"like" plant parts are touching each
other (i.e. - stems touching stems,
roots touching roots)

FIND YOUR VOICE

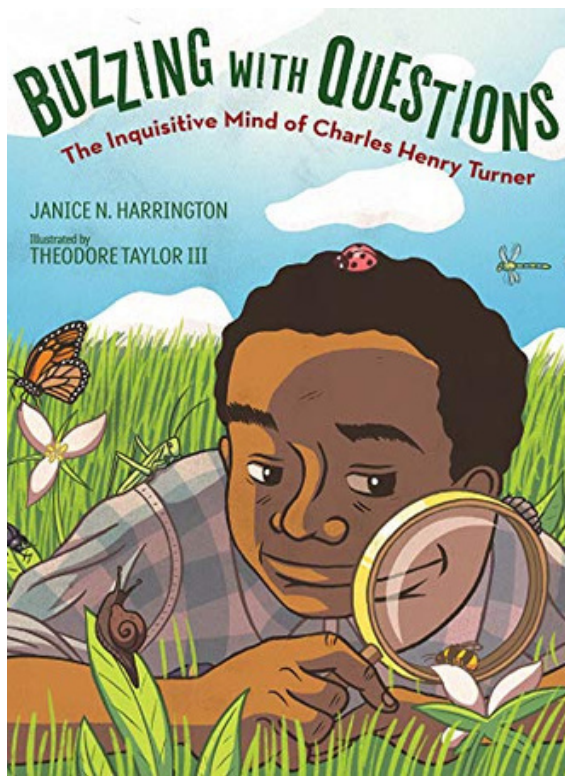
Summer 2023



An iREAD Summer
Reading Companion
from

Illinois
AGRICULTURE
in the ClassroomSM

AG-ACCURATE BOOK RECOMMENDATION:



*Buzzing with Questions: The Inquisitive
Mind of Charles Henry Turner*
Janice N. Harrington

Can spiders learn? How do ants find their way home? Can bugs see color? All of these questions buzzed endlessly in Charles Henry Turner's mind. He was fascinated by plants and animals and bugs. And even when he faced racial prejudice, Turner did not stop wondering. He constantly read, researched, and experimented.

ACCOMPANYING IAITC LESSON:

Scientific Inquiry Worksheet

Help students learn about scientific inquiry with this experimental design activity!

See following page(s) for lesson plan!



Science

SCIENTIFIC INQUIRY

It all starts with a question! Everything we have today came from someone questioning the current beliefs, technologies, and practices of that time with hopes to gain new knowledge, discover something new, or to make something better or different!

Scientific Inquiry is investigating and finding evidence from observations in order to create logical explanations and answer questions!

Phenomenon:

What do you already know about this phenomenon?

Write 3 questions that will help you learn more about the phenomenon:

?

STOP

Before you move on, you want to make sure you know exactly what you're investigating! Choose 1 question you hope to answer through your investigation and circle it!

Brainstorm Box: What type of experiment could you design to answer your question?



SCIENTIFIC INQUIRY

Materials:

Control:

Variables:

Now that you brainstormed, finalize your experiment. Using complete sentences, explain how you will set it up!



Science

SCIENTIFIC INQUIRY

Use the blank space below to record observations and data!

Did your experiment help answer your question? Explain, using evidence as support!

What was the most challenging part of this activity?



Science

SCIENTIFIC INQUIRY WORKSHEET

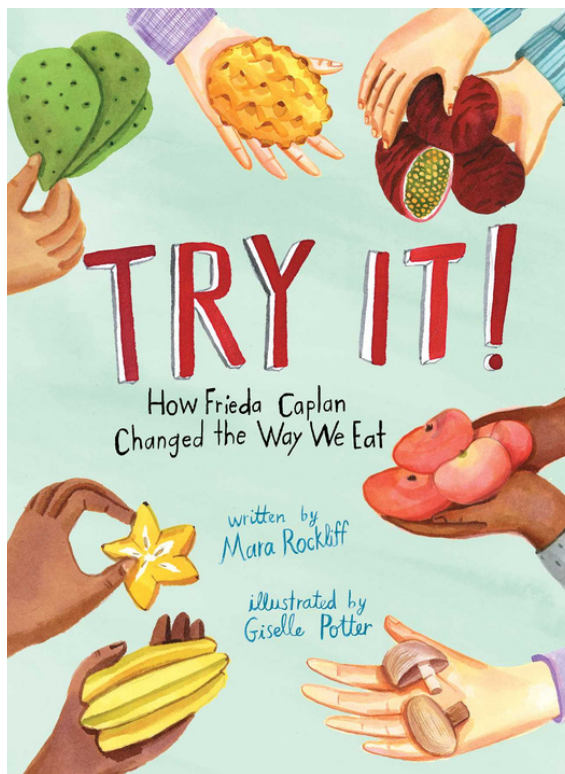
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AG-ACCURATE BOOK RECOMMENDATION:



Try It!: How Frieda Caplan Changed the Way We Eat
Mara Rockliff

In 1956, Frieda Caplan started working at the Seventh Street Produce Market in Los Angeles. Instead of competing with the men in the business with their apples, potatoes, and tomatoes, Frieda thought, why not try something new? Starting with mushrooms, Frieda began introducing fresh and unusual foods to her customers—snap peas, seedless watermelon, mangos, and more!

ACCOMPANYING IAITC LESSON:

Farmers Market Scavenger Hunt

Learn more about locally grown products and meet the farmers who grew them with this Farmers Market scavenger hunt!

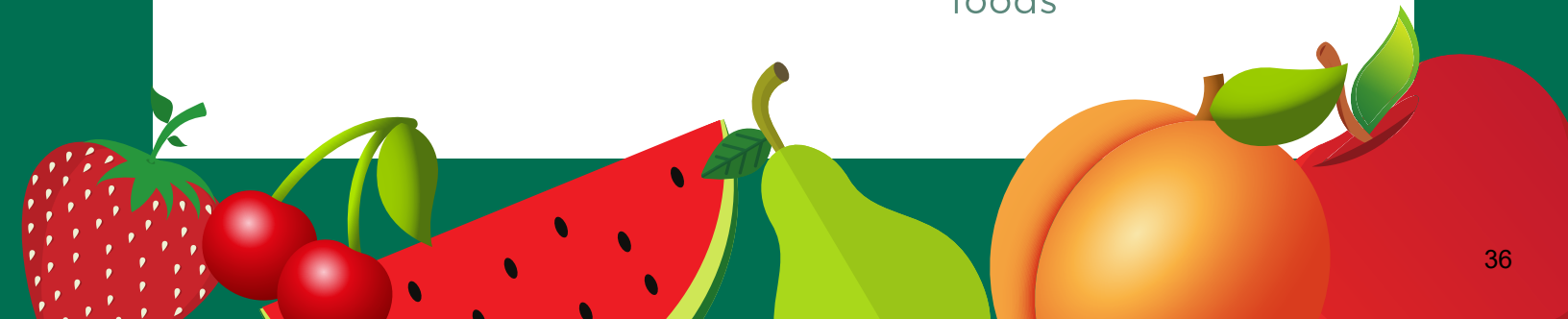
See following page(s) for lesson plan!



FARMERS MARKET SCAVENGER HUNT

CHECK OFF ALL THE ITEMS YOU
CAN FIND AT TODAY'S MARKET!

- | | |
|--|--|
| <input type="radio"/> vegetable you've never tried | <input type="radio"/> something red |
| <input type="radio"/> dessert ingredient | <input type="radio"/> eggs in a carton |
| <input type="radio"/> say hello to a farmer | <input type="radio"/> bouquet of flowers |
| <input type="radio"/> something yellow | <input type="radio"/> dairy product |
| <input type="radio"/> something that grows on a vine | <input type="radio"/> person who sells meat |
| <input type="radio"/> salad greens | <input type="radio"/> something sweet |
| <input type="radio"/> loaf of bread | <input type="radio"/> jelly in a jar |
| <input type="radio"/> honey | <input type="radio"/> one of your favorite foods |



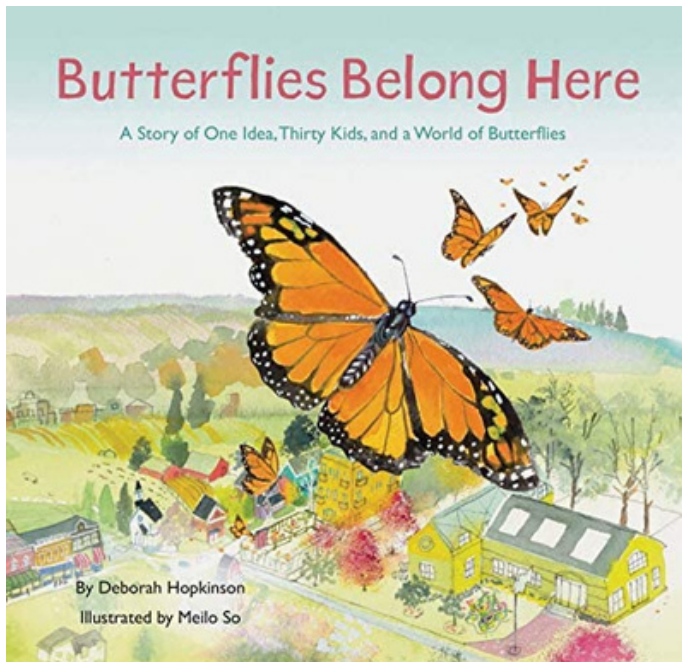
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AG-ACCURATE BOOK RECOMMENDATION:



Butterflies Belong Here

Deborah Hopkinson

In this moving story of community conservation, a girl finds a home in a new place and a way to help other small travelers.

