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Photo credit:
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THE CHANGING WORKPLACE 1



A “telepresence” robot in an office in Toronto, Canada

IN THIS UNIT, YOU WILL:

- Read an article about working with robots
- Watch a video about women in the workforce
- Write about technology and the workplace

THINK AND DISCUSS:

1. In the photo above, an office worker greets a remotely-operated “telepresence” robot. Why do you think this robot was created?
2. Do you think robots like these will become more popular? Why or why not?

EXPLORE THE THEME

Look at the information on these pages and answer the questions.

- 1. Which decade do you think the photo is from? Why?
- 2. Which decade in the timeline do you think saw the most important developments? Why?
- 3. How do you think offices in the future will be different? Give reasons.

The Evolution of Office Work

Typewriter noise would have filled the air in offices like these.

Offices may have existed since the 18th century, but they have changed dramatically over time.

1950s More women become office workers. Offices resemble factory floors: employees work in tight rows while managers watch.

1960s Employees work in cubicles—small spaces with partitions to minimize distractions.

1970s Dress codes are loosened. Computers and fax machines begin making their way into offices, replacing typewriters.

1980s Work-life balance becomes a buzzword, and corporate culture becomes a priority. Personal computers become indispensable.

1990s Job-hopping becomes the norm. Companies do more to retain their employees. The internet is born.

2000s Manual work becomes less important. Companies prioritize social and analytical skills.

2010s Globalization results in multinational workforces. Faster internet speeds make telecommuting practical.

2020s Many offices downsize. Hot-desking catches on. Employees no longer have fixed desks: they have shared spaces.

PREPARING TO READ

A BUILD VOCABULARY The words in blue are used in the reading passage. Read the text below. Then write the correct form of each word next to its definition.

Today, moving assembly lines are a staple of production. However, in the early 1900s, the concept was new—at least in the world of automobile manufacturing. In 1913, Henry Ford, founder of the Ford Motor Company, became the first car maker to use this method to manufacture vehicles.

Ford had wanted to accelerate car production for a long time. Traditional car assembly was troublesome: each worker was responsible for an entire section of the vehicle, which they had to put together manually on a production floor. This meant that they had to be both highly skilled and strong, as the heavy components needed to be dragged across long distances. On average, it took about 12 hours to assemble a single car this way.



Ford’s moving assembly line broke the process down into 84 distinct steps. Each worker focused on just one small step—a much simpler, repetitive task that was easier to learn, perform, and master. This greatly reduced production time: workers could now consistently produce cars at a rate of one every 93 minutes.

Ford’s breakthrough had a major influence on the automobile industry. It not only reduced production times, but also costs. His success spurred other car makers to adopt moving assembly lines in their own factories to remain competitive and meet growing demands.

- 1. _____ (adj) difficult and complicated
- 2. _____ (adj) involving the same action being done many times
- 3. _____ (v) to increase the speed at which something is done
- 4. _____ (v) to encourage someone to take action
- 5. _____ (v) to become highly skilled at something
- 6. _____ (n) the process of building something by putting parts together
- 7. _____ (n) a person who starts a company or an organization
- 8. _____ (n) the ability to effect change in someone or something

B BUILD VOCABULARY Complete the sentences below with the correct form of the words and phrases in blue. Use a dictionary to help you.

- automation (n) executive (n) imaginary (adj) incentive (n)
- inevitable (adj) maximize (v) relate to (v)

- 1. Today, robots are a part of our everyday lives, not just _____ machines that exist solely in science fiction.
- 2. If you want to _____ your productivity at the office, try going in early for some quiet time so you can get your work done before everyone else arrives.
- 3. Despite our very different cultural backgrounds, we find it really easy to _____ each other.
- 4. Management is offering larger bonuses as a(n) _____ for hitting our sales targets this year.
- 5. This isn’t up to us. It’s a decision for the senior account _____.
- 6. Many factory workers fear that _____ will result in machines taking away manufacturing jobs from people.
- 7. The company hired far too many people last year, so this year’s job cuts were _____.

