

Lesson 1 (See [Lesson 1 Slide Deck](#))**Overview of the Lesson** [10 min.]

- Ask students: *How does a doctor help sick patients? How do we as adults solve problems that we're facing? Are the two situations connected?* Build off a previous unit on the Scientific Method (SM) to explain that in this unit, students will be connecting how a doctor uses the SM with ways we can solve problems we face in our lives. Explain that today the class will **read about a real-life health problem an imaginary classmate is having (the "Schoolmate Problem") and begin thinking about how doctors address health issues.** By the end of the unit, students will have proposed a solution to the problem and will have designed an experiment to test if it's a good one. They'll then apply the same process to other problems. Along the way, they will learn important scientific principles and develop ELA skills.
- Give students a [Knowledge Rating Scale](#) to self-evaluate their knowledge of 5 vocabulary words.

Schoolmate Problem [L6C/D] [40 min.]

- Use the slide deck to introduce the Schoolmate Problem.
- Slide 12: Students select groups (High Blood Pressure, Obesity, Stress, Pre-Diabetes).
- Students get into groups and discuss why they selected this health issue.
- Back as a large group, explicitly define *cause*, *effect*.
- Groups decide if their health issue is a Cause or Effect. (Discuss how they can be either, but for this unit, they will be treated as Effects.)
- Groups brainstorm: *What do you think are possible CAUSES of your health issue?* They record responses on their group's [Possible Causes Graphic Organizer](#).
- Make the point that students will be choosing one of these Causes—or another one they identify later in their research—to plan an experiment for.

Comprehension: Cause & Effect [R3C] [35 min.]

- **I DO:** Refer to previous definitions for *cause*, *effect*. Give examples using Cause & Effect sentences; introduce Cause & Effect signal words/phrases.
- **WE DO:** With students, identify cause, effect, and signals.
- **YOU DO:** [Cause & Effect](#) sentence exercises

Vocabulary [L6C/D] [25 min.]

- **Introduce other new vocabulary, pronouncing each:** *affect*, *dependent*, *independent*.
 - Provide definitions, synonyms, and parts of speech. Model the use of words in context (in full sentences); ask questions that require the use of words.
- Have students revisit **Knowledge Rating Scale** and reflect upon what they thought they knew.

Exit Ticket: [Muddiest Point](#) [10 min.]**Lesson 2** (See [Lesson 2 Slide Deck](#))

- *Have articles ready for each group's topic.*

Overview of the Lesson [10 min.]

- Use the slide deck to review the **Schoolmate Problem** and the goal of students' offering solutions. Explain that students will practice their fluency by reading an article related to the scenario and then use that article to practice identifying Cause & Effect.

Fluency [RF4B/C] [25 min.]

- Review the [Fluency Checklist](#) with students and invite each to select one or two items as goals for the day's fluency reading.
- Students use [collaborative oral reading](#) (a.k.a. "popcorn reading") with [The Latest Buzz](#). The teacher can assess fluency during each student's reading or students can self-assess at the end of the lesson.
 - Differentiation: Students can go online with headphones or earbuds to have the article read to them at a specific speed.

Comprehension: Cause & Effect [R3C] [55 min.]

- Use the slide deck to review Lesson 1 content.
- **I DO:** Use the same fluency article as above.
 - Model circling signal words/phrases.
 - Ask students if caffeine is a cause or an effect in this article. (Cause)
 - Model filling in [Cause & Effect Chart](#).
 - Ask students if they can see connections between the article and their schoolmate's health issues (i.e. a schoolmate complained of being tired and stated that their heart was racing: caffeine can cause the heart to beat faster + harder and may also cause issues with sleep). (Further questions would need to be asked about caffeine consumption.)
- **WE DO: In groups by health issue**, students read an article on their health topic, circling signal words/phrases and filling in [Cause & Effect Chart](#).
- Debrief: *What did you learn about Cause & Effect? What issues came up for you? What did you learn about your health topic?*

Vocabulary [L6C/D] [20 min.]

- Pairs review words together.
- Students complete [Cause & Effect Quiz](#).

Exit Ticket: Cause & Effect [R3C] [10 min.]

- **YOU DO: SHORT Cause & Effect Health paragraph**
 - Circle any signal words.
 - Underline and label Cause & Effect.

Lesson 3 (See [Lesson 3 Slide Deck](#))

- Have Google IDs and passwords ready for students.
- Read [teacher notes and identify web articles](#) for each group.