This book is about the real change children can make in conservation and advocacy—in this case, focusing on beautiful monarch butterflies.

ACCOMPANYING IAITC LESSON:

Throw and Grow

Create a new habitat for pollinators using wildflower seeds, modeling clay, and potting soil.

See following page(s) for lesson plan!



Science



Literacy

THROW & GROW

Grade Level

2-5

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will be able to explain the importance of pollinators.

Materials Needed

- Air dry clay
- Compost
- Wildflower seeds (native to your area)
- Small spray bottle with water

Standards

Common Core

CCSS.ELA-Literacy.RI.4.7; SL.4.1

NGSS

2-LS2-1; 3-LS1-1; 3-LS3; 3-LS4; 5-LS2-1

Lesson Summary

This lesson is a fun, hands-on activity designed to teach students more about the importance of pollinators. Students will also learn about seed germination and plant growth as you watch your flowers grow!

Suggested Sequence of Events:

1. Read "[Up in the Garden and Down in the Dirt](#)" by Kate Messner to snag student interest!
2. Read through the IL AITC Pollinator Ag Mag to learn about pollination. Interactive online versions can be found on our website.
3. Complete the activity following the procedures:
 - Have each student pull off a piece of clay and spread it out to be large enough to pour the compost on it.
 - Have them pour a pinch of compost on the clay and then pour the seeds on top of it.
 - Then, have students spray a small amount of water (one or two sprays) on their seeds.
 - Allow each student to fold together and knead the mixture until the mixture is thoroughly mixed together.
 - Have them roll it into a ball and bring it out to dry in the sun.
 - Now it is time to "throw and grow." Have them throw their seeds into their yard and wait for them to grow.
5. Whole class discussion and reflection of activity.

TEACHER RESOURCES

Background Information:

Spring is the best time to toss your throw and grows into your yard or an approved location at your school. Try to time it before a heavy rainfall in order to help the seeds germinate.

The clay helps hold the soil and seeds together. Once thrown, the clay will hold the compost and seeds together so the seeds have a nutritious home to germinate. Over time, the seeds will root into the ground and weather conditions will break down the clay.

Extension Ideas:

- Read “[Our School Garden](#)” by Rick Swann and talk about the importance of flower gardens. Talk with your principal and maintenance staff and see if there’s an approved location on the school grounds where you can grow a pollinator garden.
 - Have students measure, design, and build the garden before you complete this activity.
 - If there is no approved location, have students ‘throw’ their “Throw & Grows” into a flower pot and set the pots by your classroom windows.
- Have students draw or take pictures of their observations on their plant growth.
- Have students measure the growth of their plants and record the data on a graph.
- Have students research a native Illinois flower and its usual pollinators.
 - Students can write a paper about their findings.
- Have students think more deeply about the role each material played in their throw and go; What is compost used for? What would happen if we didn’t water it? How does a seed become a plant?
- Learn about the difference of “soil” vs. “dirt.”
- Learn about different pollinators!
 - Invite a beekeeper in to talk about bees.
 - Get involved and learn about the [Illinois Monarch Project](https://www.ilfb.org/resources/ifb-in-action/illinois-monarch-project-provides-resources/). Available at <https://www.ilfb.org/resources/ifb-in-action/illinois-monarch-project-provides-resources/>
 - Watch this [video](https://www.youtube.com/watch?v=_QYvaiozsFc) from the Illinois Farm Bureau all about pollinator habitats. Available at https://www.youtube.com/watch?v=_QYvaiozsFc
- Have students write a paragraph about the importance of pollinators.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

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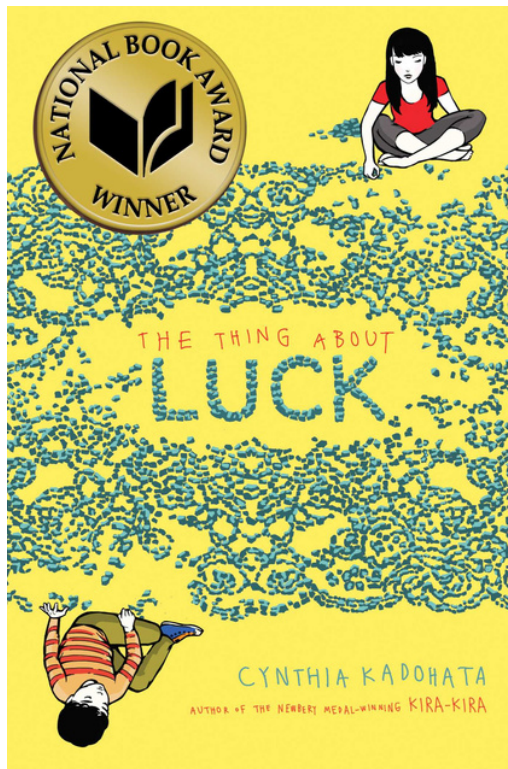
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AG-ACCURATE BOOK RECOMMENDATION:



The Thing About Luck

Cynthia Kadohata

Summer knows that kouun means "good luck" in Japanese, and this year her family has none of it. Just when she thinks nothing else can possibly go wrong, an emergency whisks her parents away to Japan--right before harvest season. Summer and her little brother are left in the care of their grandparents, who come out of retirement in order to harvest wheat and help pay the bills.

Summer figures the bad luck must be finished--but then it gets worse. And when that happens, Summer has to figure out how to change it herself, even if it means further displeasing her grandmother. Because it might be the only way to save her family.

ACCOMPANYING IAITC LESSON:

Wheat Milling

Learn how wheat is ground into flour and practice it for yourself using a simple tabletop grinder!

See following page(s) for lesson plan!



Science



Literacy

WHEAT MILLING

Grade Level

K-4

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will have a better understanding of wheat as a plant.

Materials Needed

- [Wheat Stalks](#)
(available at agclassroomstore.com)
- Salt or Pepper Grinder

Standards

Common Core

CCSS.ELA-

Literacy.RI.K.10; RI.1.6

CCSS.Math.Content.K.C

C.A.1

NGSS

K-LS1-1; 2-LS2-2; 3-LS1

-3

Lesson Summary

This lesson is designed to help students identify the parts of a wheat plant while learning about its uses in various food products.

Suggested Sequence of Events:

1. Set Up: Gather enough wheat stalks for each student in your class or for small groups of students. Draw or print out a diagram of a wheat stalk as a guide for you and your students.
2. Read "[Farmer George Plants a Nation](#)" by Peggy Thomas to capture student interest.
3. Read through the AITC Wheat Ag Mag to learn more about wheat. Interactive online versions can be found on our website.
4. Complete the activity following the procedures:
 - Show students wheat stalks.
 - Go over the parts of the wheat stalk with the students to familiarize them with the parts so they can understand the directions for dissection.
 - Stalk—the entire plant.
 - Head—the part of the wheat plant that contains the kernels.
 - Beard—the bristle-like parts of the wheat plant that cover and protect the kernels.
 - Kernel—the seed from which the wheat plant is grown or that people harvest from the wheat plant to grind into flour.
 - Stem/Straw—the part of the wheat plant that supports the head and is known as straw after harvest.
 - Dissect the wheat using the following steps:
 - Break the head off the stem.
 - Make a straw out of the stem by breaking it to avoid the nodes.
 - Lay the wheat head flat on a hard surface and pat with your hand to shake out the kernels.
 - Have the students count their kernels.
 - Put the kernels of wheat into a salt or pepper grinder and have the students mill their wheat into flour. What simple machines are being used?
 - Talk about different ways to grind wheat. The Native Americans did it using rocks, etc. Have students design their own method of grinding wheat and then test their machines.