C USE VOCABULARY Discuss these questions with a partner.

- 1. What are some of the downsides of having to do the simpler, more repetitive tasks required of assembly-line workers?
- 2. Think about the skilled mechanics Ford used to hire. How do you think they would have felt about the switch to assembly lines? Can you relate to the concerns they may have had?
- 3. While many people worry that automation will result in significant job losses, others argue that it will make up for this by creating new types of jobs. Which side of the argument do you think is more convincing and why?

D PREDICT Look at the photos in the reading passage. Then read the title of the reading passage and the first sentence of each paragraph. Answer the questions in your own words. Then read the passage and check your answers.

Critical Thinking

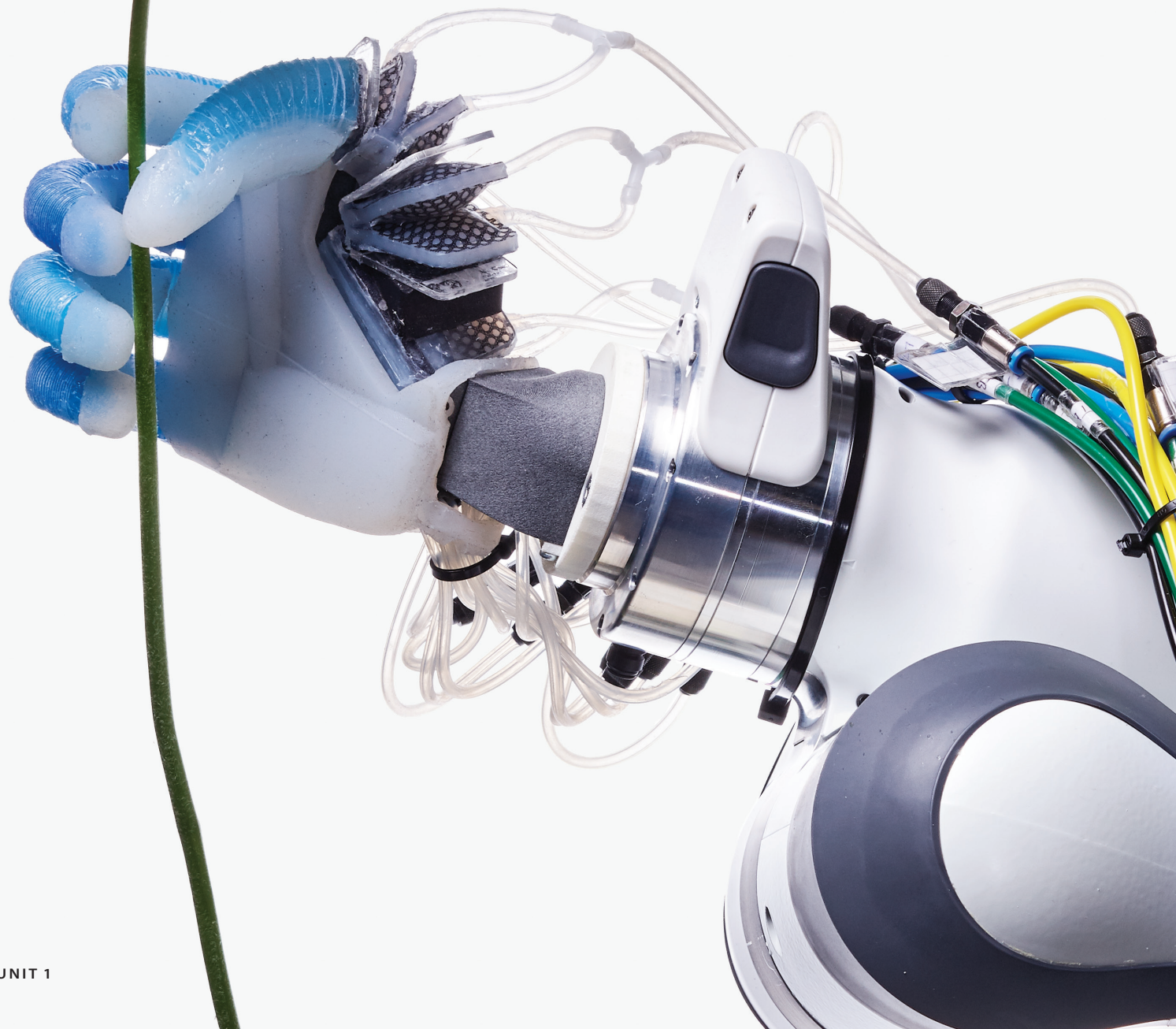
- 1. What is the reading passage about?

