Lesson 4: Farm Equipment Engineers

Grade Level: First Grade

Time: 70 minutes (building and testing portion approximately 30 minutes)

Subjects: ELA, Science, Agriculture

Overview: This lesson is Lesson 4 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 2, where students repaired farm equipment, students discover that farmers also solve problems by designing and building the equipment they need. As farm equipment engineers, students take on a real farm problem, build their own solution, and learn through testing that a first try can always be improved. They gain confidence as problem solvers and see the value of trying, changing, and trying again. Students turn that experience into their own story, telling what happened in order with a clear ending, while strengthening their decoding, phonetic spelling, and understanding of how sentences work. By comparing their designs with classmates, students recognize that a problem can have more than one good solution. They connect their work to the wagons, carts, and augers Kansas farmers depend on every day.

Skillset: Activating prior knowledge across lessons, defining a simple problem, decoding regularly spelled one-syllable words, designing and building a physical model, testing a design and collecting data, improving a design, comparing two designs, recalling information from a hands-on experience, writing a narrative with sequenced events, temporal words, details, and a closing, recognizing the features of a sentence, and spelling untaught words phonetically by finger stretching.

Kansas Academic Standards
Kansas ELA Standards
RF.1.1.c Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
RF.1.3.b Decode regularly spelled one-syllable words.
W.1.3 Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order and provide some sense of closure.
W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
W.1.11.e Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.

Kansas Science Standards
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.
K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

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.).

Objectives
English Language Arts Objectives
Students will be able to:
- Decode regularly spelled one-syllable words on material labels and in their own writing.
- Find the first word, the capital letter, and the end mark in a sentence.
- Recall what happened during the challenge to answer questions on their recording sheet.
- Write a narrative that tells what happened in order using First, Next, Then, and Last, with details and an ending.
- Spell untaught words phonetically by finger stretching and writing a letter for each sound they hear.

Science Objectives
Students will be able to:
- Build a physical model whose shape helps it carry a load of feed.
- Test their equipment, count how much feed made it to FINISH, change their design, and test it again.
- Compare two designs using how much feed each one carried, and tell what each one did well.

Agriculture Objectives
Students will be able to:
- Identify tools and machines farmers use to move feed and crops, such as wagons, wheels, grain carts, and augers.
- Explain that farmers build and improve equipment to solve problems on the farm.

Materials Needed
Whole Group:
- Book: *Jobs Farmers Do* by Dan Yunk, illustrated by Michele Johnson, with photographs by Scott Stebner and John Schlageck (physical copy, page 8 only)
- "Farmer Problem Solvers" chart paper, with four picture cards posted ahead of time and a question written beside each card (container: What will hold the feed? / arrow: How will you move it? / lid: How will you keep it from falling out? / strong arm: What will make it strong?)
- Farmer Problem Solvers picture cards, companion document (four cut-out cards: a container, an arrow, a lid, a strong arm)
- 1 teacher testing area near the carpet, with START and FINISH marked about 2 to 3 feet apart
- 1 bare paper cup and 1 small empty box for the teacher demonstration
- 10 pieces of feed for the teacher demonstration (pom-poms, cotton balls, dry beans, or large counters)
- 1 teacher sample piece of equipment, built ahead of time from a paper cup with an index card lid taped on, kept out of sight until shared writing

- 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
- Word Bank, companion document with a picture beside each word, displayed where all students can see it (scoop, handle, string, straws, cardboard, sticks)
- Markers

Farm Equipment Engineers Challenge (per student):

- 1 starter base, either a paper cup or a small box, chosen by the student
- 10 pieces of feed (pom-poms, cotton balls, dry beans, or large counters)

Farm Equipment Engineers Challenge (shared per small group of 3–4 students):

- 1 basket, tray, or container holding the building materials below
- Material label cards, companion document, taped to each material or its section of the basket (sticks / string / cups / box / straws / tape / cards / pipe cleaners / cardboard / tubes)
- Extra paper cups and small boxes, so every student can choose a starter base
- Small cardboard pieces, cut ahead of time into a mix of small rectangles and squares
- Craft sticks
- Drinking straws
- Index cards or cardstock
- Tape, with several strips torn ahead of time and placed along the table edge
- String or yarn
- Pipe cleaners
- Small cardboard tubes, optional, cut to safe sizes ahead of time
- 1 testing area with START and FINISH marked about 2 to 3 feet apart (a tray, a section of table, a piece of butcher paper, or a space marked with painter's tape)