TEACHER RESOURCES

Extension Ideas:

- Read “[Bread Comes to Life](#)” by George Levinson. Then, have students find the gluten in wheat by chewing the kernels. Before there was chewing gum in the store, farmers made their own with grains of wheat!
- Ask the students to list some of the foods that can be made using flour. (*Bread, cake, cookies, brownies, pasta, crackers, etc.*)
- Have students listen to “[The Little Red Hen](#)” by Paul Galdone.
 - Bring in seeds, stems, flour, and bread and put them down in a random order. Have student pay attention to the steps the hen takes to plant her wheat . Have students work together to put items in the correct order.
- Have students label and color a wheat stalk.
- Discuss what wheat needs to grow (Light, water, air, and nutrients). Then, help students plant their own wheat.
 - As their wheat grows, you can continue to discuss this lesson by asking these questions:
 - How many days did it take for the wheat seeds to sprout?
 - What do the wheat plants look like?
 - What do the plants need to grow?
- Watch a video of wheat being harvested.
- Watch a video from a local farmer discussing wheat growth and harvest.
- Invite a wheat farmer into the classroom.
- Have students research each step of growing wheat and write a paragraph explaining what happens at each phase. How long does each phase take?
- Bring in different types of bread (sweet, rye, sourdough, white, etc) and have students sample each type. After sampling have students write about which kind they liked the best and why.
- Encourage students to try making their own bread at home.
- Have students do IAITC’s Soil Sam lesson, using wheat seeds for the “hair.”
- Go to agintheclassroom.com to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



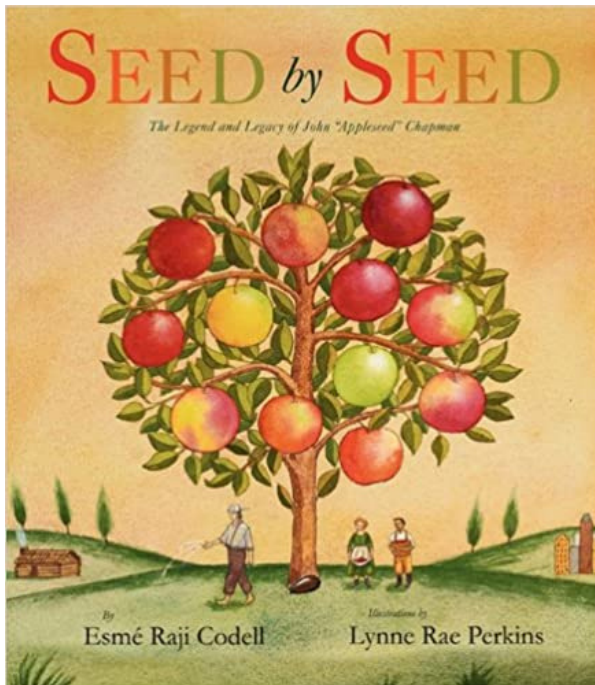
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AG-ACCURATE BOOK RECOMMENDATION:



*Seed by Seed: The Legend and Legacy of
John "Appleseed" Chapman*
Esmé Raji Codell

With one small seed every day, what good will you plant in the world? Johnny Appleseed—an American folk hero—changed our nation seed by seed, deed by deed, and now the acclaimed Esmé Raji Codell and award-winning Lynne Rae Perkins celebrate his legendary life.

An insightful and friendly text, stunning mixed-media illustrations that combine wood, paper, paint, and fabric, and a winning mixture of information and inspiration make for a stellar picture book for all ages. Sure to be a classroom and seasonal favorite.

ACCOMPANYING IAITC LESSON:

Apple Blossom Tree

Better understand the life cycle of an apple tree by creating a hands-on model showcasing the phases of apple development.

See following page(s) for lesson plan!



APPLE BLOSSOM TREE

Grade Level

K-3

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will understand the apple life cycle.

Materials Needed

- Brown and green construction paper
- Pink and white tissue paper
- Scissors
- Glue Sticks
- Brown Markers
- Red circle Stickers
- Bee/Bug Stickers

Standards**NGSS**

Earth's Systems: K-E552-2
From Molecules to organisms: K-LS1-1

Lesson Summary

Apple trees bloom in the spring and ripen in the fall. This lesson is designed to help students understand the apple growth process.

Suggested Sequence of Events:

1. Set Up: Cut out two green treetops and one brown tree trunk for each tree.
2. Read [“The Apple Pie Tree”](#) by Zoe Hall to capture student interest.
3. Read through AITC Apple Ag Mag to learn about apples. Interactive online versions can be found on our website.
4. Complete the activity following the procedures:
 - Glue the tree trunk to one of the tops.
 - Match up with the other top and glue it on.
 - Cut pink and white tissue paper into small squares.
 - On one side of the tree, glue on the crumpled tissue paper to represent blossoms. Growth starts with the blossoms.
 - Add a bug or bee sticker to the blossoms. This represents how pollination must occur for an apple to grow.
 - Label the blossom side of the tree trunk “spring.”
 - On the other side of the tree, stick red circle stickers on the tree top to represent apples. Use a brown marker to draw a stem.
 - Label this side of the tree trunk “fall.”
5. Whole class discussion and reflection of activity. Pair students together and have them share their apple trees with their partner, showing how apples grow.

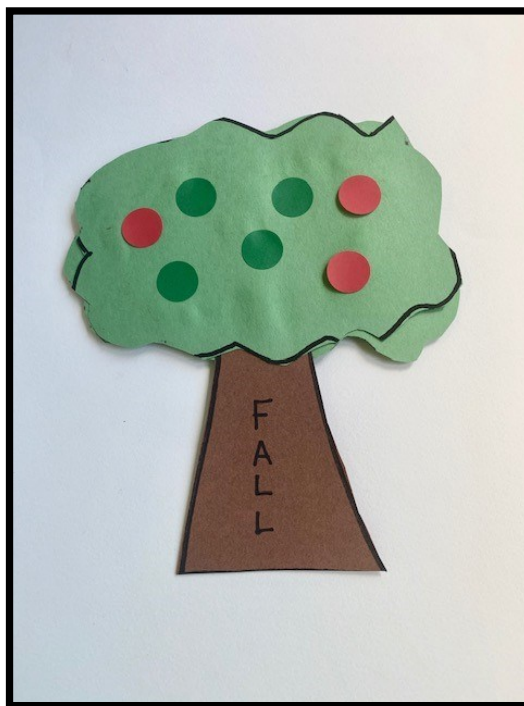
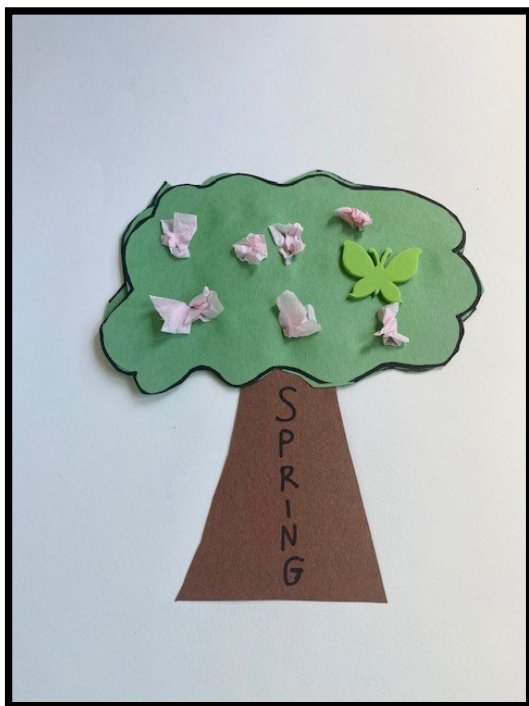
TEACHER RESOURCES