- 2. What industries or sectors do you think the reading passage will cover?




The ROBOT REVOLUTION Has Arrived

By David Berreby

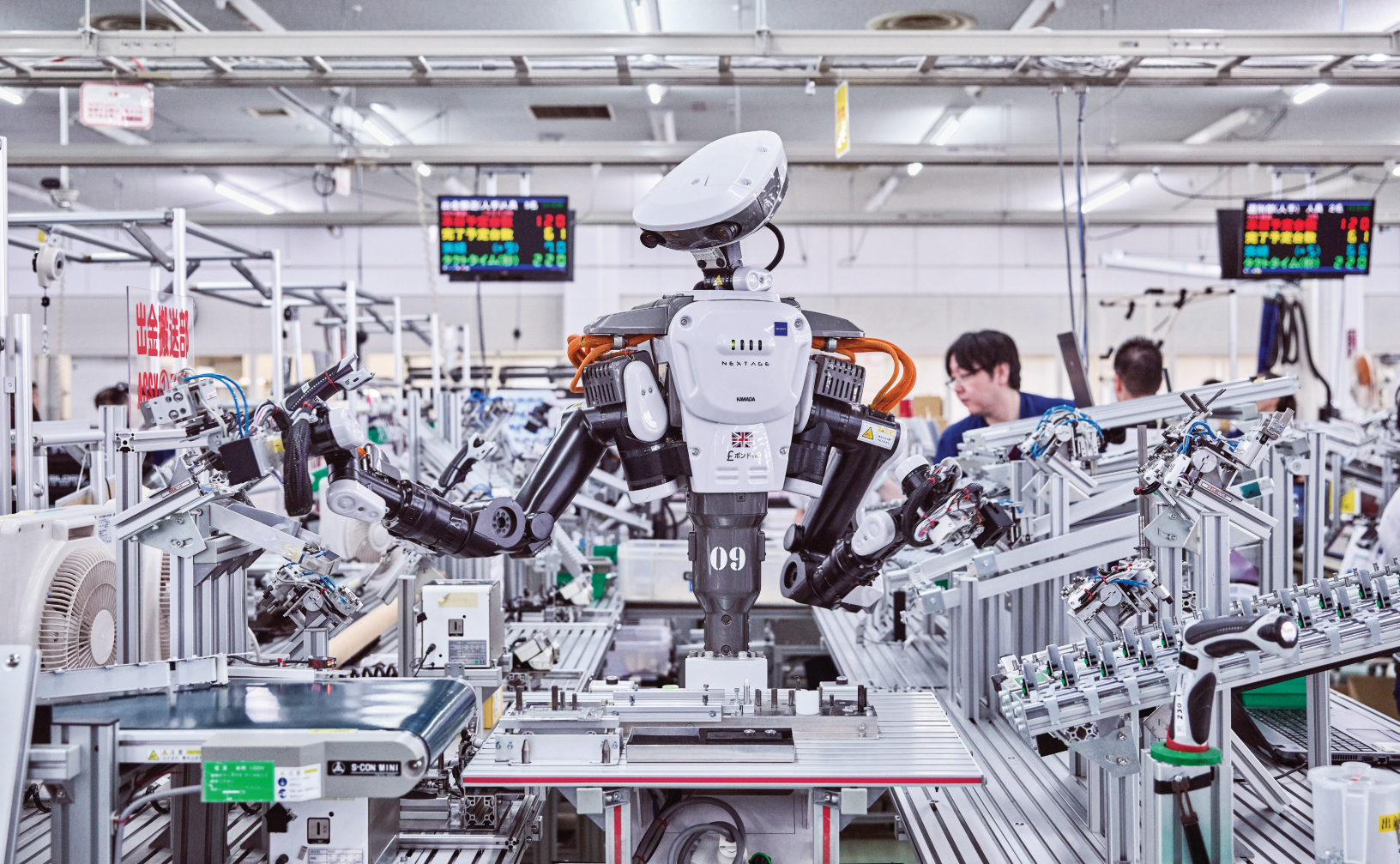


Robots are no longer a thing of science fiction. They are already here.

- A**  The word “robot” was coined by the Czech writer Karel Čapek in 1920, in a play that set the template for a century’s machine dreams and nightmares. The robots in that play look and act like people, do all the work of humans—and wipe out the human race before the curtain falls.
- B** Ever since, **imaginary** robots—from the *Terminator*, to *Astro Boy*, to *Star Wars*’s droids—have had a huge **influence** on the plans of robot-makers. They have also shaped the public’s expectations of what robots are and what they can do.
- C** I met a robot on a bright, windy day last January, near Colorado’s border with Kansas, in the company of a 31-year-old from San Francisco named Noah Ready-Campbell. To the south, wind turbines stretched to the horizon in uneven ranks, like a silent army of shiny three-armed giants. In front of me was a hole that would become the foundation for another one.
- D** A Caterpillar 336 excavator was digging that hole—62 feet (19 meters) wide, with walls that sloped up at a 34-degree angle, and a floor 10 feet (3 meters) deep and almost perfectly level. The Cat piled the dug-up earth on a spot where it wouldn’t get in the way; it would start a new pile when necessary. Every dip, dig, raise, turn, and drop of the 41-ton machine required firm control and careful judgment.
- E** The seat in this excavator, though, was empty. The operator lay on the cab’s roof. It had no hands; three snaky black cables linked it directly to the excavator’s control system. It had no eyes or ears either, since it used lasers, GPS, video cameras, and gyroscope¹-like sensors. Ready-Campbell, co-**founder** of a San Francisco company called Built Robotics, walked across the dirt, climbed onto the excavator, and lifted the lid of a fancy luggage carrier on the roof. Inside was his company’s product—a 200-pound (90-kilogram) device that does work that once required a human being.
