2nd Grade SAITC Virtual Lessons

Contents

2nd Grade Standards and Year Overview

SIOUXLAND
AGRICULTURE IN THE CLASSROOM

Suggested Month	Standard	Lesson Activity
September	SL.2.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.	• Iowa in a Bag "Farm Charm" • Modify with our worksheet that discusses the topic
October	2-PS1-2 (Matter and Its Interactions) Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	• Corn packing peanut experiment
November	K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	• Parts of an egg diagram • It's optional to use fresh eggs and look at the parts on your own, too!
December	S.S.2.17 Explain how environmental characteristics impact the location of particular places.	• Sorting events and pictures into past and present
January	2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.	• STEM Challenge: Building pig barns with spaghetti and marshmallows • To modify, write to explain or persuade why pigs live inside.
February	SS.2.12. Identify how people use natural resources to produce goods and services.	• Use Venn Diagram to compare and contrast beef and dairy cattle
March	SS.2.12. Identify how people use natural resources to produce goods and services.	• Create a "Sheep Wheel" teaching tool to teach others about sheep
April	2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.	• Look at the life cycle of soybeans, labeling the phases, and identifying what the plants need to grow.

Materials and Modifications

September Iowa in a Bag ("Farm Charm")	
Traditional All purchased at craft stores/Amazon. You need one of each item per student.	**Modification Ideas** Hopefully these are in your classroom, or easier to get a class set of if you wish!
• Small clear jewelry bag or Ziplock • Soil: coffee grounds (¼ C total) • Sun: yellow bead • Water: blue bead • Plants: leaf confetti • Livestock: fuzzy pom • Corn: corn kernel • Soybeans: dry soybean	• Our modified worksheet can be printed and completed with crayons. • You could have students draw or cut out representations of the items for the bag. • Even a paper punch with construction paper could easily replicate most items in the bag!

October: Corn Production and Uses	
Traditional	**Modification/Conducting the Experiment**
In this video, we'll share uses of corn, focusing on its biodegradability. We will conduct the "disappearing packing peanut" experiment in the video, so you won't need any outside materials, but printing a copy of our worksheet for each student would be helpful.	If you'd like to reproduce the experiment on your own, you will need: • 2 beakers • Water (enough to equally fill beakers) • 1 traditional petroleum-based packing peanut • 1 corn-based packing peanut (Amazon has them) • A spoon or something to stir beakers

November: Egg Production and Parts
We haven't previously shared an egg lesson with your class, but we're excited to do so as the top egg-producing state in the US! Iowa produces roughly 16 billion eggs each year. In the video, we'll share the parts of an egg, using two eggs: one with its shell removed and another fresh egg. You are welcome to do the same, but it isn't necessary. **To remove an egg's shell, soak the egg in vinegar for 5-7 days. It works best if the egg is submerged by at least an inch of vinegar.**

December: History of Agriculture	
Traditional	**Modification Ideas**
• 1 past/present T-Chart per group (group 3-4 students) • 1 set of event cards (9) per group • 1 worksheet per student	If you don't want to print the photos on the event cards, consider printing phrases instead (horse-drawn plow, tractor, GPS, glaciers). Additionally, you could assign students to find photos, especially from the past. You can also easily split any page into past and present to avoid printing the T-Chart with our logo.

January: Pigs	
Traditional	**Modification Ideas**
• Raw Spaghetti Noodles (10/student) • Mini Marshmallows (5/student) • STEM Challenge Worksheet (1/student) • Small pig (we used erasers from the Iowa Pork Producers https://www.iowapork.org/)	• To create barns without purchasing materials, consider Legos or blocks. • Instead of building barns, you could have students write about the reasons pigs are safest in barns (persuade, explain) ○ Modified page is available

February: Beef & Dairy Cattle (Venn Diagram)	
Traditional	**Modification Ideas**
• Quiz response cards (1/student) • 2 hula hoops (floor Venn diagram) • Beef/Dairy commodity cards • Ruminant digestive stick (tongue depressor with a green pom and magnet hot glued on) • Worksheet (1/student)	• The quiz questions could be answered with fingers, white boards, colored paper, or any response technique. • The sort could be done using words instead of pictures, and a Venn diagram could be created in any form (small or large) • Instead of creating ruminant magnets, students can trace/follow with anything.