Writing:

- My Farm Equipment recording sheet, companion document (one per student). Name line, a Word Bank box with a picture beside each word (scoop, handle, string, straws, cardboard, sticks), four numbered questions, each followed by a sentence frame with two lines and no end punctuation so students add their own (1. What did you build? First, I built a _____ / 2. What happened when you tested it? Next, the feed _____ / 3. What did you change? Then I added _____ / 4. How did it work at the end? Last, it _____), a drawing box (Draw your equipment.), and a checklist (I used First, Next, Then, and Last. / I told what happened. / I wrote an ending. / I circled the capital letter at the start of each sentence. / I put an end mark at the end of each sentence.)
- Pencils and crayons

(Note: See the separate Teacher Preparation instructions below for setting up the material baskets and testing areas before the lesson begins. Do not build an example for students to copy. The teacher demonstration in section 3 uses a bare cup only, so students don't see a finished solution before building. Keep the teacher sample cup with a lid out of sight until shared writing. Each student builds and tests their own equipment, so each student writes about their own work.)

Lesson Procedures

1. Connecting to What We Know
    a. Before the lesson, complete the Teacher Preparation instructions below. Display the Farmer Problem Solvers chart and the Word Bank near the carpet. Set the bare cup, the small box, 10 pieces of feed, and one basket of building materials beside the teacher testing area. Keep the teacher sample cup with a lid out of sight.

b. Gather students on the carpet where they can all see you.
c. Explain to students: "In our last lessons, we became farm mechanics and farm business owners. Today we are going to find out about one more job farmers do, and this one is a building job."
d. Ask students the questions below. Call on two or three students for each one.
    - "Who remembers what equipment is?" (the machines and tools farmers use to do their work)
    - "What is one piece of farm equipment we fixed when we were mechanics?" (a tractor, a wagon)
e. Explain to students: "That's right. Today we are not going to fix equipment. We are going to build it. First, let's look at a photograph from our book that shows a farmer with a problem."

2. Spotting the Farmer's Problem
    a. Hold up *Jobs Farmers Do* and turn to page 8.
    b. Explain to students: "We are not going to read our whole book again today. We are just going to look at one photograph, because it shows us a problem we are going to solve."
    c. Point to the photograph of the farmer feeding sheep out of a bucket.
    d. Ask students:
        - "What is this farmer doing?" (feeding sheep)
        - "What is the farmer using to carry the feed?" (a bucket)
        - "The farmer has a whole flock of sheep to feed. Do you think one bucket is enough? Why or why not?"
    e. Explain to students: "A bucket works, but the farmer can only carry a little bit at a time. That is a problem. Remember what Grandpa told Kailey. He said farmers have to know how to solve problems. Today we are going to solve a farmer's problem."
3. Introducing the Farm Equipment Engineers Challenge
    a. Keep students on the carpet where they can all see the teacher testing area and the Farmer Problem Solvers chart. Do not hand out any baskets or materials yet.
    b. Explain to students: "Today you are going to be farm equipment engineers. An engineer is a person who builds something to solve a problem."
    c. Point to the START and FINISH points in the teacher testing area.
    d. Explain to students: "Here is the farmer's field. The feed is piled up right here at START. The farmer needs it over here at FINISH."
    e. Pick up one piece of feed, carry it slowly from START to FINISH, and set it down. Repeat once more, slowly.
    f. Ask students:
        - "If I keep going one piece at a time, how long will this take?"
        - "What could I build to move a lot of pieces at once?"
    g. Explain to students: "That is your job today. Build something that carries a load. A load means a whole bunch at once, not one at a time."
    h. Hold up the bare paper cup and the small empty box.
    i. Explain to students: "Every engineer gets to pick one of these to start with, a cup or a box. This is just your starting piece. It is not finished yet, and it is not strong enough yet. Your job is to make it work."
    j. Place the 10 pieces of feed at START and fill the bare cup with them while students watch.

