OVERVIEW

World-Changing Inventions

FOCUS QUESTION

How have inventions changed our world?

About the Lesson

OBJECTIVES

Content Objectives

- Explain how events in a historical text are connected by using text details.
- Explain the effects of a particular historical event.
- Understand how three major inventions have dramatically changed people's lives.

Language Objectives

- Use a chart to record events from a historical text and infer their causes.
- Analyze and evaluate in writing the effects of various inventions.
- Discuss with a small group, the impact of the three inventions in the texts.

ACADEMIC TALK

See **Glossary of Terms** on pp. 478–485.

historical text, infer, inference, cause, effect

Spanish Cognates

texto histórico, inferencia, causa, efecto, invención, escena real

Build Knowledge

Lesson texts build knowledge about:

- Advancements in camera technology over time and their impacts on society
- Advancements in technology used for long-distance communication
- The invention of air conditioning and how it affected people's lives

Plan Student Scaffolds

- Use **i-Ready data** to guide grouping and choose strategic scaffolds.
- Use this **Teacher Toolbox** resource as needed to address related skills:
  —Describe what happened and why
- Partner students of varying language proficiency levels, so that one student may provide additional support to the other in Sessions 2 and 4. **EL**
- Preview texts and activities to anticipate barriers to engagement, access, and expression. Modify based on needs.

Use Protocols That Meet the Needs of All Students

In order to increase engagement and validate cultural and linguistic behaviors, specific protocols are included in the lesson. To further customize activities for your students, consider optional protocols listed on pp. A46-A51.

PROTOCOL	SESSION	VALIDATES
Stand and Share	1, 2, 4	spontaneity, movement, connectedness
Take a Poll	1	multiple perspectives
Pass It On	1, 3	spontaneity, connectedness
Pick a Stick	2, 5	spontaneity
Merry-Go-Round Share	2, 4	multiple ways to show focus, connectedness
Shout Out	3, 5	spontaneity, multiple ways to show focus
Somebody Who	4	social interaction
Give One, Get One	6	movement, shared responsibility

LEARNING PROGRESSION | Analyze a Historical Text

Students build on this skill:
RI.3.3 Describe the relationship between a series of historical events in a text, using language that pertains to time and cause/effect.

Students learn this skill:
RI.4.3 Explain events, ideas, or concepts in a historical text, including what happened and why, based on specific information in the text.

Students prepare for this skill:
RI.5.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical text based on specific information in the text.

Students review and practice:

- **RI.4.1** Make inferences
- **RI.4.4** Determine word meanings

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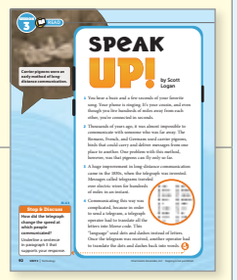
LESSON PLANNING GUIDE

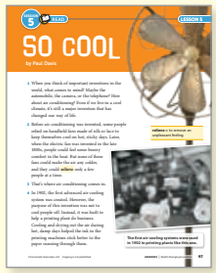
TEXT 1: Capturing Moments • SOCIAL STUDIES ARTICLE

		TEXT AT-A-GLANCE	ENGLISH LEARNER SUPPORT (EL)
SESSION 1	**SCAFFOLD READING**	**Concepts/Background** • language and ideas related to early cameras • traditional film and developing • digital cameras **Language** • **Vocabulary:** *flash powder, incredible, realistic, metal plates, coated, process, (to) record, digital, electronically, feature* • **Idioms:** *capture a moment, hold a smile, game-changer*	**Reading** • Interpret idioms, Leverage cognate support
SESSION 2	**PRACTICE THE FOCUS STANDARD** • Formative Assessment		**Speaking/Writing** • Collaborate with a partner, Talk before writing

TEXT 2: Speak Up! • SOCIAL STUDIES ARTICLE

SESSION 3	**SCAFFOLD READING** 	**Concepts/Background** • carrier pigeons • the telegraph and Morse code • telephone operators • the evolution of telephone models **Language** • **Vocabulary:** *method, long-distance communication, complicated, translate, (Greek) roots, alerted, cordless, signals, affordable* • **Descriptive Language:** *in an instant, popping up*	**Reading** • Analyze phrases, Role-play, Leverage cognate support
SESSION 4	**PRACTICE THE FOCUS STANDARD** • Formative Assessment		**Speaking/Writing** • Use sentence frames **Writing** • Use word bank

TEXT 3: So Cool • SOCIAL STUDIES ARTICLE

SESSION 5	**INDEPENDENT READING AND PRACTICE** • Formative Assessment 	**Concepts/Background** • handheld and electric fans • air conditioning's impact on businesses and migration to the South **Language** • **Vocabulary:** *advanced, system, printing plant, (to) benefit, laboratories, luxury, recover, skyscraper, appealing, population* • **Descriptive Language:** *comes to mind, way of life, comes in, do business, fight the heat*	**Speaking/Reading** • Use realia, Interpret idioms, Use visual support **Reading** • Use a dictionary or thesaurus **Speaking/Writing** • Talk before writing

KNOWLEDGE BUILDING

SESSION 6	**RESPOND TO THE FOCUS QUESTION** • *How have inventions changed our world?*	• Integrate information from the lesson texts • Collaborative discussion • Short response	**Writing** • Use word bank

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Before Teaching the Lesson

Preview the texts before teaching the lesson. If needed, provide background information before students read each text.