March: Sheep Production	
Traditional	**Modification Ideas**
• Sheep wheel (2 pages - each student needs a copy of each page) • Scissors (1/student) • Glue (stick is best 1/student) • Brad fastener (1/student) • Crayons, etc. if desired	This wheel could be constructed without the plate and brads, though we've found the plate's stability and the brad's ease work best if you have them!

April: Soybean Life Cycle	
Traditional	**Modification Ideas**
• Soybean life cycle worksheet (1/student) • Soybean product cards (optional) • "Pod to Plate" book (this will be read in the video, but it can be downloaded or viewed online: https://www.ilsoy.org/about-soybeans/resources	Using the worksheet and the SAITC video, this lesson can be completed. To lengthen it or give students additional information, use the soybean product cards. To grow soybeans, contact a local farmer or coop! You don't need many :)

September: Iowa in a Bag

2nd Grade

Please complete a short survey once you've shared this lesson with your class!
https://forms.gle/tC8pr1MMocEgm3kC6
This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	**NALF** T5.K-2.d: Identify plants and animals grown or raised locally that are used for food, clothing, shelter, and landscapes **Iowa - Language Arts** RI.2.1: Ask and answer such questions as *who, what, where, when, why*, and *how* to demonstrate understanding of key details in a text. SL.2.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. RF.2.3: Know and apply grade-level phonics and word analysis skills in decoding words.
Lesson Target	I can define *agriculture*. I can recognize and retell how each charm relates to Iowa agriculture.
Materials You can use the traditional approach we've used in your classrooms previously, or you can use the modified worksheet and/or your own ideas for farm charms.	Modified worksheet and/or materials of your choice Traditional Farm Charms (1 of each material/student) ● Jewelry bag/small Ziplock ● Yellow beads - sun ● Blue beads - water ● Green leaf bead - plants ● Fuzzy Poms - livestock ● Corn Kernel ● Dry Soybean ● Soil/coffee grounds (¼ C. total for class) ● Workbook or worksheet
Lesson Steps	1. Ask: "What is agriculture?" a. Discuss livestock and grain i. Livestock are animals that provide food (cats, dogs, horses, etc., are called companion animals, because they

	don't provide food) ii. Agriculture is the production of food, fuel, and fiber. b. Write definitions, and briefly go over each one 2. Ask: "What are examples of crops?" 3. Ask: "What are examples of livestock?" a. Are they the same as our pets? Why/why not? 4. Say: "Everything you eat at home or school starts in agriculture." Even though not all products are from Iowa farms, everything you eat has its origin on a farm. 5. Read "How Did That Get in My Lunchbox?" 6. Create Farm Charm: demonstrate & explain each symbol first OR modify and complete worksheet of Iowa agriculture, emphasizing the foods we grow here.
How is the standard being checked?	TRADITIONAL: Students are able to write the representation of each charm in their workbooks. They should be able to explain to peers what each charm stands for in agriculture. MODIFIED: Students can explain resources grown in Iowa, and can give an example of a food they eat that could originate in Iowa.
Extension	Assign each student or group of students a crop or livestock produced in Iowa; have them research about how it's grown, what it requires for growth, and facts related to its production in Iowa.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

October: The Disappearing Packing Peanut

2nd Grade

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This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	**2-PS1-2** (Matter and Its Interactions) Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
Lesson Target	I can make observations to explain which packing peanut would be more biodegradable/Earth-friendly.
Materials	You only need the SAITC video and worksheet for your class. The experiment will be demonstrated on the video. ● 2 beakers ● Water (enough to equally fill beakers) ● Petroleum-based packing peanut ● Corn-based packing peanut ● Student worksheet (1 per student)
Lesson Steps	1. Introduce a. Iowa is the #1 producer of corn nationwide, and it has MANY uses! b. Introduce the activity, explaining that the goal is to observe which packing peanut will dissolve faster. *i. Why would a dissolving packing peanut be important?* *ii. Where do packing peanuts end up when we're done with them?* 2. Pass out observation sheet to make hypothesis 3. Create a hypothesis together; record. 4. Using two cups, make sure each has an equal amount of water (~2 C.) 5. Label one cup A and the other B (don't disclose which is the corn peanut) 6. Observe how each type of packing peanut reacts in water 7. Record observations in packets 8. Discuss which they think was the corn peanut (WHY?). 9. Write conclusion a. Discuss which is more environmentally-friendly *i. Corn Peanut: it will dissolve and biodegrade* *ii. Using a renewable resource is important, too*

