Lesson 2: Farm Mechanic Shop

Grade Level: Second Grade

Time: 65–75 minutes

Subjects: ELA, Science, Agriculture

Overview: This lesson is Lesson 2 of 5 in the *Jobs Farmers Do* unit within the *Growing Readers* micro-curriculum, based on a series of books written by Kansas author Dan Yunk. Building on Lesson 1, where students learned from Grandpa that farmers have to be good mechanics, students step into that role themselves. By reading a decodable text with a clear purpose, students strengthen their decoding skills and learn to tell long and short vowel sounds apart. In a hands-on Farm Mechanic Shop, students work together to find a problem with a piece of farm equipment, repair it, and test whether their fix worked. They experience firsthand the problem-solving farmers use every day to keep their equipment running. Students then turn that experience into informative writing that introduces a topic, explains the problem and the fix with facts, defines a repair part, and ends with a concluding statement.

Skillset: Activating prior knowledge across lessons, reading a decodable text with purpose and understanding, distinguishing long and short vowel sounds in one-syllable words, defining a simple problem through questions and observations, recalling information from a hands-on experience and gathering information from a class chart, writing an informative piece with an introduction, facts, a definition, and a concluding statement, and spelling words by sound.

Kansas Academic Standards
Kansas ELA Standards
RF.2.4.a Read text with purpose and understanding.
RF.2.3.a Distinguish long and short vowels when reading regularly spelled one-syllable words.
W.2.2 Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points and provide a concluding statement or section.
W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

Kansas Science Standards
K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

National Agriculture Literacy Outcomes
Science, Technology, Engineering, and Mathematics
T4.K-2.b Recognize and identify examples of simple tools and machines used in agricultural settings (e.g., levers, screws, pulley, wedge, auger, grinder, gears, etc.).
Culture, Society, Economy, and Geography
T5.K-2.a Discuss what a farmer does.

Objectives

English Language Arts Objectives

Students will be able to:

- Read a decodable text with a purpose and answer questions to show they understood it.
- Tell whether the vowel in a one-syllable word is long or short, and explain the clue they used.
- Recall what happened during their repair and use the Repair Parts chart to answer questions on their recording sheet.
- Write an informative piece in their own complete sentences that introduces a topic, gives facts about a problem and a fix, defines a repair part, and ends with a concluding statement.

Science Objectives

Students will be able to:

- Ask questions and make observations to define the problem with a piece of broken equipment.
- Test whether a repair solves the problem, and try a new approach if it does not.

Agriculture Objectives

Students will be able to:

- Identify simple repair parts and tools a farm mechanic uses.
- Explain that farmers must find and fix problems with their equipment to keep their farm running.

Materials Needed

Whole Class:

- Decodable text, companion document, one copy per student and one displayed where all students can see it (Dad Fixes the Tractor / Dad has a big green tractor. One day, it would not go. Dad got his tool kit. A pin had slipped out of a hole in the wheel. He slid in a new pin and gave it a tap. Then he put tape on it to keep it safe. Dad rode the tractor, and it ran just fine!)
- "Short or Long?" chart paper divided into two columns, filled in with students during the lesson (Short Vowel: big, got, kit, pin, slid, tap, ran / Long Vowel: green, go, hole, tape, safe, rode, fine)
- "Repair Parts" chart, written before the lesson (brad: a small metal fastener with two legs that bend apart / tape: a sticky strip that holds things together / string: a long, thin cord used for tying / straw: a thin, hollow tube/craft stick: a flat wooden stick/paper clip: a bent wire that clips things together / cardboard: thick, stiff paper)
- "Sentence Starters" chart, written before the lesson (Our group fixed a _____. / The problem was _____. / We fixed it with a _____. / A _____ is _____. / Now _____.)
- 1 of each repair part listed on the Repair Parts chart, for the teacher to hold up
- 1 teacher demonstration tractor prepared with a loose wheel, plus 1 brad
- 1 teacher sample recording sheet, enlarged or displayed (chart paper, document camera, or poster-sized copy), used to model the whole sheet from start to finish and left posted during independent writing
- Markers

Farm Mechanic Shop Investigation (per small group of 3–4 students):

- 1 of 4 simple cardboard tractor templates, each prepared with a different problem (a loose wheel, a tractor that has come unhooked from its wagon, a cab that tips, or a missing pin)
- Cardboard circles for wheels
- Brass paper fasteners/brads
- Craft sticks
- Drinking straws
- Tape
- String or yarn
- Paper clips
- Small pieces of cardboard
- Small tray of repair parts
- Optional child-safe toy wrench or screwdriver for pretend mechanic play

(Note: See the separate Teacher Preparation instructions below for preparing a cardboard tractor or wagon with one problem for each group before the lesson begins.)