- **Capturing Moments: Portrait Painting** Before cameras, the only way to create an image of a person was to paint or draw it. Painting a lifelike portrait could take weeks and was expensive, so only wealthy people had their portraits done. The invention of the camera meant more people could have images of themselves and their loved ones.
- **Speak Up!: Carrier Pigeons** People were able to use carrier pigeons to send messages because carrier pigeons have an exceptional ability to find their way back to their homes no matter where they are flying from. Even today, scientists are not sure how carrier pigeons are able to do this.
- As an alternate means of representation, share audio or video of a telegram being transmitted to help students understand how telegraphs operated.

Talk About the Topic

BUILD STUDENTS' INTEREST

1 • Introduce the lesson topic and the Focus Question. Tell students they will read, talk, and write about inventions that changed the world.

2 • Confirm that students understand the meaning of the word *inventions* in the Focus Question. **EL**

- Invite students to **Stand and Share** examples of inventions they know of that changed the world.
- Introduce the focus standard. **Say,** *In this lesson, you will explain events, ideas, and concepts in a historical text.*

3 • Have partners complete Notice and Wonder.

- **Take a Poll** to have students identify which text they are most interested in reading.

SESSION 1 TALK ABOUT THE TOPIC

1 World-Changing Inventions

2 FOCUS QUESTION

How have inventions changed our world?

3 NOTICE AND WONDER

Look at the three texts you will read in this lesson. What do you notice? What do you wonder? Discuss your ideas with a partner.

4 TALK ABOUT INVENTIONS

Brainstorm words for the following groups with a partner:

- Words that describe inventions
- Examples of inventions
- Synonyms for the word *invention*

An example of an invention is ___.

___ said ___ is a synonym of ___. I agree/disagree because ___.

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Capturing Moments
by Stephen Krensky

Speak Up!
by Scott Logan

So Cool
by Paul Davis

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4 INTRODUCE ESSENTIAL CONCEPTS

- Have partners complete Talk About Inventions together. Then use **Pass It On** to engage the class in a discussion to explore words related to inventions.
- Invite students to create entries for words in their word journals.
- Use **LISTEN FORs** to monitor understanding. Use **Help & Go** scaffolds as needed.
- **LISTEN FOR** Pairs of students are able to think of words that describe inventions, examples of inventions, and synonyms for *invention*.

HELP & GO: Vocabulary

- Help students identify the Spanish cognate of *invention (invención)*. **Ask,** *What inventions do you see on these pages?* **EL**
- **Ask,** *What is an example? one of a certain type of objects or ideas What is a synonym? a word that has the same or almost the same meaning as another word*

- **LISTEN FOR** Students respectfully listen to others' ideas and share their own.

HELP & GO: Academic Discussion

- Remind students to take turns listening to and responding to the responses of others. Point out that when they use the sentence frame to disagree, they should make it clear they disagree with the idea, not the person who is expressing the idea.
- Have students paraphrase others' thoughts to be sure they understand them.

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1 Support Reading

- Set a purpose for reading. **Say,** *In this text, you'll read to learn about the invention of the camera.* Have students **Raise a Hand** if they have used a standalone or cell-phone camera.
- Have students read paragraphs 1–4. Have them circle unknown words and mark confusing parts with a question mark.
- Use **CHECK INs** and related **Help & Go** scaffolds as needed to support understanding of the text. Monitor based on annotations, observation, and your knowledge of students.
- **CHECK IN** Students understand the phrases *capturing moments* (title) and *hold a smile* (paragraph 3).

HELP & GO: Language

- **Ask,** *How else have you heard the word* capture *used? When you capture an animal, you put it in a cage. How is that like capturing a moment? When you capture a moment, you keep it somewhere safe, like on film or in a camera on your phone.*
- Have students act out what people do when they "hold a smile." **EL**

2 Stop & Discuss

- Have students **Turn and Talk** to complete **Stop & Discuss** with a partner.
- **LOOK FOR** Students understand that, before cameras, artists painted or drew scenes that looked realistic.

HELP & GO: Comprehension

- Have students reread paragraph 2. **Ask,** *What was the role of an artist before the invention of the camera? Artists worked hard to make images that looked realistic.*
- **Ask,** *How were the images captured by cameras different? They showed "real" scenes.*
- Share the cognate for *real scene (escena real).* **EL**

SESSION 1 READ

Capturing Moments

by Stephen Krensky

1

1 *Boom!* That's the sound a camera once made when taking a picture. It needed flash powder, like the kind used in firecrackers, to work. The loud, explosive light meant the camera had caught a single moment in time.

2 Capturing special moments made photographs seem incredible when they first appeared. For hundreds of years, artists had created realistic scenes and people. Artists needed a lot of talent and skill to make images look so real. Cameras, though, could capture a real scene using just light and flat metal plates coated in chemicals.