Overview of the Lesson [10 min.]

- Review that in this unit students are identifying and testing solutions for the **Schoolmate Problem**. Explain that today they will **use what they know about Cause & Effect to further research their group's Causes of their selected health topic**. They'll also **begin to learn digital literacy skills** needed for their presentations.

Comprehension: Guided Research in Groups [R3C, W8C] [50 min.]

- Remind students that they have been identifying Causes and Effects. Now they'll be finding those in web articles, which can be a bit trickier than what they've read so far.
- Briefly share info about how to tell if a web source is reliable (e.g., .gov or .edu url) and explain that their web articles come from reliable sources.
- Help students access their assigned Health Web Articles.
- **WE DO:** Group members work together but each fills out a [Graphic Organizer](#), listing common Causes gleaned from the text. They scan a picture of the completed G.O. and email it to Google Drive (or school Gmail) for later use.
- **WE DO/YOU DO:** Explain that groups will now use these articles to find out more about their topics. Introduce the [Note Taking Form: Health Issue](#). Briefly discuss plagiarism and why students will paraphrase in their notes instead of copying from texts. [If this has not been covered in previous lessons, you may need to take time for [I DO/WE DO](#).] Show students how to highlight or circle words that relate to the questions in their first reading. Students complete the form individually but can work together.

Vocabulary [L6C/D] [25 min.]

- **I DO:** Model sentences, using vocabulary in ways that tie into the Schoolmate Problem.
- **WE DO:** Have students create their own sentences; share.

Digital Literacy (Individuals within a group) [SL5D] [20 min.]

- Explain that students will use technology for their projects and will start to practice some skills.
- **I DO/WE DO:** Show students how to open Google Drive and create a Google Doc. Have them type in the title "Scenario Draft" (to be used in Lesson 9). Show that the Scenario Draft is now in Drive, as is the G.O. photo.
- End by demonstrating Google Slides and use [this video](#) to model how to add text, photos, and images.

Exit Ticket [15 min.]: **YOU DO:** Students create and "share" a Google Slide with their name and photos/images of things they like/are important to them. [This Name Slide can later be used to introduce each student/pair's slides in Lesson 8.]

Lesson 4 (See [Lesson 4 Slide Deck](#))

- Load [Student Google Slides](#) into Google Classroom.

Overview of the Lesson [10 min.]

- Explain that today students will build on the previous lesson to **practice their digital literacy skills** and to prepare to **create an experiment to test their solutions**. Students need the following from Lesson 3:
 - [Note Taking Form: Health Issue](#) (completed)
 - [Graphic Organizer w/researched causes](#) (completed)

Digital Literacy [SL5D]/Writing [W4C] [90 min.]

- Instruct students to open their [Student Google Slides](#). (Students may need a **shared file**.)
 - **Slide 4:** Fill in info based on research.
 - **Slide 5:** Upload a picture of their new graphic organizer into the slideshow, either from their drive or from their email from Lesson 2.
- **Students pair up** and select 1 Cause from their group's graphic organizer to build an experiment around. Students need to pick a Cause that can be easily measured and therefore tested.
- **I DO/WE DO:** Using Lesson 4 Slide Deck, guide students through Student Google Slides 6-8 as a whole group (but while still in health groups). Remind students that they are writing like scientists and that their statements should be clear and easy to follow. Model with at least one slide and then have students compose while you circulate. As students work, attend closely to their writing, providing guidance as needed.
 - **Slide 6:** Write & annotate a Cause & Effect statement. [R3C]
 - **Slide 7:** Write their Question Statement (sentence frame provided).
 - **Slide 8:** Write their Hypothesis Statement (sentence frames provided).

Alphabetics/Vocabulary [RF3B/C; L6C/D] [10 min.]

- Use the word *independent* from the vocabulary list to introduce the prefix *in-*, meaning "not."
- Show the video on negative prefixes: [Prefix IN and IM | Prefixes and Suffixes Lesson](#). Engage students in "guessing" the meanings of the words with the prefixes before they are provided in the video.

Exit Ticket [10 min.]: [3-2-1](#) - Students reply to the following writing prompt: 3 things I learned today, 2 things I found interesting, and 1 question I still have.

Lesson 5 (See [Lesson 5 Slide Deck](#))

Overview of the Lesson [10 min.]