Writing:

- Farm Mechanic Shop recording sheet, companion document (one per student).
- Pencils

Lesson Procedures

1. Connecting to What We Know
    a. Before the lesson, write the Repair Parts chart and the Sentence Starters chart. Place one prepared broken tractor or wagon and one repair tray at each group table. Cover each tray or set it out of reach until section 5. Post the decodable text, the Short or Long? chart, the Repair Parts chart, and the sample recording sheet near the carpet. Keep the Sentence Starters chart covered or out of sight until the end of shared writing. Set the student copies of the decodable text, the demonstration tractor, one brad, and one of each repair part beside you.
    b. Gather students on the carpet where they can all see you.
    c. Explain to students: "In our last lesson, Grandpa told Kailey and her cousins about all the jobs farmers do. One of those jobs was being a good mechanic, so farmers can keep their equipment running."
    d. Ask students the questions below. Call on two or three students for each one.
        - "Who remembers what a mechanic does?" (fixes machines so they keep working)
        - "Why does a farmer need to be a good mechanic?" (to keep tractors and equipment running)
        - "Have you ever seen something get fixed, like a toy, a bike, or a car? What happened?"
    e. Explain to students: "Today you are going to become farm mechanics yourselves! First, let's read about a farmer who has a problem with his tractor."
2. Reading Our Decodable Text
    a. Hand each student a copy of the decodable text.
    b. Point to the displayed decodable text.
    c. Explain to students: "Good readers always read with a purpose. Our purpose today is to find out what was wrong with Dad's tractor and how he fixed it."
    d. Explain to students: "Before we read, let's look at vowels. Every vowel can make a short sound and a long sound. A long vowel says its name."

e. Write tap and tape side by side on the Short or Long? chart, tap in the Short Vowel column and tape in the Long Vowel column.
f. Explain to students:
    - "Tap. The a says /a/. That is a short a."
    - "Tape. The a says /ā/, its name. That is a long a."
    - "These two words are almost the same. Tape has an e at the end. The e is silent, but it makes the a say its name."
g. Explain to students: "Some long vowels are spelled with two vowels together instead. In green, the two e's work together to say /ē/."
h. For each word below, point to the word in the displayed text and model how you decide whether the vowel is short or long. Have students find each word in their own copy.
    - "Hole. I see o, then l, then a silent e at the end. The silent e tells me the o is long. /h/ /ō/ /l/. Hole."
    - "Slid. I see one vowel, i, and no e at the end. The i is short. /s/ /l/ /i/ /d/. Slid."
    - "Green. I see two e's together. They say long e. /g/ /r/ /ē/ /n/. Green."
i. Ask students to try one on their own: "Find safe in your copy. Is the a short or long? How do you know?" (long, because of the silent e at the end) "Read it with me." (safe)
j. Read the text aloud, modeling accurate reading, appropriate pacing, and expression. Have students follow along by pointing under the words in their own copies.
k. Explain to students: "Now let's read the text together." Reread the text chorally, encouraging students to track each word and read aloud with you.
l. Have students read the text again on their own or with a partner. Circulate and give corrective feedback as needed, encouraging students to use their decoding skills. If a student misreads a word, point to the word and ask: "Look at the vowel. Is it short or long? How do you know?" Then have the student reread the whole sentence.
m. Ask students the questions below. If a student is not sure, have students find the sentence that holds the answer in their own copies, reread it together, and ask again.
    - "What was wrong with Dad's tractor?" (It would not go because a pin had slipped out of the wheel)
    - "What did Dad do to fix it?" (he slid in a new pin, gave it a tap, and put tape on it)
    - "Why did Dad put tape on the pin?" (to keep it safe so it would not slip out again)
    - "How do we know the tractor was fixed?" (Dad rode it, and it ran just fine)
n. Explain to students: "Now let's sort words from our story into short vowels and long vowels."
o. Read each word below aloud, one at a time. For each word, ask students: "Is the vowel short or long? How do you know?" Write the word in the matching column of the Short or Long? chart.
    - big, got, kit, pin, ran (short)
    - go, rode, fine (long)