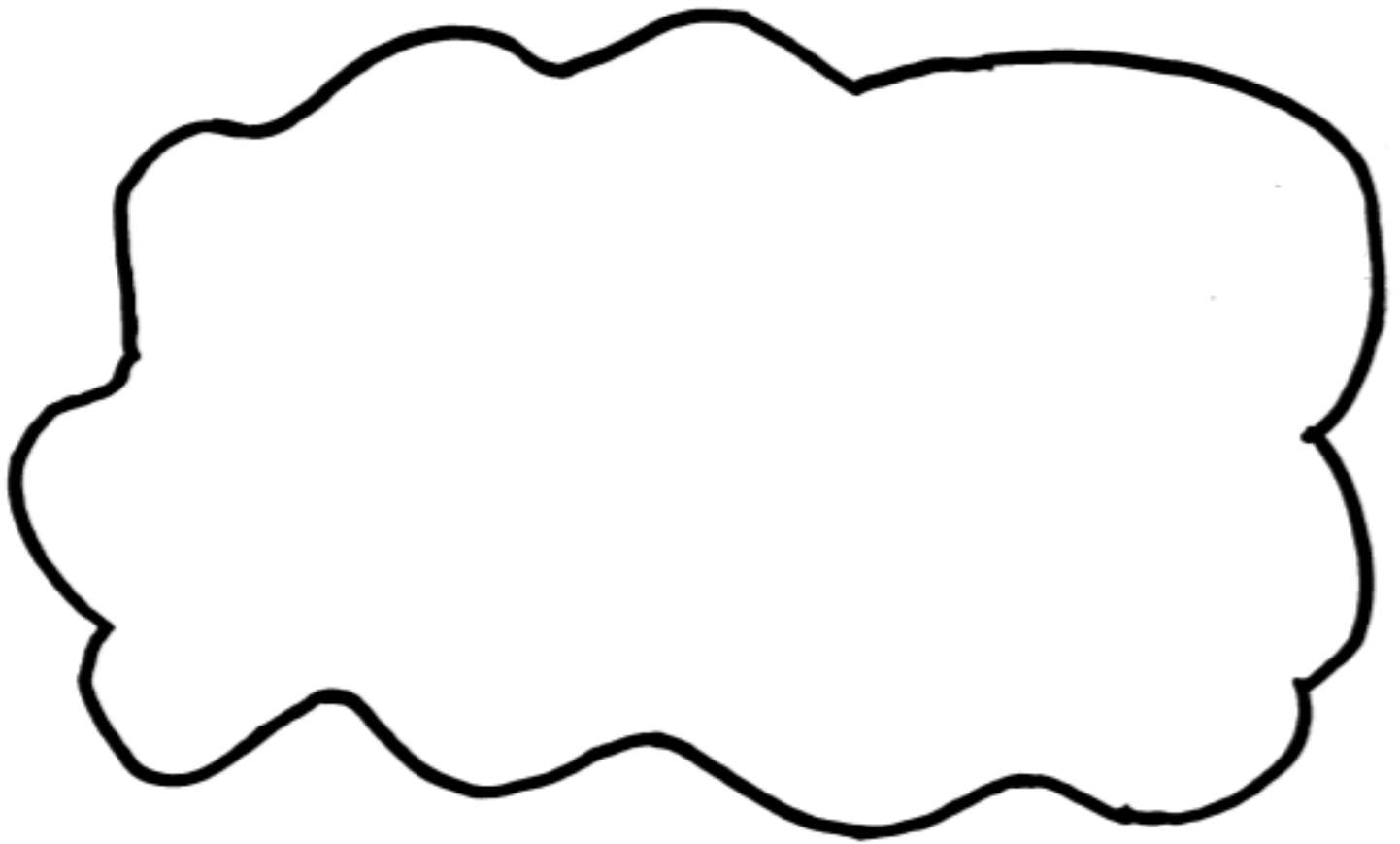
Extension Ideas:

- Read “[From Seed to Apple](#)” by Anita Green. Look at the pictures and have students analyze the images.
- Have students create a comic strip showing the apple life cycle.
- Have students tell a story from the seed’s perspective, becoming a flower, being pollinated, and then becoming an apple.
- Introduce or teach about photosynthesis.
- Take a closer look at bees and other pollinators. What is pollination? Why is it important for apples?
- Watch a time lapse video of an apple growing.
- Watch a video from a local farmer discussing what they do in the spring and in the fall.
- Take a field trip to an orchard and pick your own apples.
- Use our “Apple Chain” lesson to deepen understanding of the life cycle of an apple.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

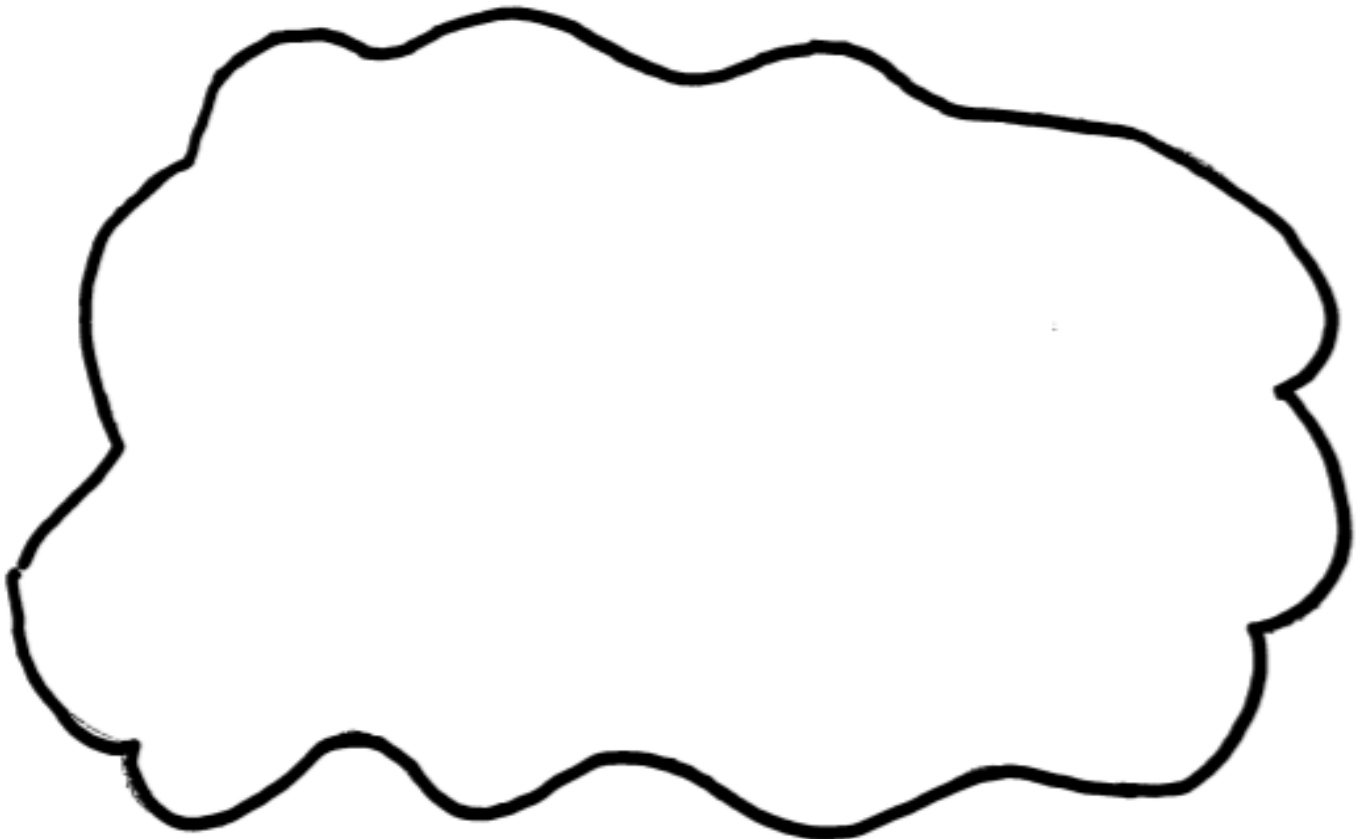
Media Resources:

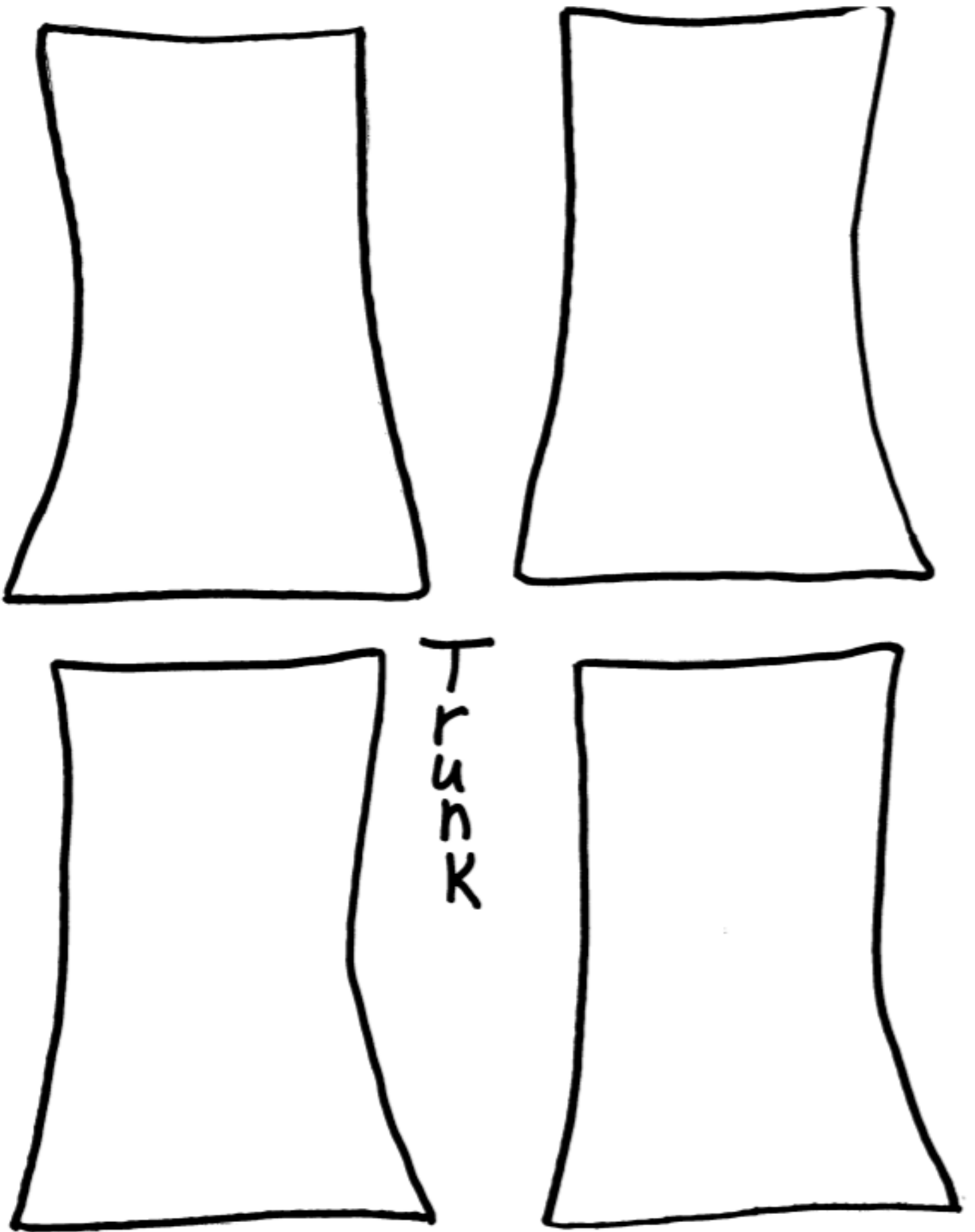
Use this video to introduce or demonstrate this activity: <http://iaitc.co/appleblossom>





Leaves





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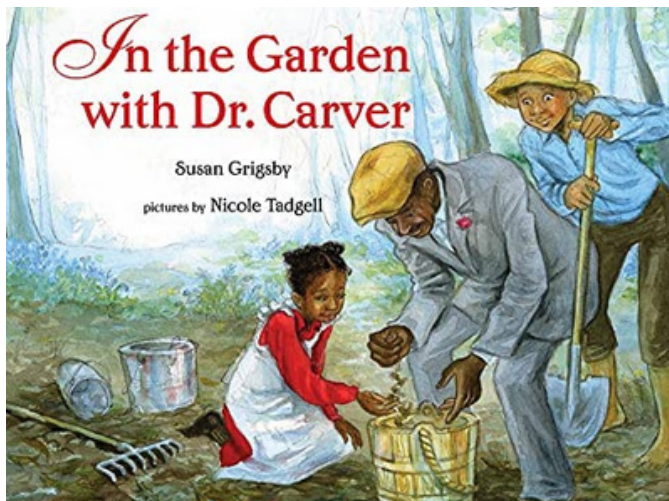
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AG-ACCURATE BOOK RECOMMENDATION:



In the Garden with Dr. Carver
Susan Grigsby

Sally is a young girl living in rural Alabama in the early 1900s, a time when people were struggling to grow food in soil that had been depleted by years of cotton production. One day, Dr. George Washington Carver shows up to help the grown-ups with their farms and the children with their school garden. He teaches them how to restore the soil and respect the balance of nature. He even prepares a delicious lunch made of plants, including "chicken" made from peanuts. And Sally never forgets the lessons this wise man leaves in her heart and mind. Susan Grigsby's warm story shines new light on a Black scientist who was ahead of his time.

ACCOMPANYING IAITC LESSON:

Soil Sam

Teach students about seed germination and the difference between monocots and dicots with this fun and silly extended activity.

See following page(s) for lesson plan!



Science



Math

SOIL SAM

Grade Level

K-5

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will have a better understanding of the growth and development of a seed.

Materials Needed

- Potting soil
- Untreated grass seed
- Baby food jars
- Knee-high stockings
- Water
- Jiggle eyes
- Fabric

Standards

Common Core

CCSS.Math.Content.3.MD.A.2; 3.MD.B.3

NGSS

3-LS1-1; 4-LS1-1.A

Lesson Summary

This lesson is designed to help students deepen their understanding of seed growth by creating a fun character named Soil Sam. Take it a step further and test variables that might affect seed growth!

Suggested Sequence of Events:

1. Read through IAITC Soil Ag Mag to learn about soil and its properties. Interactive online versions can be found on our website.
2. Complete the activity following the procedures:
 - Using a knee-high stocking, place some grass seeds in the toe where you want the grass to grow. The toe of the stocking is the top of the head for Soil Sam. The grass will look like hair when it grows.
 - Pack a handful of soil in the end of the stocking on top of the grass seeds. Make sure the ball of soil is slightly larger than the baby food jar.
 - Tie a knot in the stocking under the ball of soil.
 - Completely wet the head of Soil Sam. Place the opened end of the stocking (the bottom of Soil Sam) in the jar filled with water, making sure the head is above the mouth of the jar. The end of the stocking will absorb the water to feed the grass seeds, which will germinate through the stockings. You may have to poke a few small holes in the top of Soil Sam to help the grass get through.
 - Now decorate! Give your Soil Sam a face!
 - Water as needed and be sure to cut the grass (hair) and style as desired. Will the grass grow better or faster with fertilizers? Try it out. Add different fertilizers to the soil and water to see which grows best.
4. Reflection of activity. Compare with a classmate at the end of the experiment. Make sure you compare with someone that has used a liquid other than water, or someone who placed their Soil Sam in a different location. Discuss the differences observed.

TEACHER RESOURCES

Extension Ideas:

- Read "[Diary of a Worm](#)" by Doreen Cronin
- Read "[A Handful of Dirt](#)" by Raymond Bial
- Have students create a comic strip showing the process of germination.
- Have students write a story from Soil Sam's perspective.
- Show a labeled diagram of a grass plant.
- **Scientific Inquiry:** Have students think more deeply about plant growth and create their own question, hypothesis, and experiment to test! Will Soil Sam's 'hair' grow faster in Mountain Dew, coffee, or water? Does the amount of light affect the growth of the 'hair'? Do different fertilizers, potting soils, temperature, etc. affect plant growth differently?
 - Have students use the "Scientific Inquiry" worksheet to test their variables.
 - Ideas of substances to add to the water: store-bought liquid fertilizer, soda, apple juice, liquid dish soap (do the scents affect it too?), coffee, lemon juice.
 - Ideas of substances to add to the soil: store-bought fertilizer stick, coffee grounds, baking soda, Epsom salts, or try different types of soils.
- Measure Soil Sam's 'hair' each day. Make a bar graph to represent the data collected. Have students compare their data with other classmates who used a different variable.
- Create a large chart or graph that shows all students' data and hang it at the front of the classroom to compare and contrast how the variables affect plant growth.
- Watch a time lapse video of a grass growing.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

*Farmers have to be careful to not add too much fertilizer to their crop. They go to special classes and use mathematical problems to figure out the right amount for their specific plants and size of field. You shouldn't use too much fertilizer either, but you can experiment with different amounts! What would happen if you did use too much, or too little?





Science



Math

SCIENTIFIC INQUIRY

It all starts with a question! Everything we have today came from someone questioning the current beliefs, technologies, and practices of that time with hopes to gain new knowledge, discover something new, or to make something better or different!

Scientific Inquiry is investigating and finding evidence from observations in order to create logical explanations and answer questions!

Phenomenon:

What do you already know about this phenomenon?

Write 3 questions that will help you learn more about the phenomenon:

?

STOP

Before you move on, you want to make sure you know exactly what you're investigating! Choose 1 question you hope to answer through your investigation and circle it!

Brainstorm Box: What type of experiment could you design to answer your question?



Science



Math

SCIENTIFIC INQUIRY

Materials:

Control:

Variables:

Now that you brainstormed, finalize your experiment. Using complete sentences, explain how you will set it up!