- Review where students are in the process of offering solutions for the **Schoolmate Problem**. Explain that, after the **alphabetic review/practice**, **students will learn new scientific concepts about variables**, which they will later apply to test their solutions for the problem.

Alphabetic [RF3B/C] [15 min.]

- **YOU DO:** Recap the last lesson and provide [Independent Practice with In- and Im-](#) (Quizizz.com activity).

Vocabulary [L6C/D] [25 min.]

- **I DO/WE DO: Introduce new vocabulary:** *vary, independent variable, dependent variable, controlled variables, trials.*
 - Use the [Knowledge Rating Scale](#).
 - Give out [Vocab Quadrant Charts \(STUDENT\)](#), pronounce words, and use [Vocab Quadrant Charts \(TEACHER\)](#) to provide definitions, part of speech, and synonyms. Model using each word in context; ask questions that require use of the words.
 - Show this [video](#) (*Variables in Science*) to explicitly define variables in the context of a simple experiment.
- **Think/Pair/Share:** Students revisit the Knowledge Rating Scale to see if original understandings were accurate.

Fluency [RF3B/C] [20 min.]

- Review the [Fluency Checklist](#) with students and invite each to select one or two items to focus on for the lesson.
- Popcorn reading of **Low:** [The Types of Variables](#) (GLE 5/6), **High:** [Science Variables](#) (GLE 9).
- Students (or teacher) use(s) [Fluency Checklist](#).
- Debrief anything new learned about variables.

Comprehension [R3C] [40 min.]: Close Reading to Identify and Connect Variables: [Experimental Variables Jamboard](#).

- Explain that skilled readers use text markings for tracking complex info in a text, so students will learn some of those tricks. We'll also look for patterns in the way scientists talk about variables.
- **I DO:** Use slide deck (Slide 13) to explore text patterns related to each variable. Identify variables for [Experimental Variables Jamboard](#) frames #1 and #2.
- **WE DO:** On frames #3 and #4, students highlight the variables in different colors.
- **YOU DO:** Students choose 1 remaining Jamboard slide on which to annotate/highlight the variables and submit.
 - NOTE: Students will create their own Jamboard slide with a scenario and sticky notes like this at the end of the unit.

Exit Ticket [L6C/D] [10 min.]: Submit YOU DO slide. Also, *How can YOU remember the difference between an **independent variable** and a **dependent variable**?*

Lesson 6 (See [Lesson 6 Slide Deck](#))

Overview of the Lesson [10 min.]

- Review where students are in the process of offering solutions for the **Schoolmate Problem**. Explain that today they will **identify the independent, dependent, and controlled variables for the test of their solution** to the Schoolmate Problem.

Vocabulary [L6C/D] [40 min.]

- **I DO:** Review vocabulary related to variables (many within [this video](#)).
- **YOU DO:** Online [Vocabulary Practice: Matching Exercise](#) (re: variables). Students can login to Wizer.me using a gmail account.
- **I DO:** Use slide deck to relate cause & effect to variables.
- **YOU DO:** Have students label their completed [graphic organizer from Lesson 3](#) with their Independent Variable and Dependent Variable.

Digital Literacy/Writing [SL5D/W4C] [60 min.]

- Have pairs return to their [Student Google Slides](#) (from Lesson 4).
- Guide pairs in completing Slides 9-11, focusing on writing clear statements:
 - **Slide 9:** Independent/Dependent Variables
 - **Slide 10:**
 - Students write up a brief description of their experiment on paper.
 - Remind students about writing clearly, with their classmates in mind. Model revising a response to Slide 10 (prepared ahead of time) to make it clearer. Give students time to revise, perhaps reading their descriptions to a partner to test for clarity.
 - Students type the revised description onto the slide.
 - **Slide 11:** Students list which factors would need to be controlled or kept constant.

Exit Ticket [W4C] [10 min.]: Students share one example from Slide 10 of something that they revised for clarity and tell 1) what they changed and 2) why.

Lesson 7 (See [Lesson 7 Slide Deck](#))

Overview of the Lesson [5 min.]

- Review where students are in the process of offering solutions for the **Schoolmate Problem**. Explain that today they will **make sure their solution is being tested with a fair test** and will **prepare for their presentations**.

Vocabulary [3 min.]

- Use [Edpuzzle video](#), to relate variables to a Fair Test.

Fluency [RF3B/C] [12 min.]