p. Ask students: "Look at the Long Vowel side of our chart. What clues help us know a vowel is long?" (a silent e at the end, two vowels together, or a vowel at the end of a short word like go)
q. Collect students' copies of the decodable text.

3. Modeling the Mechanic's Job
    a. Stay with students on the carpet. Hold up the demonstration tractor so all students can see it.
    b. Explain to students: "Before you get your own equipment, watch how a mechanic works. A mechanic looks closely, figures out the problem, makes a fix, and then tests it."
    c. Set the tractor on the floor and gently roll it so the loose wheel wobbles or falls off.
    d. Pick the tractor up and look closely at the wheel.
    e. Think aloud: "Hmm. My tractor does not roll the right way. Let me look closely. The wheel is loose. It is not attached tightly. That is my problem."
    f. Hold up the brad.
    g. Think aloud: "What repair part might help? This is a brad. A brad can hold a wheel on and still let it spin. I will try a brad."
    h. Push the brad through the center of the wheel and through the tractor. Turn the tractor over, bend the two legs of the brad apart, and press them flat so the wheel stays on.
    i. Think aloud: "Now I test it. A real mechanic always tests a repair." (Roll the tractor on the floor.) "It rolls! My repair worked."
    j. Explain to students: "If my repair had not worked, I would look again and try a different part. That is what good mechanics do."
    k. Ask students:
        - "What was the problem with my tractor?" (the wheel was loose)
        - "What did I use to fix it?" (a brad)
        - "How did I know my repair worked?" (You tested it, and it rolled)
4. Repair Parts and What They Do
    a. Point to the Repair Parts chart.
    b. Explain to students: "When you write about your repair today, you will explain what one of your repair parts is. Telling what a word means is called a definition. This chart has a definition for each of our repair parts."
    c. Hold up each repair part, one at a time, and point to its name on the chart. Read its definition aloud with students:
        - "Brad: a small metal fastener with two legs that bend apart."
        - "Tape: a sticky strip that holds things together."
        - "String: a long, thin cord used for tying."
        - "Straw: a thin, hollow tube."
        - "Craft stick: a flat wooden stick."
        - "Paper clip: a bent wire that clips things together."
        - "Cardboard: thick, stiff paper."
    d. Ask students:
        - "Which part is a sticky strip that holds things together?" (tape)
        - "What is a brad?" (a small metal fastener with two legs that bend apart)
    e. Explain to students: "This chart will stay up. When you write your definition, you can look here for help."
5. Farm Mechanic Shop Investigation

a. Explain to students: "Now it is your turn to be farm mechanics. Remember the steps. Look closely, figure out the problem, make a fix, and test it."
b. Divide students into groups of 3–4 and send each group to a table with a prepared tractor or wagon.
c. Uncover or hand out one repair tray to each group.
d. Explain to students: "First, look at your equipment. Do not fix anything yet. Just look and talk with your group about what is wrong."
e. Give groups about two minutes to inspect. Walk from table to table.
f. Ask each group:
    - "What is wrong?"
    - "What part needs to be fixed?"
    - "Which repair part might help?"
g. Explain to students: "Now choose a repair part from your tray and make your fix."
h. Once groups finish a repair, tell them how to test it. If the problem involves the wheel, students roll the tractor. If the problem involves the wagon, students gently pull to check that it stays hooked on. If the problem involves the cab, students check that it stays up and does not tip. If the problem involves the pin, students gently shake or pull to make sure it holds.
i. Explain to any group whose repair does not work: "Good mechanics try again. Look closely one more time and choose a different part."
j. When every group has a working repair, have each group hold up its equipment and tell the class what broke, what they used to fix it, and how they knew the repair worked.
k. To give students another turn, have each group leave its equipment and tray on its table and move to the next table. Repeat steps d through j with the new equipment.
l. Explain to students: "Leave your equipment on the table and come back to the carpet. Think about one repair your group made. You will write about it next."