3 Early cameras were big and heavy, and only professional photographers operated them. Sometimes, people posing didn't smile because the camera took 15 to 30 seconds to take the picture—too long to hold a smile. People also had to stand or sit perfectly still or else the finished picture would be blurry. Moreover, cameras could take only one photo at a time. Afterward, the photographer had to **develop** the plate into a single photograph. The whole process could take months.

4 Luckily, cameras improved. By the 1880s, cameras were lighter, and anyone could use them. The newer cameras could record many pictures on a small roll of film. Once people had taken all their photos, they could mail their cameras to the factory, where the film was developed. Weeks later, the photographs were ready.

develop = to turn an image on film into a printed picture

2

RI.4.1

Stop & Discuss

How did the first cameras change the way people made images?

Support your response with details from paragraphs 2 and 3.

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LESSON 5

The daguerreotype camera captured an image on a copper plate.

The Brownie camera, which used film, was the first widely popular camera.

The instant camera produced an image that came directly out of the camera.

3

5 Over the years that followed, cameras continued to be improved. They became smaller, using film that rolled up into a metal **canister** that could be removed from the camera for developing. The developing process improved too. Film was developed in a local shop, and finished photos were available in days instead of weeks. Eventually, one-hour processing became common.

canister = a container that stores something

6 Then, in the 1990s, digital photography arrived. Digital cameras created images electronically rather than using film. Digital photography allowed people to see their photos on a screen as soon as they were taken. This feature was a game-changer. Instead of waiting for film to be developed by someone else, people could take, view, and delete their photos with the simple touch of a button.

7 These days, photography doesn't seem so amazing. People take photos of anything and anyone whenever they want. But we do still take photographs of the people and events that matter to us. People can capture special moments with devices such as smartphones and then use the internet to share their photos in seconds with close friends and family around the world.

4

RI.4.3

Stop & Discuss

How did digital cameras change the experience of taking and looking at pictures?

Support your response with details from paragraphs 6 and 7.

Digital cameras allowed people to ___.

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3 Support Reading

- Have students read paragraphs 5–7.
- **CHECK IN** Students understand that digital photography doesn't use film and digital photos don't need to be developed.

HELP & GO: Comprehension

- Tell students that when we say a camera is *digital*, we mean that it contains a computer that produces and stores the images. **Ask,** *How is this different from the cameras that came before? Before digital cameras, photos were stored on film.*

4 Stop & Discuss

- Have students complete **Stop & Discuss** with a partner.
- **LISTEN FOR** Students identify the main benefits of digital cameras.

HELP & GO: Comprehension

- Revisit paragraph 6 with students. **Ask,** *When using a digital camera, how long do people have to wait to see the photo they took? They can see it right away. What can you do with photos you don't like? You can delete them.*
- Explain the idiom *game-changer* (paragraph 6). **Say,** *A game-changer isn't actually related to games. It's an idiom that means "a big change." What big change did digital cameras introduce? Pictures could be viewed instantly without developing them from film.* **EL**

Discuss the Whole Text

- **Ask,** *Would you rather use an old-fashioned camera or a digital camera? Why?* Have students **Stand and Share** to respond.
- Revisit the Focus Question with students. Record their responses for reference later. **Say,** *We will keep asking and answering this question as we read other texts.*

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Reconnect to the Text

Have students use **Stand and Share** to recall "Capturing Moments." **Ask,** *What did the camera allow people to do that they couldn't do before?*

1 Introduce the Standard

Read the information at the top of the student page.

2 Reread/Think

MODEL THE STANDARD Display the chart. Reread paragraphs 1 through 3 aloud and model looking for information about early cameras.

- **Say,** *First I'm going to look for information about cameras. For instance, paragraph 3 says early cameras were big and heavy, and it took months to create a single photograph.*
- **Say,** *I'm also going to look for how early cameras affected the way people created images. For instance, now people could create images without painting. But only professional photographers used these cameras.*

GUIDE STANDARDS PRACTICE Have students fill in the rest of the chart on their own.

- Point out that each paragraph in the text focuses on a different camera technology and why it was an improvement.
- **Ask,** *Why was each camera better than the technology that came before it? How long did it take to create images? Who used each type of camera? How did they use them?*
- Encourage students to talk with a partner about each section of the chart before writing. **EL**
- Use **Pick a Stick** to have several students share what they wrote in the second box of the chart. Add this information to the class chart. Then lead a group discussion about why that change was an improvement over what had come before it.

SESSION 2 PRACTICE

RI.4.3 Explain events, . . . ideas, or concepts in a historical . . . text, including what happened and why, based on specific information in the text.

1 Analyze a Historical Text

- **Historical texts** tell about events and ideas that happened in the past. They explain the **sequence**, or order, of events.
- Historical texts also explain why things happen and how events are connected by causes and effects. A **cause** is the reason something happens. An **effect** is what happens as a result.

2 Reread/Think

Reread "Capturing Moments." How did each new type of camera change the way people made images? Fill in the chart by describing each type of camera and its effects.