- F** “This is where the AI runs,” he said, pointing into the collection of circuit boards, wires, and metal boxes that made up the machine: Sensors to tell it where it is, cameras to let it see, controllers to send its commands to the excavator, communication devices that allow humans to monitor it, and the processor where its artificial intelligence makes the decisions a human driver would. “These control signals get passed down to the computers that usually respond to the joysticks² and pedals in the cab.”

¹ A **gyroscope** is a device used to stabilize machines and keep them level or upright.

² A **joystick** is a lever that people use to electronically control machines.



▲ A robot helps make change dispensers in a factory in Kazo, Japan.

- G When I was a child in the 20th century, hoping to encounter a robot when I grew up, I expected it would look and act human, like C-3PO from *Star Wars*. Instead, the real robots that were being set up in factories were very different. Today, millions of these industrial machines bolt, weld, paint, and do other **repetitive**, **assembly**-line tasks. Often fenced off to keep the remaining human workers safe, they are what roboticist Andrea Thomaz at the University of Texas has called “mute and brute” behemoths.³
- H Ready-Campbell’s device isn’t like that. And of course it isn’t like C-3PO, either. It is, instead, a new kind of robot, far from human but still smart, adept, and mobile. Once rare, these devices—designed to work with people who have never met a robot—are moving steadily into daily life.
- I Even before the COVID crisis added its impetus, technological trends were **accelerating** the creation of robots that could fan out into our lives. Mechanical parts got lighter, cheaper, and sturdier. Electronics packed more computing power into smaller packages. Breakthroughs let engineers put powerful data-crunching tools into robot bodies. Better digital communications let them store robot “brains” in a computer elsewhere—or connect the minds of hundreds of robots, letting them share a collective intelligence, like bees in a beehive.