6. Shared Writing: Introducing My Topic and Facts
    a. Gather students on the carpet where they can all see the sample recording sheet and the Repair Parts chart.
    b. Explain to students: "Real mechanics write down their repairs so other people know what was wrong and how it got fixed. Today you will write to teach someone about one repair your group made. Your writing will have four parts."
        - "First, you introduce your topic. That means you tell what you are writing about."
        - "Next, you give facts about the problem and the fix."
        - "Then, you write a definition that tells what one of your repair parts is."
        - "Last, you write a concluding sentence that wraps up your writing."
    c. Explain to students: "Each question on the sheet tells you what your sentence should do. You answer each question with a complete sentence in your own words. I am going to fill out my sheet first. Watch closely, because you will do the same thing next."
    d. Point to the name line and write your name on it.
    e. Point to question 1 and read it aloud while pointing to each word: "What did your group fix?"
    f. Think aloud: "What did I fix? I fixed my tractor. This first sentence introduces my topic, so my reader knows what my writing is about. I answer the question in a complete sentence. Our group fixed a tractor."

g. Think aloud: "Tractor is a longer word, so I break it into two parts. Trac. Tor."
    - "Trac. /t/ /r/ /a/ /k/. I hear a short a, so I write just the letter a. T, r, a, c."
    - "Tor. /t/ /or/. T, o, r."
h. Think aloud: "Now I write my whole sentence. I start with a capital letter and end with a period." (Write Our group fixed a tractor. on the lines under question 1.) "Now I read my sentence. Our group fixed a tractor."
i. Point to question 2 and read it aloud while pointing to each word: "What was wrong?"
j. Think aloud: "What was wrong? When I rolled my tractor, the wheel fell off. That is a fact about my problem. My sentence is: The problem was that the wheel fell off. I know how to spell the and was. Now I stretch wheel."
    - "/w/ /ē/ /l/. I hear a long e in the middle."
    - "In short words, long e is often spelled with two e's, like in green from our story. So I write w, h, e, e, l."
k. Think aloud: "Fell. /f/ /e/ /l/. I hear a short e, so I write just one e. F, e, l, l. Off. /o/ /f/. Short o. O, f, f."
l. Think aloud: "Now I write my whole sentence." (Write, 'The problem was the wheel fell off.' on the lines under question 2.) "Now I read my sentence. The problem was the wheel fell off."

7. Shared Writing: My Fix, a Definition, and My Conclusion
    a. Point to question 3 and read it aloud while pointing to each word: "How did you fix it?"
    b. Think aloud: "How did I fix it? I pushed a brad through the wheel to hold it on. That is a fact about my fix. My sentence is: We fixed it with a brad. Brad. /b/ /r/ /a/ /d/. I hear a short a, and there is no e at the end. B, r, a, d." (Write We fixed it with a brad. on the lines under question 3.) "Now I read my sentence. We fixed it with a brad."
    c. Point to question 4 and read it aloud while pointing to each word: "What does that word mean?"
    d. Think aloud: "My reader might not know what a brad is. This is where I write a definition. I can look at our Repair Parts chart for help."
    e. Point to brad on the Repair Parts chart.
    f. Ask students: "Who can tell me what our chart says a brad is?" (a small metal fastener with two legs that bend apart)
    g. Think aloud: "My definition sentence tells the word, then what it means. A brad is a small metal fastener with two legs that bend apart. I copy the definition from our chart." (Write A brad is a small metal fastener with two legs that bend apart. on the lines under question 4.) "Now I read my sentence. A brad is a small metal fastener with two legs that bend apart."
    h. Point to question 5 and read it aloud while pointing to each word: "How did it work in the end?"
    i. Think aloud: "How did it work in the end? I tested my tractor, and the wheel could spin. My last sentence is my concluding sentence. It wraps up my writing by telling how my repair turned out. My sentence is: Now the wheel can spin! I know now, the, and can. Now I stretch spin."
        - "/s/ /p/ /i/ /n/. I hear a short i."
        - "There is no e at the end, so the i stays short. S, p, i, n."