- Invite students to select goals from [Fluency Checklist](#).
- Popcorn reading: [What is a Fair Test? \(GLE 5\)](#) or [What is a Fair Test? \(GLE 7\)](#); assess using the checklist.

Comprehension: Fair Test [R3C] [25 min.]

- Use the slide deck to explain that in addition to controlling variables, a Fair Test must also have multiple trials and objective measurements.
- **I DO/WE DO:** Model and practice with the class to assess fair testing in scenarios: Jamboard [Intro Fair Test](#). Use the annotation tools to draw attention to what you're thinking about to assess fair testing in the text.
- **YOU DO:** Jamboard: [Fair OR Not?](#)

Digital Literacy/Writing [W4C, SL5D] [50 min.]

- Have students return to [Student Google Slides](#) and guide them in completing the remaining slides.
 - **Slide 12:** Fair Testing Questions
 - **Slide 13:** What pairs hope will happen and why
 - **Slide 14:** Pairs gather info from previous slides to summarize their work.
 - Give time for pairs to copy and paste.
 - Discuss how color and images should help readers/listeners, not distract them. Students can add color, images, etc.
 - **Slide 15:** Pairs describe their fair test, writing with clarity. (They will split the paragraph in half and read from this slide during their presentation, as a fluency assessment.)
- Students **SHARE** their completed slide decks with the teacher, who checks them, provides feedback on Slide 15, copies and compiles the Slide 14s, and integrates "Name Slides" (from Lesson 3) to make slides for the next lesson.

Speaking & Listening: Presentation Prep [SL4C/D] [20 min.]

- Distribute [Presentation Checklist](#) and review.
- Allow groups to plan for and practice presentations, referring to the checklist along with Slides 14 and 15. (A short time will be given for edits and presentation prep before presenting as well, but students may want to prepare as homework.)

Exit Ticket: [5 min.] *What 3 things should be in your experiment to make it a fair test?*

Lesson 8 (See [Lesson 8 Slide Deck](#))

Overview of the Lesson [5 min.]

- Review where students are in the process of offering solutions for the **Schoolmate Problem**. Today they will **make their presentations** and **test their ability to develop a fair test**.

Speaking & Listening: Presentations [SL4C/D; SL5D; RF3B/C] [90 min.]

- Provide time for last-minute prep.
- Pairs with the same health topic should present sequentially, as information may be similar.
- Each pair displays the completed Slide 14 from the Student Google Slides as they present and then reads what they wrote for Slide 15 (this should not be displayed). The teacher completes the [Presentation Checklist](#) for each student.
- After each presentation, the teacher leads the class in discussing if a fair test has been described.
- Students complete [Reflections & Connections](#) for Schoolmate Problem Scenario work.

Jamboard Scenario: Overview [15 min.]

- Introduce the culminating project by saying something like this:

To end this unit, I'd like you all to do a short final project that combines what we did in the Schoolmate Problem with the Jamboard Variables activity. You will CREATE YOUR OWN SCENARIO for a Jamboard frame that will be used for a Class Review of independent, dependent, and controlled variables. Previously, you worked as a small group on solving the Schoolmate Problem using Google Slides; this time you'll be working on your own – with some help from your class as needed – creating a Jamboard frame. You'll see what's similar and different about using a different platform AND you'll work on your writing skills.
- Share the [Scenario Model & Template](#), that shows what their Jamboard frames will look like.
- **Encourage students to be thinking for homework about what problem they want to solve.** They are welcome to start filling in the Template.

Exit Ticket [10 min.]: Before giving the prompt, explain that the same [Presentation Checklist](#) that was used for the Schoolmate Problem will be used for the Jamboard Scenario. Make comments about what the class did well and an area or two that they may need to work on.

- *What is one goal you want to work on for your next presentation and why is that important to you?*

Lesson 9

**NOTE: More class time may be needed for drafting, revising, editing, and formatting Jamboard frames, depending on what has been covered and practiced in previous units and how many students are in the class.*

- Decide if you want to use/adapt the [Jamboard Template](#).
- Decide whether you want to prepare a shared Jamboard that has enough Jamboard frames for every student to have two, OR have students share their Jamboard frames with you to compile for the presentations, OR handle the Jamboard presentations in another way.

Overview of the Lesson [3 min.]

- Explain that today students will **better understand the expectations for their final presentations** and will **create their Jamboard Scenario** frames that they will present from.