k. Explain to students: "Watch me. I am going to move my load from START to FINISH."
l. Carry the cup across, tipping it enough that a few pieces spill, and set it down at FINISH.
m. Count the pieces left in the cup aloud, one at a time.
n. Ask students:
    - "What did you see happen?" (some feed fell out)
    - "How many pieces made it to FINISH?"
    - "What went wrong?" (the cup tipped and was hard to carry)
o. Explain to students: "Some of my feed fell out. That is the problem you are going to fix. After you test, you will count how many pieces made it to FINISH. Then you will change one thing and test again. I am not going to show you what to change. Every engineer decides that for their own equipment."
p. Hold up the basket of building materials so all students can see it. Do not pass it out.
q. Explain to students: "Every material in your basket has a label. Some labels we can sound out together, and some I will read to you."
r. Point to the label on the craft sticks.
s. Model decoding the label:
    - "Sticks. I make a fist and put up one finger for each sound."
    - "/s/" (Put up first finger.)
    - "/t/" (Put up second finger.)
    - "/i/" (Put up third finger.)
    - "/k/" (Put up fourth finger.)
    - "/s/" (Put up fifth finger.)
    - "The c and k work together to make one sound, /k/. Blend it: sticks."
t. Point to each label below, one at a time. Have students make a fist, put up one finger for each sound, and blend the word with you:
    - "String." (/s/ /t/ /r/ /i/ /ng/, string)
    - "Cups." (/k/ /u/ /p/ /s/, cups)
    - "Box." (/b/ /o/ /ks/, box)
u. Hold up each remaining material and read its label aloud while pointing to it:
    - "Straws."
    - "Tape."
    - "Cards."
    - "Pipe cleaners."
    - "Cardboard."
    - "Tubes."
v. Point to the Farmer Problem Solvers chart.
w. Explain to students: "Engineers ask questions while they build. There is no one right thing to build, so every engineer at your table might solve the problem a different way. Here are four questions to think about." Point to each picture card and read its question aloud:
    - "What will hold the feed?" (Point to the container card.)
    - "How will you move it?" (Point to the arrow card.)
    - "How will you keep it from falling out?" (Point to the lid card.)
    - "What will make it strong?" (Point to the strong arm card.)

x. Explain to students: "You will share the basket with your group, but each engineer builds their own equipment. Here is what you will do." Hold up one finger for each step:
    - "One, pick your cup or box."
    - "Two, build your equipment."
    - "Three, fill it with your 10 pieces of feed."
    - "Four, move it from START to FINISH and count how many pieces made it."
    - "Five, change one thing to fix what went wrong."
    - "Six, test it again and count again."

y. Ask one student to repeat the first step back to you before anyone moves to a table.

4. Farm Equipment Engineers Challenge: Build and Test
    a. Divide students into groups of 3–4 and send each group to a table.
    b. Place one basket of building materials in the center of each table, within reach of every student.
    c. Have each student choose one starter base, a paper cup or a small box, and keep it in front of them.
    d. Explain to students: "Your base belongs to you. Keep it in front of you, not in the middle with the shared basket. You may start building now."
    e. Students build their own equipment. Students may build a wagon, cart, scoop, sled, carrier, or any other design they choose.
    f. Circulate and support while students build:
        - Prompt for the problem: "What job will your equipment do?"
        - Prompt for shape: "What part will hold the feed? What keeps it from falling out?"
        - Prompt for strength: "Which piece is strongest?"
        - Prompt for decoding: "Which material do you need? Read its label with me. Tap each sound, then blend it."
        - Prompt for testing: "How will you know if it works?"
    g. When a student is ready to test, give that student 10 pieces of feed at the START point of their group's testing area.
    h. Students take turns at their group's testing area, filling their equipment and moving the load from START to FINISH.
    i. After each student's first test, have the student count the pieces that made it to FINISH and say the number out loud.
    j. Ask that student:
        - "Did anything fall out?"
        - "Did any part bend or fall over?"
        - "Was it easy to move?"
    k. Explain to that student: "Remember your number. Now change one thing to fix what went wrong."
    l. Students test their equipment a second time and count the pieces that made it to FINISH again.
    m. Ask that student: "Did more feed make it this time, fewer, or the same?"
    n. Have students leave their finished equipment at their seat, return any unused materials to the shared basket, and come to the carpet.
    (Note: Two tests are enough. Students who finish early may add a handle or a lid and test again. For students who need more support, let them start from a cup

and add only one piece, or have an adult hold a piece steady while they tape. Pre-torn tape strips save building time.)