Science



Math

SCIENTIFIC INQUIRY

Use the blank space below to record observations and data!

Did your experiment help answer your question? Explain, using evidence as support!

What was the most challenging part of this activity?

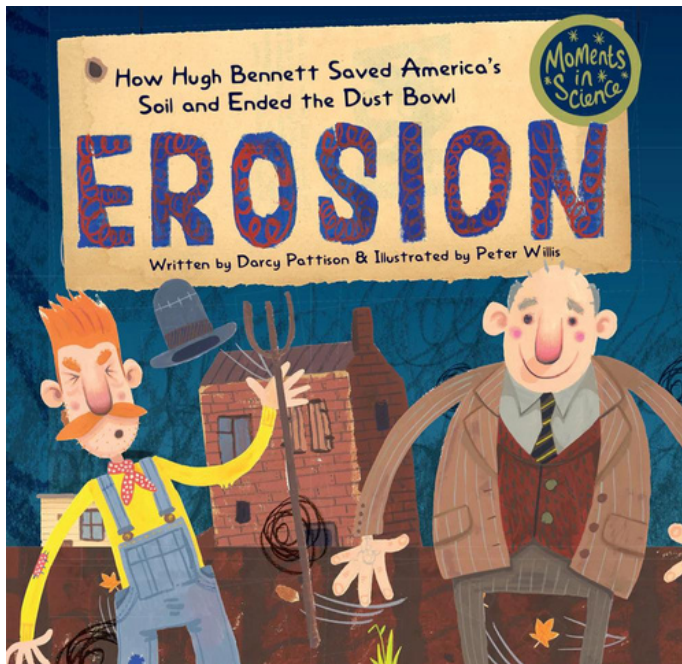
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AG-ACCURATE BOOK RECOMMENDATION:



Erosion: How Hugh Bennett Saved America's Soil and Ended the Dust Bowl
Darcy Pattison

When the dust storms of the 1930s threatened to destroy U.S. farming and agriculture, Hugh Bennett knew what to do. For decades, he had studied the soils in every state, creating maps showing soil composition nationwide. He knew what should be grown in each area, and how to manage the land to conserve the soil. He knew what to do for weathering and erosion.

Hugh Bennett knew what to do. He waited for the wind.

ACCOMPANYING IAITC LESSON:

Say it With Soil

Reflect on the importance of soil with this think-pair-share activity using soil-related quotes from influential people in our history.

See following page(s) for lesson plan!



Social
Studies



Literacy

SAY IT WITH SOIL!

Grade Level

5-8

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will be able to demonstrate through writing how soil interconnects with all living things.

Materials Needed

- Soil Quotes
- Copies of student Worksheet

Standards

Common Core

CCSS.ELA-Literacy.RI.4.3;
RI.4.4; RI.4.5; RF.4.3a;
SL.4.1; W.4.2; W.4.6;
W.4.7; W.4.8

NGSS

3-LS4-4; 3-LS3-2; 5-ESS3-1

Lesson Summary

This lesson is designed to help students learn about quotes from our history that highlight information about soil.

Suggested Sequence of Events:

1. Set Up: Cut the soil quotes from the attached pages into strips. Laminate for multiple uses.
2. Read "[This Land is Your Land](#)" by Woody Guthrie to set up a conversation about history and the land.
3. Read through IAITC Soil Ag Mag to learn more about soil and its history. Interactive online versions can be found on our website.
4. Complete the activity following the procedures:
 - Hand out the student worksheet and distribute one quote to each student.
 - Have students read the soil quote and answer the questions on the student worksheet.
 - What does the quote mean to me?
 - What did this quote mean to the author?
 - Has this quote withstood the passage of time
 - Why or why not?
 - Is this quote relevant in today's world?
 - Why or why not?
5. Have students share their writing with a partner, small groups, or the entire class.

TEACHER RESOURCES

Extension Ideas:

- Have students read through all the quotes and choose their favorite. Why did they choose that quote? What does it mean to them?
- Have students create their own say it with soil quotes.
- Have students create a Bio Cube about one of the authors of the quotes.
 - Students can go to http://www.readwritethink.org/files/resources/interactives/cube_creator/ to fill out their own Bio Cube.
 - A few examples of authors to choose would be: George Washington, Franklin D. Roosevelt, Walt Whitman, etc.
- Invite an Illinois farmer into the classroom to talk to your class about soil health and sustainability within agriculture.
- Have students participate in a “Living Wax Museum”. They can dress up as the person they researched for their bio cube and then perform a short monologue for their peers.
- Have students write a paper about one or two of the quote authors.
- Read “[Sand and Soil: Earth's Building Blocks](#),” by Beth Gurney, and “[A Handful of Dirt](#),” by Raymond Bial, to teach students more about soil, its properties, and its importance to our planet.
- Complete our lesson “Soil Slurry” to deepen your student’s understanding of soil properties.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



SOIL QUOTES

Aldo Leopold 1949	We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.
Walt Whitman 1855	I bequeath myself to the dirt, to grow from the grass I love; If you want me again, look for me under your boot soles.
Chief Seattle 1854	We are part of the earth and it is part of us...What befalls the earth befalls all the sons of the earth.
Charles Kellogg 1956	Each soil has had its own history. Like a river, a mountain, a forest, or any natural thing, its present condition is due to the influences of many things and events of the past.
Charles Kellogg 1956	Nature has endowed the earth with glorious wonders and vast resources that man may use for his own ends. Regardless of our tastes or our way of living, there are none that present more variations to tax our imagination than the soil, and certainly none so important to our ancestors, to ourselves, and to our children.
Friedrich Nietzsche 1870s –1880s	Man and man's earth are unexhausted and undiscovered. Wake and listen! Verily, the earth shall yet be a source of recovery. Remain faithful to the earth, with the power of your virtue. Let your gift-giving love and your knowledge serve the meaning of the earth.
William Bryant Logan 1996	We spend our lives hurrying away from the real, as though it were deadly to us. "It must be somewhere up there on the horizon," we think. And all the time it is in the soil, right beneath our feet.



SOIL QUOTES

George Washington July 20, 1794	I know of no pursuit in which more real and important services can be rendered to any country than by improving its agriculture.
David Ben Gurion, Hazon VeDerek 1950s	The soil is the source of life, creativity, culture and real independence.
Aldo Leopold 1949	There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery store, and the other that heat comes from the furnace.
Franklin D. Roosevelt 1937	A nation that destroys its soil, destroys itself.
Aldo Leopold 1949	A conservationist is one who is humbly aware that with each stroke he is writing his signature on the face of the land.
Daniel Webster 1840	When tillage begins, other arts follow. The farmers, therefore, are the founders of human civilization.
Wendell Berry 1995	If in the human economy, a squash in the field is worth more than a bushel of soil, that does not mean that food is more valuable than soil; it means simply that we do not know how to value the soil. In its complexity and its potential longevity, the soil exceeds our comprehension; we do not know how to place a just market value on it, and we will never learn how. Its value is inestimable; we must value it, beyond whatever price we put on it, by respecting it.

SOIL QUOTES

Charles E. Kellogg 1938	Essentially, all life depends upon the soil...There can be no life without soil and no soil without life: they have evolved together.
Ed Begley late 1900s	I saw all the people hustling early in the morning to go into the factories and the stores and the office buildings, to do their job, to get their check. But ultimately it's not office buildings or jobs that give us our checks. It's the soil. The soil is what gives us the real income that supports us all.
Justin Isherwood 1990	Plowed ground smells of earthworms and empires.
Hugh H. Bennett and W.C. Lowdermilk 1930s	Soil erosion is as old as agriculture. It began when the first heavy rain struck the first furrow turned by a crude implement of tillage in the hands of prehistoric man. It has been going on ever since, wherever man's culture of the earth has bared the soil to rain and wind.
Wallace H. Fuller 1975	A cloak of loose, soft material, held to the earth's hard surface by gravity, is all that lies between life and lifelessness.
R.S. Smith 1928	I cannot conceive of the time when knowledge of soils will be complete. Our expectation is that our successors will build on what has been done, as we are building on the work of our predecessors.
C.E. Millar & L.M. Turk 1943	Soils are developed; they are not merely an accumulation of debris resulting from decay of rock and organic materials...In other words, a soil is an entity – an object in nature which has characteristics that distinguish it from all other objects in nature.