Paragraphs 2 and 3:

early cameras captured "real scenes" on flat metal plates, equipment was big and heavy, only for professionals, took one picture at a time, took months to develop

↓

Paragraph 4:

1880s cameras were lighter, anyone could use them, recorded many pictures on small rolls of film, people mailed the film to a factory, took weeks to develop

↓

Paragraph 5:

cameras got smaller, film rolled up and could be developed in days and eventually in one hour

↓

Paragraphs 6 and 7:

1990s digital cameras didn't use film, people could see an electronic image on a screen right away, smartphones let people share pictures on the internet

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LESSON 5

3 Talk

In a small group, discuss the changes you listed in your chart. Describe each change and explain why it was better than what came before it.

Before ___, people had to ___.

The new ___ could ___.

This made a difference because ___.

4 Write

How has the way people capture images changed over time? Use details from your chart and think about why each change would have been better than what came before it.

Sample response: Over time, taking photos has gotten faster and easier. The first camera made it possible, for the first time, to make an image that captured a single moment. Only professional photographers used the first cameras. These cameras used metal plates, and the images took a long time to develop. Later cameras could be operated by anyone, and the film could be developed in a factory. As cameras improved further, they used film in canisters that could be developed in local shops. Then, digital cameras could show pictures immediately, without using film. Eventually, people could share these photos through the internet.

WRITING CHECKLIST

- ☐ I described how the way people capture images has changed over time.
- ☐ I included details from my chart and from the text.
- ☐ I used complete sentences.
- ☐ I used correct spelling, punctuation, and capitalization.

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3 Talk

- Using **Merry-Go-Round Share**, have small groups discuss the improvements they listed in their charts.
- **LISTEN FOR** Students discuss the benefits of improvements in camera technology. Use **Help & Go** scaffolds as needed.

HELP & GO: Standards Practice

- Encourage students to compare each type of camera to those that came right before and right after it. For instance, **ask,** *How were cameras in the 1800s different from those that were available before? They were lighter and easier to use; they used film instead of plates. How were the cameras that came next even easier to use? The cameras that came next were smaller, and it was faster and easier to get photos developed.*
- **Ask,** *Why do you think inventors continued to make cameras faster and easier to use? People wanted to be able to take photos and they wanted it to be as easy and fast as possible.*
- Encourage students to paraphrase each others' ideas to reinforce understanding and demonstrate academic discussion skills.

4 Write

- Have students complete the Write task using their chart and the text. Make sure they use the checklist to check their work.
- Use **Stronger and Clearer Each Time** to have students prepare for drafting their responses. **EL**
- Use written responses to determine whether students need additional support.
- Use **Pick a Stick** to select a few students to share their written response with the class.

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1 Support Reading

- Set a purpose for reading. **Say,** *In this text you'll read to learn about another invention that changed people's lives.* Have students **Raise a Hand** if they have ever used a smartphone.
- Have students **Raise a Hand** if "Speak Up!" is the text they voted for at the beginning of the lesson.
- Have students read paragraphs 1–4. Have them circle unknown words and mark confusing parts with a question mark.
- Use **CHECK INs** and related **Help & Go** scaffolds as needed.
- **CHECK IN** Students understand how carrier pigeons helped people communicate.

HELP & GO: Background

- Have students reread paragraph 2. Explain that handwritten messages were attached to a carrier pigeon's leg or another body part. The pigeon then flew to another location where its message would be received.
- **Ask,** *How do you think the carrier pigeon got its name? It carried messages by flying from one place to another.*

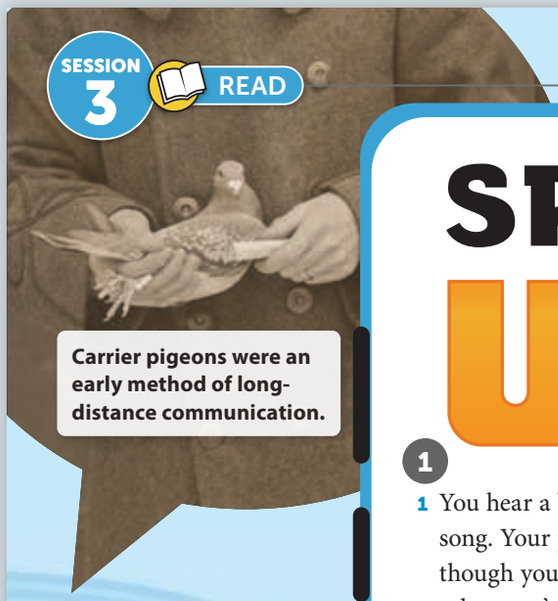
2 Stop & Discuss

- Have students complete **Stop & Discuss** independently, then **Turn and Talk**.
- **LOOK FOR** Students understand that telegraph messages could travel instantly over hundreds of miles.

HELP & GO: Comprehension

- Have students reread paragraph 3. Clarify that the telegraph was the first invention that allowed people to send messages instantly over long distances. **Ask,** *How was the telegraph an improvement over carrier pigeons? Messages could be sent farther and faster with the telegraph.*
- Clarify the phrase *in an instant*. **EL**

SESSION 3 READ



Carrier pigeons were an early method of long-distance communication.

SPEAK UP!