j. Think aloud: "I am excited my repair worked, so I end with an exclamation point." (Write Now the wheel can spin! on the lines under question 5.) "Now I read my sentence. Now the wheel can spin!"
k. Point to the sketch space and draw the tractor with its wheel held on by a brad while students watch.
l. Read the whole sheet aloud, pointing to each word as you read: "Our group fixed a tractor. The problem was the wheel fell off. We fixed it with a brad. A brad is a small metal fastener with two legs that bend apart. Now the wheel can spin!"
m. Point to the checklist. Read each line aloud and check each box on the sample sheet as you answer:
    - "I introduced my topic. Yes, our group fixed a tractor." (Check the box.)
    - "I told facts about the problem and the fix. Yes, the wheel fell off, and we fixed it with a brad." (Check the box.)
    - "I defined a repair part. Yes, I told what a brad is." (Check the box.)
    - "I wrote a concluding sentence. Yes, now the wheel can spin!" (Check the box.)
n. Uncover or post the Sentence Starters chart.
o. Explain to students: "If you get stuck starting a sentence, you can look at this chart. Each sentence starter matches one of the questions. Try writing your own sentence first. Use the chart only if you need help getting started."

8. Independent Writing
    a. Leave the sample recording sheet, the Repair Parts chart, the Sentence Starters chart, and the Short or Long? chart posted where all students can see them.
    b. Explain to students: "Now it is your turn. Here is what you will do."
        - "Write your name at the top."
        - "Think about one repair your group made."
        - "Answer each question with a complete sentence in your own words."
        - "For question 4, define one repair part you used. Use the Repair Parts chart for help."
        - "Sound out each word. Listen for whether the vowel is short or long."
        - "If you get stuck starting a sentence, use the Sentence Starters chart."
        - "Sketch your repair."
        - "Check your work with the checklist at the bottom."
    c. Send students to their seats. Hand each student a recording sheet and a pencil.
    d. Circulate and support:
        - Prompt for getting started: "Read the question again. How would you answer it if you were telling me? Say it out loud, then write it."
        - Prompt for recall: "What did your group fix? What was wrong? What did you use?"
        - Prompt for the definition: "Which repair part did you use? Find it on our Repair Parts chart. What does the chart say it is?"
        - Prompt for the conclusion: "How did your repair turn out? That is your concluding sentence."
        - Prompt for spelling: "Say that word slowly. Is the vowel short or long? If it is long, how might it be spelled?"
    e. When students finish, have them read their writing aloud to a neighbor or to you. (Note: Accept phonetic spellings for longer words, such as tryd for tried. For students who need more support, point them to the Sentence Starters chart, provide a copy of the recording sheet with the sentence starters printed under each question, or let them hold

the equipment they repaired and say each sentence aloud before writing. For students ready for more, challenge them to add a sentence that tells how they tested their repair, or to define a second repair part.)

9. Closing Discussion and Kansas Connection
    a. Have students bring their completed recording sheets to the carpet.
    b. Invite three or four students to read their writing aloud, one at a time.
    c. After each student reads, ask:
        - "What repair part did you define? What does it mean?"
        - "Read us your concluding sentence. How does it wrap up your writing?"
    d. Kansas Connection. Explain to students: "Just like you did today, Kansas farmers and ranchers fix their own tractors, wagons, and other machines all the time. When something breaks during planting or harvest, they cannot wait. They look closely, figure out the problem, fix it, and test it. You can think like a mechanic too, whether you live in the country, a small town, a suburb, or a city."
    e. Ask students:
        - "Whether farms are just down the road from you or something you have only seen in pictures, what is one machine or tool you use that sometimes needs fixing?"
        - "What is one thing you could tell your family tonight about how a mechanic solves a problem?"