³ Behemoth is a term used to describe extremely large creatures or machines.

- J Today, robots take inventory⁴ and clean supermarket floors. They shelf goods and fetch them for mailing in warehouses. They cut lettuce and pick apples and even raspberries. They help autistic⁵ children socialize, and stroke victims regain the use of their arms and legs. Robots now deliver food in Milton Keynes, England, tote supplies in a Dallas hospital, and disinfect hospital rooms in China and Europe.
- K According to Daron Acemoglu, an economist at MIT who has studied the effects of robots and other **automation**, there is a particular zeitgeist⁶ among many technologists and managers that humans are **troublesome**. Robots, after all, don’t need paid vacations or medical insurance. Furthermore, many nations actually encourage automation with tax breaks and other **incentives**. Companies thus save money by cutting employees and adding robots.
- L Back at the wind farm site in Colorado, **executives** from the Mortenson Company, a Minneapolis-based construction firm that has hired Built’s robots since 2018, told me about a dire⁷ shortage of skilled workers in their industry. Built robots dug 21 foundations at the wind farm.

⁴ To take inventory is to update records of the items available in a store or warehouse.

⁵ To be autistic is to have autism, a neurological condition that often affects social and communication skills.

⁶ Zeitgeist refers to the mood or spirit of a specific period of time.

⁷ If a situation is dire, it is extremely urgent.

▼ A driverless harvesting robot uses suction to pick apples from trees in Washington State, U.S.A.



This robot in Japan is operated remotely by a secretary with disability, allowing her to do her job from home.



- M “Operators will say things like, Oh, hey, here come the job killers,” said Derek Smith, lean innovation⁸ manager for Mortenson. “But after they see that the robot takes away a lot of repetitive work and they still have plenty to do, that shifts pretty quickly.”
- N Once the robot excavator finished the dig we’d watched, a human on a bulldozer⁹ smoothed out the work and made ramps. “On this job, we have 229 foundations, and every one is basically the same spec,” Smith said. “We want to take away tasks that are repetitive. Then our [human] operators concentrate on the tasks that involve more art.”
- O Robots can be programmed or trained to do a well-defined task—dig a foundation, or harvest lettuce—better or at least more consistently than humans can. But none can equal the human mind’s ability to do a lot of different tasks, especially unexpected ones. None has yet **mastered** common sense.
- P Today’s robots can’t match human hands either, said Chico Marks, a manufacturing engineering manager at Subaru’s auto plant in Lafayette, Indiana. “Routing a wiring harness into a vehicle is not something that lends itself well to automation,” Marks said. “It requires a human brain and tactile feedback to know it’s in the right place and connected.”
- Q Robot legs aren’t any better. In 1996, Manuela Veloso, an AI roboticist at Carnegie Mellon University in Pittsburgh, was part of a challenge to create robots that would play soccer better than humans. She was one of a group of researchers that year who created the RoboCup tournament to **spur** progress. Today RoboCup is a well-loved tradition for engineers on several continents, but no one, including Veloso, expects robots to play soccer better than humans anytime soon.
- R “It’s crazy how sophisticated our bodies are as machines,” she said. “We’re very good at handling gravity, dealing with forces as we walk, being pushed and keeping our balance. It’s going to be many years before a bipedal¹⁰ robot can walk as well as a person.”
- S Robots are not going to become artificial people that completely replace us. However, the workplace of the near future will likely be an ecosystem of humans and robots working together to **maximize** efficiency.
- T According to Veloso, it is an **inevitable** fact that machines and artificial creatures will become a significant part of our daily lives. The time, she suggests, for us to start accepting them around us like a new species and learning to **relate to** them—the way we do with pets and other humans—is now.