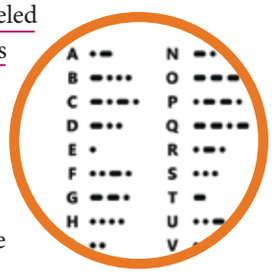
by Scott Logan

1

1 You hear a buzz and a few seconds of your favorite song. Your phone is ringing. It's your cousin, and even though you live hundreds of miles away from each other, you're connected in seconds.

2 Thousands of years ago, it was almost impossible to communicate with someone who was far away. The Romans, French, and Germans used carrier pigeons, birds that could carry and deliver messages from one place to another. One problem with this method, however, was that pigeons can fly only so far.

3 A huge improvement in long-distance communication came in the 1830s, when the telegraph was invented. Messages called telegrams traveled over electric wires for hundreds of miles in an instant.



4 Communicating this way was complicated, because in order to send a telegram, a telegraph operator had to translate all the letters into Morse code. This "language" used dots and dashes instead of letters. Once the telegram was received, another operator had to translate the dots and dashes back into words.

2

RI.4.3

Stop & Discuss

How did the telegraph change the speed at which people communicated?

Underline a sentence in paragraph 3 that supports your response.

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LESSON 5

Telephone operators used switchboards to connect callers.

Can you figure out how to use this early telephone?

3

5 Then, in 1876, a **device** was invented that could actually send a person's voice from one room to another. It was called the *telephone*, a word with Greek roots that means "far sound."

6 At first, making a telephone call involved many steps. A telephone user had to call an operator first. The operator managed a switchboard, a machine that used electrical cords, or "switches," to connect callers. Next, the operator would ask the caller for the number of the person to receive the call. Then, the operator moved cords on the switchboard to connect the two callers.

7 These calls may not have been easy to make, but at least there were no dots or dashes! People just talked. They could share news and stories with someone across town or across the country. Firefighters and police officers could be quickly alerted when needed.

device = a mechanical or electronic object that has a special purpose

4

RI.4.3

Stop & Discuss

What made the telephone unlike earlier forms of communication?

Discuss your response with a partner.

The telephone allowed people to ___.

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3 Support Reading

- Have students read paragraphs 5–7.
- **CHECK IN** Students understand the role of the telephone operator.

HELP & GO: Comprehension

- Have students reread paragraph 6. **Ask,** *Why was the operator's machine called a* switchboard? *The cords that connected the callers were called "switches," and the switches were plugged into a board.*
- With two students acting as callers and one acting as a switchboard operator, have students act out how a switchboard operator helped to connect phone calls between two people. **EL**

- **CHECK IN** Students understand the reference to dots and dashes in paragraph 7.

HELP & GO: Language

- If students don't recognize what *dots or dashes* refers to, remind them of the description of Morse code in paragraph 4. **Ask,** *What does the first sentence in paragraph 7 mean? Even though placing a phone call through an operator took many steps, it was still simpler than sending a telegram.*

4 Stop & Discuss

- Have students pause to complete **Stop & Discuss** with a partner.
- **LISTEN FOR** Students understand that the telephone sent people's voices from one place to another for the first time.

HELP & GO: Comprehension

- **Ask,** *What are two forms of long-distance communication that came before telephones? carrier pigeons and the telegraph How were telephones different from these earlier forms of communication? You can actually hear another person's voice when you use a telephone.*

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5 Support Reading

- Have students read paragraphs 8–11.
- **CHECK IN** Students understand the words *local* and *cordless* in paragraph 8.

HELP & GO: Vocabulary

- **Say,** *You may have heard of a local park or a local library. What does it mean for something to be local? It is nearby. In the 1920s, how was making local calls different from making long-distance calls? People could make local calls without an operator; they still needed an operator to make long-distance calls, though.*
- Share the Spanish cognate *local (local)*. Have students define *local* in their own words. **EL**
- Explain that the suffix *-less* in *cordless* means "without." **Ask,** *What is a cordless phone? one that doesn't have a cord*

6 Stop & Discuss

- Have students complete **Stop & Discuss** independently, then **Turn and Talk**.
- **LOOK FOR** Students understand that smartphones allow people to do many things besides make phone calls.

HELP & GO: Comprehension

- Have students reread paragraph 10. **Ask,** *What does this paragraph tell you that smartphones can do besides make calls? look up information, listen to music, send messages, take photos, and play games How can a smartphone do these things? It has a built-in computer.*

Discuss the Whole Text

- Have students **Shout Out** a method of communication described in the text that they would like to try.
- Revisit the Focus Question using **Pass It On** by having students share their thoughts about how they think advancements in communications technology have changed the world.

SESSION 3 READ

Callers using a wall telephone talked through a handset connected to the phone by a cord.

5

8 The telephone system changed over the years. By the 1920s, telephones that could be dialed allowed people to make local calls without the help of an operator. Telephones themselves became smaller and easier to use. Up until 1970, all telephones plugged into the wall, and people talked through a handset attached to the phone by a cord. Later, the invention of the cordless telephone allowed people to walk freely as they chatted, but the phone still relied on wires to send the sound.