5. Shared Writing: First and Next
    a. Gather students on the carpet where they can all see the sample recording sheet and the Word Bank.
    b. Explain to students: "Engineers write down what happened so other people can learn from their work. Today you will write a story about your equipment that tells what happened in order. Order words tell your reader what happened first and what came after."
        - "First"
        - "Next"
        - "Then"
        - "Last"
    c. Explain to students: "Your story will use all four order words. It will end by telling how your equipment worked."
    d. Hold up the teacher sample cup with the lid.
    e. Explain to students: "This is the equipment I built. I am going to fill out my sheet about it first. Watch closely, because you will do the same thing next."
    f. Point to the name line and write your name on it.
    g. Point to question 1 and read it aloud while pointing to each word: "What did you build?"
    h. Think aloud: "What did I build? First, I built a cup to carry my feed."
    i. Point to the first sentence frame and read it aloud while pointing to each word: "First, I built a _____."
    j. Think aloud: "A cup is what I built, so cup goes in the blank. I try to spell it myself first, so I finger stretch it. I make a fist."
        - "I say the word slowly. Cup."
        - "/k/" (Put up first finger.)
        - "/u/" (Put up second finger.)
        - "/p/" (Put up third finger.)
    k. Think aloud: "Three fingers means three sounds, so I write three letters. I point to each finger and write the letter for that sound."
        - "/k/ is c, like in cat." (Point to your first finger and write c on the blank.)
        - "/u/ is u." (Point to your second finger and write u.)
        - "/p/ is p." (Point to your third finger and write p.)
    l. Think aloud: "Now I read my word back to check it. Let's read it together. Tap each sound with me." (Point under each letter as students say /k/ /u/ /p/, then blend, cup.) "C, u, p. Cup. That matches what I said."
    m. Think aloud: "Now I read my whole sentence. First, I built a cup. The first word is First, and it starts with a capital letter. The frame does not give me an end mark. This sentence tells something, so it ends with a period." (Add a period after cup.)
    n. Point to question 2 and read it aloud while pointing to each word: "What happened when you tested it?"
    o. Think aloud: "What happened when I tested it? I carried my cup from START to FINISH. It tipped, and some of my feed fell out."
    p. Point to the word Next at the start of the second sentence frame. Have students make a fist, put up one finger for each sound, and blend the word with you: "/n/ /e/ /k/ /s/ /t/, Next."

q. Read the second sentence frame aloud while pointing to each word: "Next, the feed _____."
r. Think aloud: "The feed fell out, so fell out goes in the blank. Let's finger stretch fell together. Make a fist." (Make a fist and have students do the same.)
    - "Say the word slowly with me. Fell."
    - "/f/" (Put up first finger and have students do the same.)
    - "/e/" (Put up second finger.)
    - "/l/" (Put up third finger.)
s. Think aloud: "Three fingers means three sounds. I write the letter for each sound."
    - "/f/ is f." (Point to your first finger and write f on the blank.)
    - "/e/ is e." (Point to your second finger and write e.)
    - "/l/ is l. When a short word ends with the /l/ sound right after a short vowel, we often write two l's, like in will. So I write l, l." (Point to your third finger and write ll.)
t. Think aloud: "Out is a word I know by heart, o, u, t." (Write out.) "Now I read my whole sentence. Next, the feed fell out. The first word is Next, with a capital N. This sentence tells something, so it ends with a period." (Add a period after out.)

6. Shared Writing: Then and Last
    a. Point to question 3 and read it aloud while pointing to each word: "What did you change?"
    b. Think aloud: "What did I change? I added a lid on top of my cup so the feed could not fall out."
    c. Point to the word Then at the start of the third sentence frame. Have students make a fist, put up one finger for each sound, and blend the word with you: "/th/ /e/ /n/, Then. The t and h work together to make one sound, /th/."
    d. Read the third sentence frame aloud while pointing to each word: "Then I added _____."
    e. Think aloud: "I added a lid, so a lid goes in the blank. Let's finger stretch lid together. Make a fist." (Make a fist and have students do the same.)
        - "Say the word slowly with me. Lid."
        - "/l/" (Put up first finger and have students do the same.)
        - "/i/" (Put up second finger.)
        - "/d/" (Put up third finger.)
    f. Think aloud: "Three fingers means three sounds. I write the letter for each sound."
        - "/l/ is l." (Point to your first finger and write a l on the blank.)
        - "/i/ is i." (Point to your second finger and write i.)
        - "/d/ is d." (Point to your third finger and write d.)
    g. Think aloud: "Now I read my whole sentence. Then I added a lid. The first word is Then, with a capital T. This sentence tells something, so it ends with a period." (Add a period after lid.)
    h. Point to question 4 and read it aloud while pointing to each word: "How did it work at the end?"
    i. Think aloud: "How did it work at the end? I tested my cup again, and no feed fell out. It held all of my feed! That is how my story ends."
    j. Point to the word Last at the start of the fourth sentence frame. Have students make a fist, put up one finger for each sound, and blend the word with you: "/l/ /a/ /s/ /t/, Last."