SAY IT WITH SOIL

STUDENT WORKSHEET

1. My Quote:

2. What does this quote mean to me?

3. What did this quote mean to the author?

4. Has this quote withstood the passage of time? Why or why not?

5. Is this quote still relevant to today's world? Why or why not?

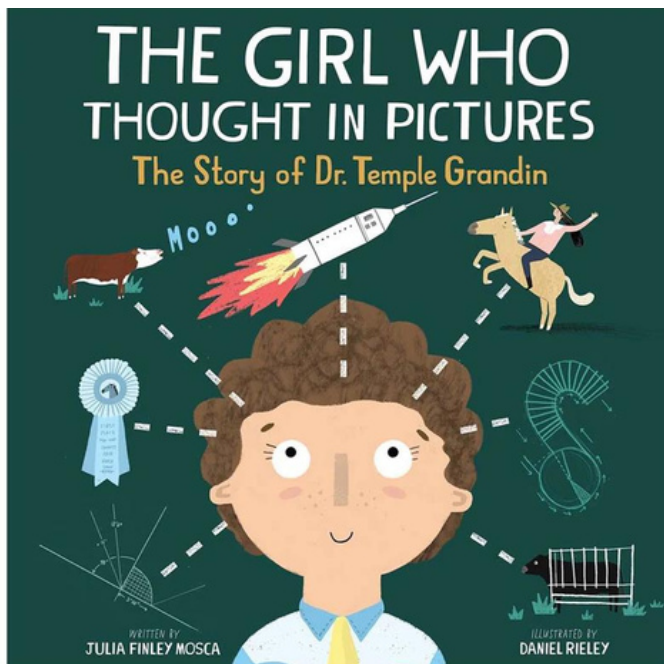
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AG-ACCURATE BOOK RECOMMENDATION:



The Girl Who Thought in Pictures
Julia Finley Mosca

When young Temple was diagnosed with autism, no one expected her to talk, let alone become one of the most powerful voices in modern science. Yet, the determined visual thinker did just that. Her unique mind allowed her to connect with animals in a special way, helping her invent groundbreaking improvements for farms around the globe.

ACCOMPANYING IAITC LESSON:

Plot a Lot

Strengthen students' mathematical skills by plotting shapes on a farm and calculating area and perimeter.

See following page(s) for lesson plan!



PLOT-A-LOT

Grade Level

3-6

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will be able to plot and calculate the area of geometric shapes based on a scale.

Materials Needed

- Rulers
- Copies of student worksheet
- Graph paper
- Calculators (optional)

StandardsCommon Core Math

CC.3.OA.3; CC.3.MD.5-8;
CC.5.MD.2-4; CC.6.G.1

Lesson Summary

This lesson is designed to help students strengthen their math skills by plotting shapes and calculating their perimeters and areas.

Suggested Sequence of Events:

1. Read *The Pig War* by Emma Bland Smith to capture student interest.
2. Read through our AITC Ag Mags that tie with this activity to learn more about those commodities.
3. Complete the activity following the procedures:
 - Review how to calculate area with your students. Make sure students label using the correct measurements.
 - Next, review how to calculate perimeter with your students. Again, make sure students are labeling with the correct measurements.
 - Keep the review up on the board as a guide for students as they complete their work.
 - Hand out the student worksheet and a piece of graph paper.
 - Read through the directions together and then give students time to work.
6. Whole class discussion and reflection of activity.

TEACHER RESOURCES

Background Information:

In the early days of America, land was divided in many different ways that caused a lot of arguments over what land belonged to which person. The Land Ordinance of 1785 created a standard way of plotting and dividing government land. Unsettled territory was divided into a 6-mile square, called a township. The township was further divided into 36 sections, each measuring 1 square mile, or 640 acres. At first, settlers had to buy an entire section if they wanted to own land!

Farmers both then and today must also decide how to divide their land to make the best use of it on their farms. Some land is best used to grow crops, and other land is best used to raise livestock. In some cases, farmers must build fences to contain their animals, keep them safe from predators, keep them close to food and water, and keep them from wandering into fields and eating the crops. Sometimes the needs of a farm changes and the land must be divided in a different way to make the farm more productive. This activity asks students to think like a farmer and plot-a-lot!

Extension Ideas:

- Farmers raise and harvest their commodities for profit. Have students calculate their farm's earnings based on the information below. Does this change how they would plot their farm? See if they can re-plot their farm to make the most money while still using the rules from their worksheet.
 - Corn: earn \$2 for every 5 units²
 - Soybeans: earn \$1 for every 2 units²
 - Cattle: earn \$5 for every 10 units²
 - Pigs: earn \$3 for every 6 units²
- Read through our Corn, Soybean, Beef, and Pork AG Mags to learn more about farming different commodities.
- Students could experiment with spacings of seeds and grouped seeds to calculate the ideal spacing by completing our "DIY Seed Tape" activity.
 - Ask your students if there are ways to use less space but still plant the same amount of seeds. Then introduce "Square Foot Gardening," a popular garden spacing method.
- Have students design a cattle and/or pig barn. What do these animals require to stay healthy?
- Use our "Play-Doh Core Sampling" activity to learn more about soil types. Why is it important to test the soil before plotting a commodity?
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



PLOT-A-LOT

STUDENT WORKSHEET

Think like a farmer and try to figure out the best use of space on your farm! Some land is best used to grow crops, and other land is best used to raise livestock. Other land must be used to build homes, sheds to store farm equipment, and many other uses. To create the most productive and efficient farm, you have to “plot-a-lot”!

PLOTTING DIRECTIONS:

1. On your graph paper, 1 square = 1 unit. Draw a rectangle that is 20 units by 30 units. This space represents all the land you own.
What is the total area of land you own? _____ units².
2. You need a house to live in. Somewhere on your land, draw a plot for your house that has is 3 units by 3 units. Label your house.
3. With the remaining space, plot and label the areas where you will raise cattle, raise pigs, grow corn, and grow soybeans. You can plot as much space as you like for each commodity as long as it fits on your land. You must plant all four commodities following the rules below:
 - A. Commodity plots cannot overlap, or overlap with your house.
 - B. All plots must use only use vertical and horizontal lines, no diagonal.
 - C. Your cattle plot must have an area of **at least** 50 units².
 - D. Your corn plot must have a **length** of at least 10 units.
 - E. Your soybean plot must have **equal length and width**.
 - F. Your pig plot must have a perimeter of **exactly** 32 units.
4. Complete the chart below with the measurements of each commodity plot:

COMMODITY	LENGTH (UNITS)	WIDTH (UNITS)	PERIMETER (UNITS)	AREA (UNITS ²)
Corn				
Soybeans				
Cattle				
Pigs				

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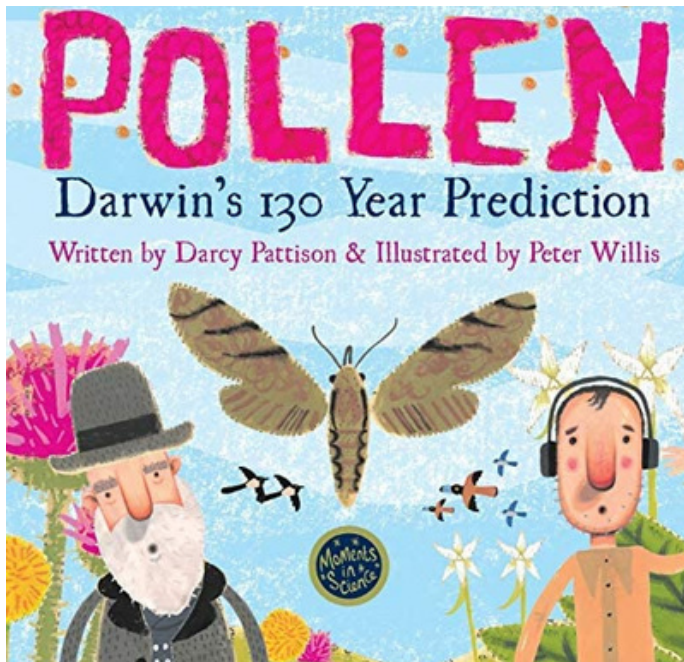
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AG-ACCURATE BOOK RECOMMENDATION:



Pollen: Darwin's 130 Year Prediction
Darcy Pattison

How long does it take for science to find an answer to a problem? On January 25, 1862, naturalist Charles Darwin received a box of orchids. One flower, the Madagascar star orchid, fascinated him. It had an 11.5" nectary, the place where flowers make nectar, the sweet liquid that insects and birds eat. How, he wondered, did insects pollinate the orchid? It took 130 years to find the answer.

ACCOMPANYING IAITC LESSON:

Powder-Powered Pollination

Show students how pollinators do the important work of pollination with this fun, hands-on activity perfect for snack time!

See following page(s) for lesson plan!



POWDER-POWERED POLLINATION

Grade Level

K-3

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will have a better understanding of the process of pollination.