How is the standard being checked?	Students' work and observations should reflect that the corn-based packing peanut is more earth-friendly because it dissolves in water. Additionally, using a renewable resource is better for the earth.
Closure/Check	Students share their explanation to justify their conclusion with a partner.
Extensions for Teachers	If you'd like to extend this in social studies, you can tie-in to the following standard: **SS.2.24** Describe the intended and unintended consequences of using Iowa's natural resources.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

November: Producing Eggs/Parts of an Egg

2nd Grade

Please complete a short survey once you've shared this lesson with your class!
https://forms.gle/tC8pr1MMocEgm3kC6
This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	*This is a bit of a stretch! However, students will create an egg diagram, and this can be extended with physical models, etc. to assist in teaching this standard.* **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
Lesson Target	Students can identify the parts of an egg and explain their functions.
Materials	You will only need either the egg worksheet or workbook; however, you can use fresh eggs to examine the parts of an egg more closely. ● Parts of an Egg Worksheet (diagram) - 1/student OR ● Parts of an Egg Book - 1/student ● Scissors - 1/student ● Glue - 1/student ● Fresh eggs (*optional*) ● Clear container (*optional*) - 1/egg ● Egg without shell (*optional*) ○ Glass container ○ Fresh egg ○ Vinegar (about 3 cups)
Lesson Steps	1. Iowa produces more eggs than any other state! Each year, about 16 billion eggs are produced in Iowa. Today we'll look at how eggs are produced, and what is found inside an egg. 2. Read "My Family Farm: Eggs" 3. Look at "Facts about Chickens" PowerPoint 4. Using a fresh egg, crack it into a clear container to examine the parts: a. Shell: The shell has more than 7,000 tiny pores to allow air in b. Membrane: this keeps bacteria out, and slows evaporation from the egg c. Air Cell: located at the large end of the egg, this holds oxygen for the chick to breathe d. Albumen: also called the white, this cushions the yolk, and is a source of protein and water for the embryo

	e. Yolk: provides food for the chick; it's full of carbs, fats, protein, vitamins, and minerals f. Chalazae: hold the yolk in place g. Germinal disc: passes genetic material from hen to chick 5. Have students complete diagram 6. Explain parts to class or partner for standard check
How is the standard being checked?	Students correctly label the diagram, and they can explain the parts of the diagram to someone else.
Closure/Check	Students share the function of the egg parts with another student or the class.
Extensions for Teachers	You can remove the shell from a fresh egg by soaking it in vinegar for 5-7 days; this allows you to feel and see the membrane. To take this even further, you could hatch chicks in your classroom!
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

December: The History of Iowa Agriculture

2nd Grade

Please complete a short survey once you've shared this lesson with your class!
https://forms.gle/tC8pr1MMocEgm3kC6
This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	S.S.2.17 Explain how environmental characteristics impact the location of particular places. (*Glaciers covering Iowa left our soil nutrient-rich to grow corn like we do now.*)
Lesson Target	Students can identify historic reasons agriculture is strong in Iowa, and they can identify changes in agriculture over time.
Materials	This lesson can be taught without the sort if you choose. ● Past/Present Worksheet (1 per student) ● *Event cards (1 set per group)* ● *Sorting mat (1 per group)*
Lesson Steps	1. Ask students what comes to mind when they hear "agriculture." *What do farmers do, what do they care for, what do they use to do their job, or how would you describe their efforts?* 2. Make a web with agriculture in the center, surrounded by the words students compile. 3. Introduce that we've had farmers in Iowa for hundreds of years, but it has changed. a. Discuss past vs. present b. Introduce the past/present sort to groups 4. Check each group's sort once it's completed. 5. As a class, fill in past and present events on the worksheet, and discuss pertinent events (*see notes on the event cards*) 6. Returning to the web, have students help eliminate anything that is only used by farmers now. Point out that while we have new machines and technology, farmers in Iowa have always had the same job of caring for land and livestock to provide food for those around them.
How is the standard being checked?	Students understand that Iowa's location allows for great farming. Our rich soil is from the glaciers that covered Iowa, so corn grows well here.
Closure/Check	Explain one way farming is different today than it was in the past.