k. Read the fourth sentence frame aloud while pointing to each word: "Last, it _____."
l. Think aloud: "My cup held the feed, so held the feed goes in the blank. I finger stretch held first. I make a fist."
    - "I say the word slowly. Held."
    - "/h/" (Put up first finger.)
    - "/e/" (Put up second finger.)
    - "/l/" (Put up third finger.)
    - "/d/" (Put up fourth finger.)
m. Think aloud: "Four fingers means four sounds, so I write four letters."
    - "/h/ is h." (Point to your first finger and write h on the blank.)
    - "/e/ is e." (Point to your second finger and write e.)
    - "/l/ is l." (Point to your third finger and write l.)
    - "/d/ is d." (Point to your fourth finger and write d.)
n. Think aloud: "The is a word I know by heart, t, h, e." (Write the.) "Now I finger stretch feed. I make a fist."
    - "/f/" (Put up first finger.)
    - "/ē/" (Put up second finger.)
    - "/d/" (Put up third finger.)
    - "Three fingers means three sounds. /f/ is f. The long /ē/ sound in the middle is spelled with two e's, like in see. /d/ is d." (Write f, ee, d.)
    - "Now I read my whole sentence. Last, it held the feed! I was excited my equipment worked, so this sentence ends with an exclamation point." (Add an exclamation point after feed.)
o. Point to the drawing box and draw a simple cup with a lid while students watch.
p. Read all four sentences aloud, pointing to each word as you read: "First, I built a cup. Next, the feed fell out. Then I added a lid. Last, it held the feed!"
q. Explain to students: "Now I check each sentence like a reader."
    - "I find the first word of each sentence and circle its capital letter." (Circle the F, N, T, and L.)
    - "I find the end of each sentence and circle the end mark." (Circle each period and the exclamation point.)
r. Point to the checklist. Read each line aloud and check each box on the sample sheet as you answer:
    - "I used First, Next, Then, and Last. Yes." (Check the box.)
    - "I told what happened. Yes, my feed fell out, and I added a lid." (Check the box.)
    - "I wrote an ending. Yes, Last, it held the feed!" (Check the box.)
    - "I circled the capital letter at the start of each sentence. Yes." (Check the box.)
    - "I put an end mark at the end of each sentence. Period, period, period, exclamation point. Yes." (Check the box.)

7. Independent Writing: My Farm Equipment
    a. Leave the sample recording sheet and the Word Bank 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."
        - "Answer each question by finishing the sentence frame about your own equipment."

- "Finger stretch each word you write. Use the Word Bank only for tricky words like handle and cardboard."
- "Put an end mark at the end of each sentence."
- "Draw your equipment in the box."
- "Circle the capital letter at the start of each sentence and the end mark at the end."
- "Check your work with the checklist at the bottom."

c. Send students to their seats, where their equipment is waiting. Hand each student a recording sheet and a pencil.
d. Circulate and support:
   - Prompt for recall: "Look at your equipment. What did you build? What happened when you tested it?"
   - Prompt for order: "What happened first? What did you change next? How did it work at the end?"
   - Prompt for spelling: "That word is not in the Word Bank, so let's finger stretch it. Make a fist. Say the word slowly. Put up a finger for each sound. Now write one letter for each finger."
   - Prompt for decoding: "Read your word back to me. Point under each letter, tap each sound, and blend it."
   - Prompt for sentence features: "Where does this sentence start? Where does it stop? What mark does it need at the end?"
   - Prompt for the ending: "How did your equipment work on your last test? That is your ending."
e. When students finish, have them read their story aloud to a neighbor or to you. (Note: Accept phonetic spellings for words not in the Word Bank, such as spild for spilled. Writing a letter for each sound is exactly what W.1.11.e asks for. For students who need more support, let them hold their equipment and say each sentence aloud before writing, or cover all but one frame with a sticky note so they finish one sentence at a time. For students ready for more, challenge them to add a sentence that tells how many pieces of feed made it on each test.)