Assessment: Teacher observation during the decodable text reading, the investigation, and shared writing provides ongoing evidence of student understanding. Watch for whether students read the decodable text with purpose and answer questions about what was wrong with Dad's tractor and how he fixed it. Note whether students tell long and short vowels apart and explain the clue they used, such as a silent e or two vowels together. During the investigation, note whether students can tell what broke, what they used, and how they knew the repair worked. Also note whether students ask questions and make observations to define the problem before choosing a repair part, and whether they can name the parts and tools they used. The completed recording sheet is the primary artifact. It shows whether students recalled their repair, used the Repair Parts chart to answer each question, and wrote complete sentences that introduce a topic, give facts about the problem and the fix, define a repair part, and provide a concluding statement. Note which students needed the Sentence Starters chart.

Supplemental Activities: Display the repaired tractors and wagons alongside the completed recording sheets under a title such as "Farm Mechanics at Work!" Keep the Short or Long? chart posted and add new one-syllable words from read-alouds throughout the unit. For students ready for an additional creative challenge, set up a tractor-building center using the same craft materials where students design and build their own tractor or wagon from scratch, then write a short informative piece about it that includes a definition of one part.

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Teacher Preparation Instructions

Materials (for one tractor and wagon)



- Small cardboard box (tractor body)
- Small paper cup or smaller box (cab)
- Shallow small cardboard box or folded tray (wagon)
- Cardboard circles (wheels)
- Brass paper fasteners (brads)
- Craft sticks
- Drinking straws
- Tape
- Tape
- Scissors
- Hole punch or pencil
- String or yarn

How to Make the Tractor



1. Cut or use a small cardboard box for the tractor body.



2. Tape a small paper cup or smaller box on top/back for the cab.



3. Cut four cardboard circles for wheels, punch center holes, and attach them to the sides with brass brads so the wheels can turn.



4. Tape a craft stick to the back as a hitch and punch a hole near the end.

How to Make the Wagon



1. Use a shallow small cardboard box or folded cardboard tray for the wagon.



2. Cut two cardboard circles for wheels and attach them with brass brads so they turn.



3. Tape a craft stick or sturdy cardboard strip to the front as a hitch.



4. Connect the wagon hitch to the tractor hitch with a short piece of yarn or string through the holes.

Finished Example: Tractor and Wagon (Ready to Use)

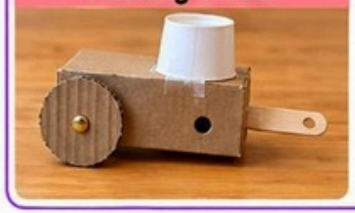


A Simple Version That Works Great!

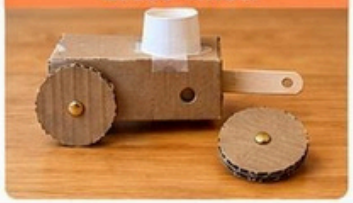
- Easy to make
- Inexpensive
- Easy for kindergarten students to repair
- Works well for simple mechanic play

Examples of "Broken" Tractors and Wagons for the Repair Activity

Missing Wheel



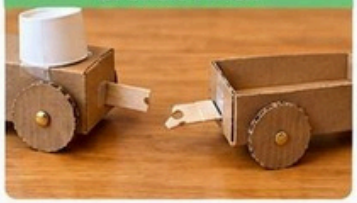
Loose Wheel



Wheel Will Not Turn



Broken Hitch



Broken Wagon Side



Name: _____

Farm Mechanic Shop Recording Sheet

1. What did your group fix?

2. What was wrong?

3. How did you fix it?

4. What does that word mean?

5. How did it work in the end?

Name: _____

Farm Mechanic Shop Recording Sheet

6. Draw your repair below.

- ☐ I introduced my topic.
- ☐ I told facts about my problem and the fix.
- ☐ I defined a repair part.
- ☐ I wrote a concluding sentence.

Dad Fixes the Tractor

Dad has a big green tractor. One day, it would not go. Dad got his tool kit. A pin had slipped out of a hole in the wheel. He slid in a new pin and gave it a tap. Then he put tape on it to keep it safe. Dad rode the tractor, and it ran just fine!

Repair Parts

brad: a small metal fastener with two legs that bend apart.

tape: a sticky strip that holds things together.

string: a long, thin cord used for tying.

straw: a thin, hollow tube.

craft stick: a flat wooden stick.

paperclip: a bent wire that clips things together.

cardboard: thick, stiff paper.