Extensions	● Read *The Kid Who Changed the World* ● Research modern technology in agriculture
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

January: Iowa's Pigs

2nd Grade

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This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
Lesson Target	Students can understand and explain the reason pigs live in barns.
Materials	Our traditional lesson plan is a STEM Challenge to build pig barns, after discussing the reasons pigs live inside. If you don't want to build barns, there's a modified worksheet available for writing to persuade or explain why pigs live inside. - 10 raw spaghetti noodles (per student) - 5 mini marshmallows (per student) - 1 STEM Challenge worksheet (per student) - 1 pig eraser (per student - recollect) - *To modify: use writing paper or our available modified writing page*
Lesson Steps	1. Iowa produces more pigs than any other state in Iowa! 2. Ask: What products come from pigs? 3. Discuss why pigs live in barns (optional: watch "Ohio Pig Farm Field Trip" on YouTube) a. Safe from weather and predators b. Healthier/cleaner c. Food and clean water are available all day 4. Today we'll build our own pig barns so our pigs have a safe, comfortable place to live! 5. Each student gets a worksheet to sketch their barn idea while you pass out materials. a. Each barn has to stand on its own b. It needs to protect the pig (covered) c. Large enough for pig eraser 6. After building their barns, have them answer reflection question and share. 7. On the back, circle the fact you are most interested or surprised by.
How is the standard being	Students can use their own models to explain why pigs live in barns.

checked?	
Closure/Check	Have students share the answer to their reflection question on the STEM challenge.
Extensions for Teachers	● Have students test their structure's stability and capacity. The challenge can be furthered by redesigning after testing structures to continue the engineering process. ● Use the modified writing page to have students explain or persuade the reasons most pigs are raised inside today.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

February: Beef and Dairy

2nd Grade

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https://forms.gle/tC8pr1MMocEgm3kC6
This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	SS.2.12. Identify how people use natural resources to produce goods and services.
Lesson Target	Students will identify similarities and differences in beef and dairy cattle, and they will recognize the importance of Iowa's natural resources in raising cattle.
Materials	The worksheet is the only necessary piece to have, but having a beef and dairy sort, as well as a way to respond to the "quiz" will better engage students. ● Worksheet with ruminant system and Venn Diagram (1 per student) ● Green magnetic pom for ruminant travel (1 per two students) ● 2 hula hoops (Venn Diagram) ● Commodity cards (1 per student for Venn sort) ● Beef/Dairy response cards (1 per student) ● Beef/Dairy quiz
Lesson Steps	1. Beef & Dairy "Quiz" (read aloud; students each get a response card, and cover their answer) 2. Review Venn Diagram 3. Discuss what cattle all have in common a. Ruminants i. Using worksheet and green pom magnets, students travel the "food" through the ruminant stomach as the teacher reads the information. b. Ear Tags i. All cattle are tagged for identification and record-keeping. ii. Show rubber ear and tag c. They're both raised in Iowa. d. All cattle are mammals, who produce milk. e. All cattle produce commodities we buy at the grocery store. 4. Discuss how beef and dairy cattle are different. a. Beef: more muscle, can live in pastures or buildings (they don't have to be near a parlor), they're shorter and more muscular. b. Dairy: They produce the dairy products we buy, only females produce dairy, they're taller and leaner, they live closer to the parlor (usually in buildings). Males do produce beef, also, but it

	takes longer for them to gain muscle. 5. Pass out a commodity card to each student, and create a large Venn Diagram with the hula hoops; students make a circle around the diagram. a. One by one, students sort their commodity or image. 6. Point out that the largest differences are the products we get from beef and dairy cattle, but they're all raised for food in Iowa, and they're cared for very similarly.
How is the standard being checked?	Students can explain that ruminants can digest grass (natural resource), and this develops muscle and/or milk that consumers buy.
Closure/Check	Students can identify goods we buy as a result of natural resource consumption by cattle.
Extensions for Teachers	● Cherokee/O'Brien County Google Expeditions with Dairy expedition ○ https://www.aitcsiouxland.com/lending-library ● Dairy field trips (contact WIDA or SAITC for information) ● Write a compare/contrast paragraph about beef and dairy cattle.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6