8. Closing Discussion and Kansas Connection
   a. Have students bring their completed recording sheets and their equipment to the carpet.
   b. Choose two students who solved the problem in different ways. Place their equipment side by side where everyone can see it.
   c. Ask each of the two students:
      - "How many pieces of feed made it to FINISH on your second test?"
      - "What did you change after your first test?"
   d. Ask students, pointing to the two pieces of equipment on display:
      - "Both of these move feed. How are they different?"
      - "Which one carried more feed? How do we know?"
      - "What did this one do well?" (Point to the first piece of equipment.)
      - "What did this one do well?" (Point to the second piece of equipment.)
   e. Ask students: "Read us your ending. How did your equipment work at the end?"
   f. Kansas Connection. Explain to students: "Kansas farmers move feed and crops every single day, and they use equipment to do it. Wagons and grain carts roll on wheels, which makes it easier to move heavy loads. An auger is a machine shaped like a giant twisty screw. It turns to lift grain up into a truck or a tall bin.

When something does not work well enough, farmers change it and try again, just like you did today."

g. Ask students:
    - "Whether farms are just down the road from you or something you have only seen in pictures, where have you seen a wagon, a cart, or a truck moving something heavy?"
    - "Think about the food in your kitchen at home. Someone had to move it from a field all the way to you. What is one piece of equipment that might have helped?"
    - "What is one thing you could tell your family tonight about the equipment you built?"

Assessment: Teacher observation during the challenge, shared writing, and independent writing provide ongoing evidence of student understanding. Watch for whether students decode regularly spelled one-syllable words on the material labels, the order words, and the words in their own writing. During the challenge, note whether students build a model whose shape helps it carry a load, count the feed that reaches FINISH, and change their design after testing. During the closing, note whether students use their counts to compare two designs and describe what each one did well, and whether they can name equipment farmers use to move feed and crops. The completed recording sheet is the primary artifact. It shows whether students recalled their experience to answer each question, told events in order with First, Next, Then, and Last, included details, wrote an ending, marked the capital letter and end mark of each sentence, and spelled untaught words phonetically. The finished equipment serves as the second artifact.

Supplemental Activities: Display the finished equipment alongside the completed recording sheets under a title such as "Farm Equipment Engineers at Work!" Add load, engineer, and auger to the word wall. For an extension, set up a building center where students design equipment for a different farm job, such as carrying water to animals or moving hay bales, and test it the same way, counting how much each design carries.

Author: Kelsy Sproul, M.S., Literacy Specialist, 2026 KFAC Teacher of the Year, KFAC Curriculum Advisory Council, Former Elementary Teacher, Graduate Teaching Assistant and doctoral student at Kansas State University College of Education. Edited by Marissa Cook, KFAC intern, Kansas State University Secondary Education.