Jamboard Scenario: In-Depth Introduction [R3C, L6C/D, SL5D, W4C, W5C, RF3B/C] [25 min.]

- Review the [Scenario Model & Template](#), introduced in Lesson 8.
- Go over the [Pre-Check for Jamboard Scenario](#), explaining that there are a few more requirements on the checklist, (e.g., using unit vocabulary, adding 1+ photos, etc.).
 - Students will create two Jamboard frames:
 - #1 - for presenting the scenario (with types of variables written on 3 sticky notes for peers to use to name independent, dependent and controlled variables)
 - #2 - for showing classmates the answers to those 3 variables, written in 3 complete sentences
- You may want to introduce the [Jamboard Template](#) and let students know that there are built-in supports to help them create their Jamboard if they have never created one before. Students are welcome to format their own frames, though, if they're comfortable doing so.
- Explain to students that they will be reading their scenarios aloud during their presentations and will need to keep their fluency goals in mind as they prepare.

Digital Literacy/Writing [W4C, W5C, SL5D] [85 min.]

- Students start by using Google Docs to draft their final scenarios. Remind students to write clearly, so their audience (classmates) will be able to follow the story.
 - **1st Draft**-Students open their Google Drives and find the Google Doc titled "Scenario Draft" (created in Lesson 3) and begin drafting their scenarios. (Students may be more comfortable completing the [Scenario Model & Template](#) by hand and then typing into the Google Doc.)
 - **Revising**-Students **make a copy** of 1st draft, title it "2nd Draft," and use the [Pre-Check for Jamboard Scenario](#), in Google Classroom to make sure they

Lesson 10

**NOTE: More class time may be needed for finalizing frames, practicing fluent reading with a partner, and making presentations, depending on how far students were able to get in the previous lesson and how many students are in the class.*

- Before class, the teacher should have reviewed the frames of all students to ensure that 1) the info is correct and 2) students can share their frames with confidence.
- Teacher may want to put together a cumulative student Jamboard to use during the presentations.

Overview of the Lesson [3 min.]

- Explain that today is the day that students will **make their Jamboard presentations** to their classmates. Emphasize that this will not only serve as a cumulative review, but will be a chance to learn about each other, our experiences, and our cultures.

Jamboard Scenario Work

Final Preparations [SL4, RF34C] [22 min.]

- Students make final edits to their presentation frames as needed, based on teacher feedback.
- Students practice with a partner.
 - Draw students' attention to the feedback they received after the last presentation (Lesson 8) and remind them to set a presentation goal. Students target that goal as they practice with their partners.
 - Students practice reading their frame #1 fluently to their partner, keeping their fluency goals throughout the unit in mind.

Presentations of Jamboard Scenario [R3C, L6C/D, SL4, SL5D, RF3B/C] [80 min.]

- Each student reads aloud their Jamboard Scenario, prompts classmates for their variable responses, and reveals their answers on Jamboard Frame 2. The class then discusses whether it's a fair test.
- Guide discussions and point out the wonderful diversity that will no doubt be present in their scenarios!
- Fill out the [Presentation Checklist for Jamboard Scenario](#) (to assess visuals, speaking and presentation skills, and fluency) as presentations are happening.

Exit Ticket [15 min.]: Debrief the unit as a whole (e.g. *What matters most to them about what they learned?*). Students then fill out and submit the [Unit Reflection](#) in Google Docs.

include all components. They revise as needed.

- (Optional) Peer Edit: Students may review each other’s work, using the [Peer Edit Checklist](#). [Teacher should provide explicit instruction around giving feedback if peer review has not been explicitly taught in the past.]
- Once they are pleased with their scenario writing, students copy and paste the final version into their Jamboard frames and add their design elements.
 - NOTE: The teacher should use the [Pre-Check for Jamboard Scenario](#) and provide other editing feedback for every student prior to their presentations in Lesson 10. Students should make edits based on that feedback. The more student frames the teacher can “sign off” on in this lesson, the less teacher prep there will need to be before Lesson 10—and less time will need to be allocated at the beginning of that lesson for final edits.

Exit Ticket [7 min.]: Students submit their 2 Jamboard frames. (Teacher reads and provides feedback for students not yet “signed off,” using the [Pre-Check for Jamboard Scenario](#). Students will make final edits based on this feedback at the beginning of Lesson 10.)