9 Then, in the 1980s, cell phones were **introduced**. Cell phones had no cords or wires at all—voices were sent by electrical signals through the air. People were free to talk inside or outside. But the world was changing fast, with computers popping up in offices and homes everywhere. Inventors wondered why phones couldn't do more than just send voices back and forth.

10 The first smartphone, a phone with a built-in computer, was invented in 1992 and became more affordable in the 2000s. Now people could do much more than talk. They could also look up information, listen to music, send messages, take photos, and play games.

11 The way we communicate over long distances has changed **immensely** over hundreds of years. Who knows what the next hundred might bring! Will people be signing up for a planet-to-planet phone plan?

introduced = used for the first time

immensely = in a very big way

6 RI.4.1

Stop & Discuss

What did smartphones allow people to do that they could not do before?

Underline details in paragraph 10 that support your response.

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SESSION 4 PRACTICE

RI.4.3 Explain events, . . . ideas, or concepts in a historical . . . text, including what happened and why, based on specific information in the text.

LESSON 5

1 Analyze a Historical Text

- Historical texts describe important events and ideas and explain how they affected people's lives.
- To better understand a historical text, think about the effects of events and how one event leads to another.

2 Reread/Think

Reread "Speak Up!" How did each method of communication affect people's lives and improve communication? Fill in the chart with the effects.

Communication Method	Effects on People's Lives
Carrier pigeons	**People could communicate over long distances.**
Telegraph	**Messages could be sent instantly over long distances.**
First telephone	**People's voices could be sent over long distances. People could have a conversation through the telephone. Telephone operators did not have to translate messages into and out of Morse code.**
Telephones that could be dialed	**Callers didn't need an operator to place a local call.**
Smartphones	**Phones include built-in computers that allow users to not just call but also find information, listen to music, send messages, take photos, and play games.**

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Reconnect to the Text

Have students use **Stand and Share** to recall "Speak Up!" **Ask,** *What did the telephone allow people to do that they couldn't do before?*

1 Practice the Standard

Prompt students to review events that tell what happened and why as they reread.

2 Reread/Think

MODEL THE STANDARD Display the chart and model analyzing the effects of one method of communication.

- **Say,** *The text states that carrier pigeons allowed people to communicate over long distances. This was before telephones or other types of electronic communication. Other forms of communication, like people carrying letters from place to place, would have been slower than carrier pigeons, so at the time, carrier pigeons probably were a big improvement.* Record details in the chart.

GUIDE STANDARDS PRACTICE Have students fill in the rest of the chart on their own.

- Prompt students with guiding questions, such as the following: *What was communication like before this invention? How did it change the way people communicated? Why was this better than how they were able to communicate before?*
- Use sentence frames to help students get started:

  —*The invention of ___ allowed people to ___.*

  —*Before that, people had to ___.* **EL**

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3 Talk

- Use **Merry-Go-Round Share** to have groups discuss how each technological advancement improved on previous devices and why those advancements benefited people.
- **LISTEN FOR** Students describe how each technological change affected the lives of people. Use **Help & Go** scaffolds as needed.

HELP & GO: Standards Practice

- Remind students to use the sentence frames to guide their discussion.
- **Say,** *Think about how each invention was different from what people used right before it. How was the new technology different? How did it affect how people communicated?*

- As a class, use **Somebody Who** to have students share an advancement they discussed.

4 Write

- Have students complete the Write task independently.
- Provide a bank of key words for students to use, such as *communicate, improvement, benefit,* and *affect.* **EL**
- Use written responses to determine whether students need additional support.
- **LOOK FOR** Students support a focused opinion with text evidence.

HELP & GO: Writing

- Encourage students to use their charts to identify an invention they want to write about.
- Once students have selected an invention, have them return to the part of the text that discusses it. **Say,** *As you read, think about why this invention had a greater impact than others. Be ready to explain that in your writing.*

- Have a few volunteers **Stand and Share** their written responses with the class.

SESSION 4 PRACTICE

3 Talk

Talk with a partner about how communicating over long distances has changed over time. Discuss why these changes have affected people's lives.

When ___ was invented, people could ___.

This was better than ___ because ___.

4 Write

Which form of communication do you think had the greatest impact on people during its time? Why? Refer to details in the text to support your response.

Sample response: I think the first telephone had the greatest impact on people. Anyone could speak directly to someone far away, so the telephone affected lots of people. Even though an operator had to make the connection between the people, it was still much easier and quicker than other ways to communicate.

WRITING CHECKLIST

- ☐ I described a form of communication and explained how it impacted people's lives.
- ☐ I included details from the text to support my ideas.
- ☐ I used complete sentences.
- ☐ I used correct spelling, punctuation, and capitalization.

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SESSION 5 READ

LESSON 5

SO COOL

by Paul Davis

1

1 When you think of important inventions in the world, what comes to mind? Maybe the automobile, the camera, or the telephone? How about air conditioning? Even if we live in a cool climate, it's still a major invention that has changed our way of life.

2 Before air conditioning was invented, some people relied on handheld fans made of silk or lace to keep themselves cool on hot, sticky days. Later, when the electric fan was invented in the late 1800s, people could feel some breezy comfort in the heat. But none of these fans could make the air any colder, and they could **relieve** only a few people at a time.