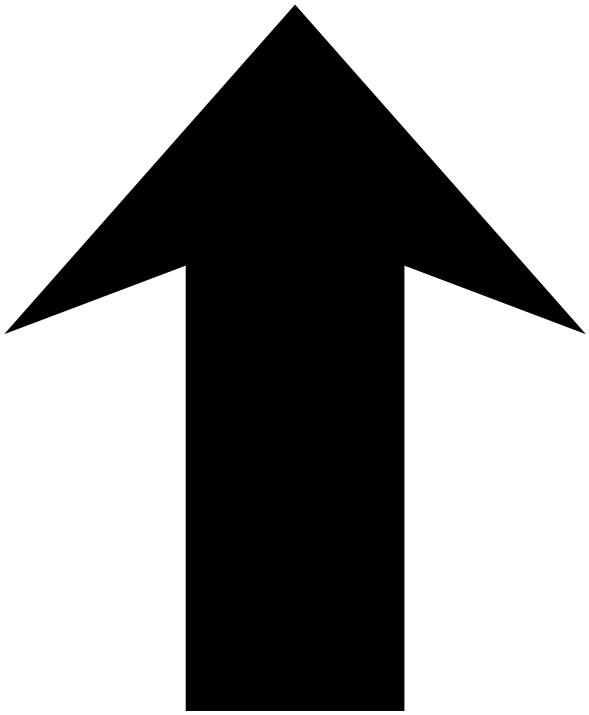
Teacher Preparation Instructions

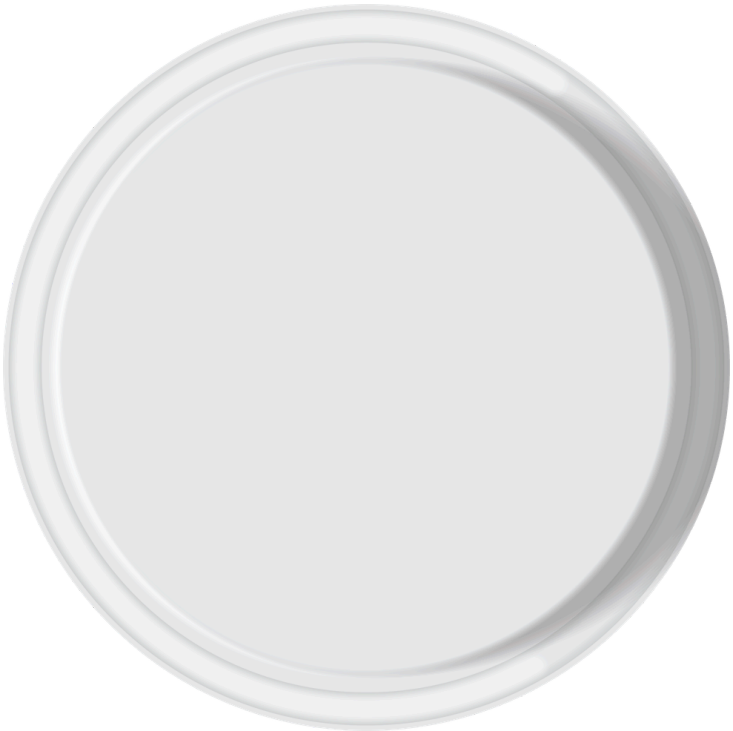
1. Before students arrive, place the shared building materials into one basket, tray, or container for each small group.
2. Print and cut out the material label cards. Tape each label to its material or to that material's section of the basket.
3. Set out enough paper cups and small boxes for every student to choose one starter base, plus a few extras.
4. Print and cut out the four Farmer Problem Solvers picture cards. Post them on the chart paper and write the matching question beside each card.
5. Prepare one testing area for each group and one teacher testing area near the carpet. A testing area can be:

A tray
A section of table
A piece of butcher paper
A space marked with painter's tape

6. Mark a clear START and FINISH point in each testing area, about 2 to 3 feet apart.
7. Count out 10 pieces of feed (pom-poms, cotton balls, dry beans, or counters) for every student, plus 10 for the teacher demonstration.
8. Tear several strips of tape ahead of time and place them along the edge of each table so students can use them independently.
9. Cut cardboard into small, easy-to-handle pieces ahead of time. A mix of rectangles and squares works well.
10. If using cardboard tubes or boxes, make sure they are already cut to safe sizes before the lesson.
11. Build the teacher sample by taping an index card lid onto a paper cup. Keep it out of sight until shared writing.
12. Do not build an example for students to copy. The goal is for students to create their own solution.
13. Before beginning, check that all materials are safe, clean, and free of sharp edges.









Word Bank

 scoop	 handle	 string
 straws	 cardboard	 sticks

sticks	string
cups	box
straws	tape
cards	pipe cleaners
cardboard	tubes

Name:_____

My Farm Equipment Recording Sheet

Word Bank		
 scoop	 handle	 string
 straws	 cardboard	 sticks

1. What did you build?

First, I built

2. What happened when you tested it?

Next, the feed

Name:_____

My Farm Equipment Recording Sheet

3. What did you change?

Then, I added

4. How did it work at the end?

Last, it

5. Draw your equipment below.

- ☐ I used first, next, then, and last.
- ☐ I told what happened.
- ☐ I wrote an ending.
- ☐ I circled the capital letter at the start of each sentence.
- ☐ I put an end mark at the end of each sentence.