March: Sheep

2nd Grade

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This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	SS.2.12. Identify how people use natural resources to produce goods and services. *Sheep eat grass and other natural resources; they produce lamb/mutton, milk, and wool that's used to produce various goods.*
Lesson Target	Students will identify the resources sheep provide, especially meat as a result of their consumption of Iowa resources (grass, hay, corn).
Materials	We attached this wheel to a paper plate for stability, and fastened the top of the wheel with a brad fastener. A letter opener works well to punch a hole for the brad into the plate! ● Sheep wheel (2 pages - each student needs a copy of each page) ● Scissors (1/student) ● Glue (stick is best 1/student) ● Brad fastener (1/student) ● Crayons, etc. if desired
Lesson Steps	1. Explain that just like cattle (last month), sheep are ruminants. a. They have four compartments in their stomach. b. The ruminant system can eat things people cannot, specifically grass, field corn, and hay. c. Their bodies turn that energy into products we use. 2. Fill in the three sections of the wheel. a. This wheel is their "teaching tool" to teach others about sheep. 3. Cut around the large wheel. 4. Cut out the top of the wheel, recycling the "piece of pie." 5. Glue the large circle to a paper plate. a. As students get this glued, help punch a hole for the brad. b. Instruct them to decorate their pieces while they wait for help. 6. Fasten the top with a brad (DO NOT GLUE) 7. Have students share one thing they'll teach someone else from their tool.
How is the standard being	Students can explain that ruminants can digest grass (natural resource), and this develops muscle and/or milk that consumers buy. *Sheep also provide wool,*

checked?	*though it's not a direct correlation to grass consumption.*
Closure/Check	Students can identify goods we buy as a result of natural resource consumption by sheep.
Extensions for Teachers	● Teach your class to talk like shepherds! Together, learn the differences between a *ewe, ram*, and *lamb*. ● Discover how wool is made. On YouTube, find the "How It's Made: Wool" video (about 5 minutes) to watch a sheep being sheared, as well as the wool-making process.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6
Additional Resources	● Iowa Sheep Association: www.iowasheep.com ● www.sheep101.info (this is surprisingly helpful and valid!) ● While Iowa actually has more goats than sheep, we rank first in the number of sheep producers. We're tied with Oregon for 9th place in overall sheep and lamb production (*2019*).

April: Soybean Growth

2nd Grade

Please complete a short survey once you've shared this lesson with your class!
https://forms.gle/tC8pr1MMocEgm3kC6
This lesson is taught completely in the YouTube video. If you're able, please print/copy the highlighted materials, and add any materials you'd like to include.

Standards	2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.
Lesson Target	Students can explain what is needed for soybean plants to continue through the phases of the life cycle.
Materials	● "Pod to Plate" book (1 book for lesson) ○ Download a copy here if you'd like! https://www.ilsoy.org/about-soybeans/resources ● Soybean life cycle worksheet (1 per student) ● *Optional: Soybean product cards (1 set for lesson)*
Lesson Steps	1. Introduce soybeans *a. Have you eaten soybeans?* *b. What products use soybeans?* *c. Today we'll learn how they're grown, harvested, and turned into products you use in your daily life.* 2. Read "Pod to Plate" 3. Go through the phases of the life cycle, labeling as you go. 4. Recap, identifying what was needed for the plants to grow a. Water b. Clean air c. Soil d. Sunlight e. Nutrients (in the soil, and added in fertilizer) OPTIONAL 5. Have individuals or groups read the product cards and present them to the class.
How is the standard being checked?	Students can identify life cycle points on the worksheet, and they can explain how water, soil, and the sun help the plant germinate.
Closure/Check	Students' life cycles are correctly labeled.

Extension	Grow your own soybeans! Soybeans germinate well if you place them in a small bag with a wet cotton ball, and hang them in the window or put them in your pocket for heat. These are called “soybean pals,” and many lesson plans are available for them. Likewise, they can be planted in small cups near a window.
Survey	https://forms.gle/tC8pr1MMocEgm3kC6