3 That's where air conditioning comes in.

4 In 1902, the first advanced air-cooling system was created. However, the purpose of this invention was not to cool people off. Instead, it was built to help a printing plant do business. Cooling and drying out the air during hot, damp days helped the ink in the printing machines stick better to the paper running through them.

relieve = to remove an unpleasant feeling

The first air-cooling systems were used in 1902 in printing plants like this one.

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Reconnect to the Texts

Display responses to the Focus Question for "Capturing Moments" and "Speak Up!" Invite students to **Raise a Hand** to make connections between the texts.

1 Independent Reading

- Set a purpose for learning. **Say,** *Today you will read to learn about another invention. Then you will answer questions about important historical events and their effects.* Remind students to use good reading habits such as pausing to monitor their understanding.
- If students need more support, work with them in small groups to guide reading.
- Use **CHECK INs** and related **Help & Go** scaffolds as needed.
- **CHECK IN** Students understand *comes to mind* and *way of life* (paragraph 1).

HELP & GO: Vocabulary

- **Ask,** *If I say that an idea "came to my mind," what do I mean? You thought of it. The text asks what comes to mind when you think of important inventions. What does this mean? what inventions do you think of*
- **Say,** *The text states that air conditioning changed our way of life. What does the author mean by this? It changed how we live our lives.*

- **CHECK IN** Students understand how fans (handheld and electric) were used and how air conditioning works differently.

HELP & GO: Comprehension

- **Ask,** *How do handheld and electric fans cool people down? They move air around. How was air conditioning different? It made the air colder.*
- If possible, show students a traditional handheld fan and demonstrate or ask a student to show how it is used. **EL**

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2 Independent Reading

- **CHECK IN** Students understand *luxury, fight the heat* (paragraph 7), and the double meaning of *cool* (paragraph 11).

HELP & GO: Vocabulary

- Have students reread paragraph 7. Ask them to look for clues in the text that can help them know what *luxury* means. Help them understand that *more than just* is one clue and the following sentence about hospital patients recovering is another. **Ask,** *What does the word* luxury *mean? something that is a treat or an extra*
- Point out the idiom *fight the heat* in paragraph 7. **Say,** *People sometimes say they are fighting something when they are trying to make it go away. In what way did air conditioning help people fight the heat? It helped to take the heat away.* **EL**
- Have students reread paragraph 11. **Ask**, *What are the two meanings of* cool *in this text? Air conditioning makes the air cool, and it is a neat or great invention.* Tell them this double meaning is the reason that *cool* is in quotation marks in paragraph 11.

- **CHECK IN** Students understand why air conditioning led to more people moving to the South.

HELP & GO: Background

- Ask a student volunteer to point out Florida on a map of the United States. Explain that states south of Washington, D.C., and east of the Mississippi River are considered the South. **EL**
- Explain that temperatures are often high in the South, and the air is often moist, making it feel even hotter. **Ask,** *Why would air conditioning lead to more people moving to the South? With air conditioning, people could live there comfortably.*

SESSION 5 READ

2

5 Then, in the 1920s, movie-theater owners had a great idea. Their theaters were very hot in the summer. Could a cooling system like that used at printing plants benefit their business too? In other words, would a colder theater bring in more customers?

6 The answer was yes. Definitely, yes.

7 After that, air conditioning quickly became important for homes, offices, libraries, and laboratories. Sometimes air conditioning was more than just a luxury. In hospitals, patients had a better chance to recover if their bodies didn't have to fight the heat.

8 By the 1950s, more buildings were designed with air conditioning in mind. **Architects** no longer worried about the sunlight making rooms too warm. They put in large windows and sliding glass doors. Skyscrapers, which were usually made with stone, now glittered in the sun with floor-to-ceiling glass.

9 When the first air-conditioned mall opened in Houston, Texas, in 1956, shoppers had a new reason to visit their favorite stores. They could shop in air-conditioned spaces in perfect comfort.

10 Once soaring temperatures no longer mattered, moving to the South became much more appealing. The population of Florida, for example, grew from 5 million in 1960 to more than 21 million today.

11 So, when you think about it, air conditioning really is a "cool" invention.

architects = people who design buildings

Movie theaters proudly advertised their air conditioning to bring in more customers.

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SESSION 5 PRACTICE

RI.4.3 Explain events, . . . ideas, or concepts in a historical . . . text, including what happened and why, based on specific information in the text.

LESSON 5

Respond to Text

3 Reread/Think

Reread "So Cool." Choose the best response to each question.

1. PART A

What is the meaning of the word *climate* as it is used in paragraph 1?

A. the newest invention

B. a home in a warm area

C. an interesting place to visit

D. the normal weather in a place

PART B

What word from paragraph 1 is the **best** clue to the meaning of *climate*?

A. "important"

B. "conditioning"

C. "live"

D. "cool"

2. Why was there a need for a better way to cool the air? Use the word bank to fill in the blanks with words that **best** complete the paragraph.

a few	breeze	fans	colder

Previous ways of cooling air, such as handheld and electric _____fans_____, provided a _____breeze_____, but they didn't make the air _____colder_____, and they could relieve only _____a few_____ people at a time.