Materials Needed

- Juice boxes
- Boxed Macaroni & Cheese
- Paper Flower Cutouts
- Black Pipe Cleaners
- Paper Plates
- Hand Lens (optional)
- Copies of student worksheet

Standards**NGSS**

K-LS1-1; 2-LS2-2

Lesson Summary

This lesson is designed to give students a hands-on activity that shows how pollinators like butterflies pollinate flowers.

Suggested Sequence of Events:

1. Set Up: Collect materials for each student/group.
2. Read *Flowers are Calling* by Rita Gray to help students better understand why pollinators are attracted to certain plants.
3. Read through AITC Pollinator Ag Mag to learn about the importance of pollinators. Interactive online versions can be found on our website.
4. Pre-Activity Discussion: What is pollination? Why is pollination important to humans? Who pollinates the food that we eat? How do pollinators actually do this important work?
5. Complete the activity following the procedures:
 - Give each student or group of students a paper plate, hand lens, pipe cleaner, juice box, and paper flower.
 - Students should tape or glue the paper flower to the top of the juice box and insert the straw into the juice box.
 - As they do this, the teacher should come around and pour some of the cheese powder from the boxed macaroni onto each plate. Students can share plates to reduce the quantity needed.
 - Next, students should bend their pipe cleaners onto the pointer finger of their non-dominant hand to form the legs of their pollinator (see picture on next page).
 - Using the student worksheet as their guide, students should complete the remainder of the activity steps.
 - Students will “visit” the first flower on the paper plate and rub their “legs” onto the cheese powder.
 - Then, they should visit the next flower on the juice box. Students should drink nectar with their proboscis (straw) and then gently bounce their “legs” on the flower to allow some of the pollen to fall off.
 - As they do each step, students should record their findings on the student worksheet.
6. Whole class discussion and reflection of activity.

TEACHER RESOURCES

Extension Ideas:

- Have students color/draw on the flowers to reflect what they would be drawn to if they were pollinators.
- Read *Flower Talk: How Plants Use Color to Communicate* by Sara Levine to learn more about what attracts pollinators to different plants.
- Have students create a comic strip showing the process of pollination.
- Have students learn about the body parts of a butterfly by creating a version of our Bag Butterfly lesson and attach their butterfly wings (ziplog bag and tissue paper pieces) to their finger using another pipe cleaner.
- Find videos online of different pollinators collecting nectar and pollen from flowers.
- Use the leftover macaroni to complete our Commas in a Series worksheet. Students can glue the macaroni to represent where the commas should go.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!





POWDER-POWERED POLLINATION

STUDENT WORKSHEET

How do pollinators help plants grow?

Attach your new "legs" to your finger to turn into a butterfly! Take your butterfly to visit the flower on the table. Walk your butterfly legs through the pollen on the plate. What happens?

Draw what you see:

Tell a friend and then write what you see:

Next, land your butterfly on the other flower. Have your hungry butterfly use its proboscis (straw) to drink some nectar (juice). Gently tap your legs on the small flower. What happens?

Draw what you see:

Tell a friend and then write what you see:

What happened when your butterfly visited each flower? Why are these hungry butterflies and other pollinators important to our daily lives? Tell a friend and then write about how butterflies and other pollinators help plants grow.



Science

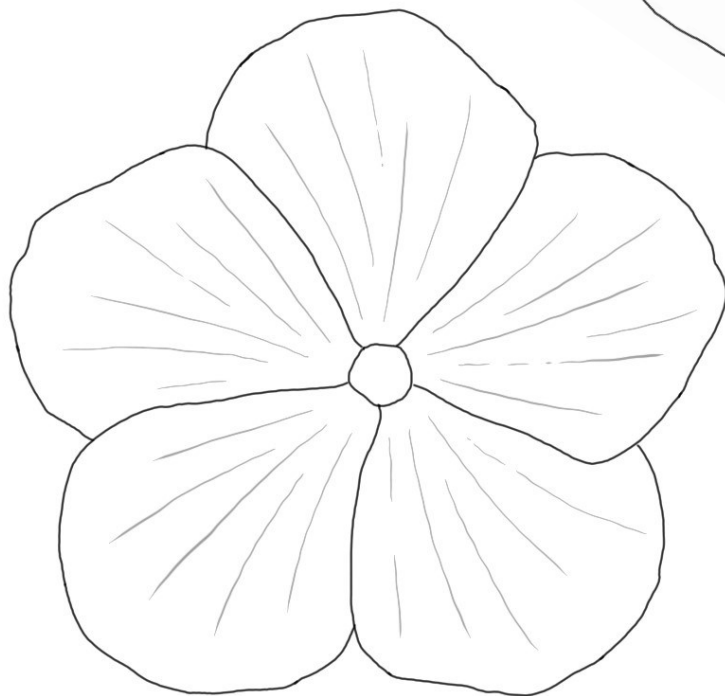
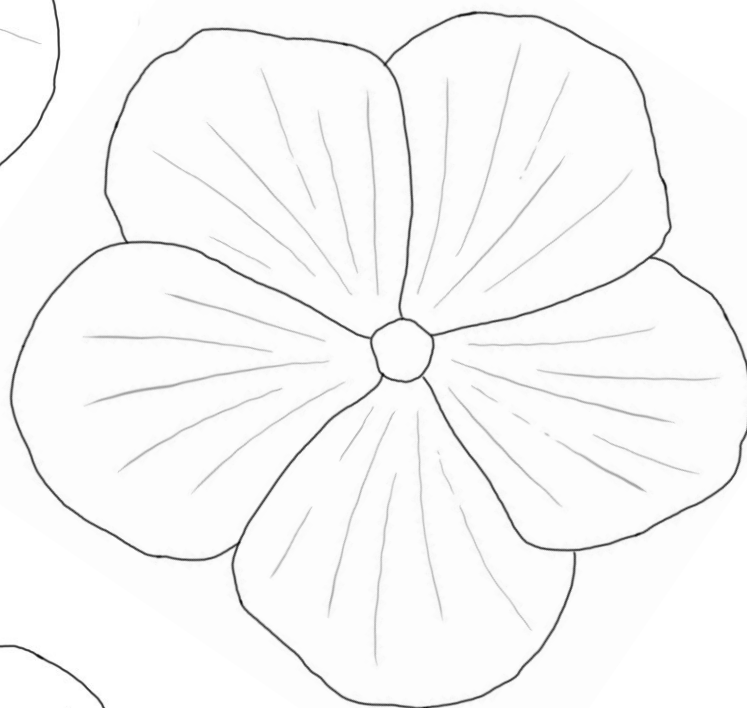
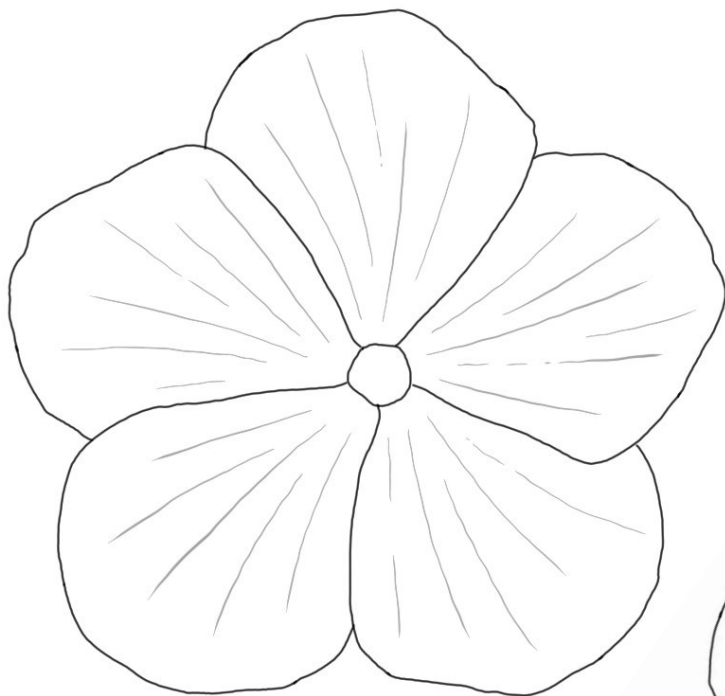
POWDER-POWERED POLLINATION





Science

POWDER-POWERED POLLINATION





POWDER-POWERED POLLINATION

COMMAS IN A SERIES WORKSHEET

Glue the leftover macaroni to each sentence wherever there is a missing comma.

- 1. Important pollinators include bees
bats butterflies birds moths flies and
small mammals.**
- 2. The petals stamen pistil and sepal
are some important parts of a flower.**
- 3. Bee species include honeybees
bumblebees squash bees carpenter
bees and many more!**
- 4. We can help pollinators by adding
flowers plants and habitat to our
yards.**