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3 Reread/Think

- Have students complete the Reread/Think items independently.
- Allow students to use a dictionary or thesaurus in English or their home language. **EL**
- Point out that item 1 has two parts. Students should answer Part A first. Then they should answer Part B.

Answer Analysis

After students complete the Independent Practice items, use the answer analysis below to review the practice items with students. Have students **Shout Out** their responses.

1. PART A The correct choice is **D**. A *climate* describes how hot or cold a place is. The context of the paragraph does not suggest that climate is an invention, a home, or a place to visit.

PART B The correct choice is **D**. This is the best choice because *cool* describes how hot or cold the air outside is. The other options do not clue the reader that climate is related to weather. **DOK 2 | RI.4.4**

2. See student book. The sentence shown is the only option supported by the text. **DOK 2 | RI.4.3**

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4 Answer Analysis

3. The correct choice is **A**. The text states that patients were more likely to recover if their bodies did not have to fight heat. The other choices incorrectly connect air conditioning and hospital patients with other important social effects of air-conditioning technologies. **DOK 2 | RI.4.3**

4. The correct choice is **C**. It accurately paraphrases information in the text. The text does not support the claims in the other choices. **DOK 2 | RI.4.3**

5 Write

- Have students respond independently to the Write prompt. **DOK 3 | RI.4.3**
- If students need more support, work with them in small groups to guide them through writing. Use the **Help & Go** scaffold as needed.
- Before they write, have partners **Turn and Talk** about how air conditioning improved movie theaters and shopping malls. **EL**
- **LOOK FOR** Students refer back to the text for examples to support their response.

HELP & GO: Writing

- Have students draft a topic sentence for their paragraph.
- Invite students to reread the text and underline each business that was improved by air conditioning. Encourage them to use details about these businesses to support their response.

Lesson Wrap-Up

Use **Pick a Stick** to have students revisit the Focus Question using examples from the text. Record responses. Invite students to make connections between the three texts they have read.

SESSION 5 PRACTICE

4 Reread/Think

3. Why was air conditioning important for hospital patients?
   - **A.** It gave patients a better chance of healing.
   - **B.** It allowed patients to visit their favorite stores.
   - **C.** It made patients want to move to warm places.
   - **D.** It kept patients from getting too much sunlight.

4. Why did air conditioning let architects use more glass in skyscraper windows?
   - **A.** Air conditioning caused glass to glitter in the sun.
   - **B.** Air conditioning made windows more affordable.
   - **C.** Air conditioning kept buildings cool on sunny days.
   - **D.** Air conditioning worked best in buildings made of glass.

5 Write

How did air conditioning improve movie theaters and shopping malls? Use details from the text to support your response.

Sample response: Air conditioning improved different kinds of businesses. Movie theaters brought in more customers when their theaters were cool. Shopping malls used air conditioning to make shoppers more comfortable. Wherever people went, businesses used air conditioning.

WRITING CHECKLIST

- ☐ I explained how air conditioning affected movie theaters and shopping malls.
- ☐ I included an introduction and a concluding sentence.
- ☐ I included details from the text.
- ☐ I used complete sentences.
- ☐ I used correct spelling, punctuation, and capitalization.

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SESSION 6 PUT IT TOGETHER LESSON 5

Respond to the Focus Question

How have inventions changed our world?

1 Reread/Think

Sample responses shown.

Choose one text from this lesson to reread. From that text, choose the invention or improvement that you find most interesting.

TEXT and INVENTION: **"Capturing Moments," the first cameras**

What did you learn from your passage about the invention and how it affected people's lives?

The first cameras were created so that people could quickly capture an image of a special moment, person, or place. For the first time, people could record images without having to paint or draw them.

2 Talk

In a small group, first share your responses from Reread/Think. Take notes about what your group members share.

Next, as a group, discuss how you would respond to this question:

How have the inventions described in this lesson changed the world?

The camera has changed the world because ___.

The telephone has changed how people ___.

Air conditioning has affected people because ___.

3 Write

Which of the inventions in this lesson do you think is the most important? Use information from at least one of the texts to support your response.

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Respond to the Focus Question

Read the Focus Question. Tell students that today they will answer the question using information from all three texts.

1 Reread/Think

- Have students complete the Reread/Think task independently.
- **LOOK FOR** Students explain the main benefits of one of the inventions discussed in the lesson.

HELP & GO: Comprehension

- Ask guiding questions, such as the following: *Why did people like this invention? What did it allow them to do that they couldn't do before?*

2 Talk

- Use **Give One, Get One** to have students complete the Talk activity.
- Encourage students to paraphrase each others' ideas to confirm understanding.
- If time permits, have students discuss inventions they want someone to invent in the future and how those inventions could change the world.

3 Write

- Have students respond independently to the prompt.
- Provide a word bank for students to draw from as they write: *camera, telephone, air conditioning, most important, invention, useful, improvement.* **EL**
- **LOOK FOR** Students' responses are complete.

HELP & GO: Writing

- Create a checklist to help students organize their writing that includes an introductory statement, details from one text, and a conclusion.

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