Adapted from “The Robots Are Here,” by David Berreby: National Geographic Magazine, September 2020

David Berreby is a science writer whose works have appeared in *The New Yorker*, *The New York Times Magazine*, *National Geographic*, *Nature*, and many other publications.

⁸ Lean innovation refers to the process of getting customer feedback early in order to reduce inefficiency.

⁹ A bulldozer is a large machine often used in construction to move dirt and heavy items around.

¹⁰ A bipedal animal or robot is one that generally walks upright on two feet.

UNDERSTANDING THE READING

- A UNDERSTAND THE MAIN IDEA** Choose the main idea of the reading passage.
- a. Robots are a threat to people’s jobs because they can do most things better and more consistently than people.
 - b. Robots won’t replace humans because they aren’t as maneuverable and haven’t yet mastered common sense.
 - c. Robots will work closely together with human workers, who will continue to remain vital members of the workforce.

- B UNDERSTAND MAIN IDEAS** Match the paragraphs with their main ideas.
- | | |
|------------------------|--|
| 1. ____ Paragraph A | a. The robots of today are much better and safer to work with than older robots. |
| 2. ____ Paragraphs C–E | b. Corporations often prefer robots to people. |
| 3. ____ Paragraphs H–J | c. Robots are less capable than people in several ways. |
| 4. ____ Paragraphs K–L | d. Today, robots exist in the real world and do real jobs. |
| 5. ____ Paragraphs M–N | e. The idea of robots has been around for a long time. |
| 6. ____ Paragraphs O–R | f. Human workers appreciate the help robots provide. |

- C UNDERSTAND DETAILS** Read the sentences. Choose **T** for true, **F** for false, or **NG** for not given.
- | | | | |
|---|----------|----------|-----------|
| 1. The Caterpillar 336 excavator was operated by a person. | T | F | NG |
| 2. “Mute and brute” robots are designed to work closely with people. | T | F | NG |
| 3. Ready-Campbell’s robots share a collective intelligence. | T | F | NG |
| 4. According to Derek Smith, workers usually don’t mind robots taking away repetitive work from them. | T | F | NG |

- D UNDERSTAND DETAILS** Complete the sentences. Use no more than two words from the reading passage for each answer.
- 1. The robots of science fiction _____ and _____ like people.
 - 2. Many of the industrial machines used today are _____ from humans to keep workers _____.
 - 3. Newer robots are designed to _____ people who are unused to them.
 - 4. Improvements in technology have allowed more _____ to be packed into _____ spaces.
 - 5. Robots can do simple, repetitive work more _____ than humans, but humans can handle different, _____ tasks better.

CRITICAL THINKING Recognizing Claims and Counterclaims

In academic writing, writers usually present a main argument and provide evidence to support it. However, good writers also anticipate and address counterclaims. Counterclaims are different positions people have on the same issue. By acknowledging counterclaims—and explaining why they are not valid—writers strengthen their argument. As a reader, it is important to be able to identify counterclaims, and understand why the author chose to include them.

- E RECOGNIZE CLAIMS AND COUNTERCLAIMS** Look at the correct main idea in Exercise A. Then read the excerpts below. Do they support the author’s main idea, or is the author acknowledging a counterclaim? Check the correct column for each excerpt.

	Main idea	Counterclaim
1. “... there is a particular zeitgeist among many technologists and managers that humans are troublesome.”	<input type="checkbox"/>	<input type="checkbox"/>
2. “Operators will say things like, Oh, hey, here come the job killers,” ...	<input type="checkbox"/>	<input type="checkbox"/>
3. “But after they see that the robot takes away a lot of repetitive work and they still have plenty to do, that shifts pretty quickly.”	<input type="checkbox"/>	<input type="checkbox"/>
4. “We want to take away tasks that are repetitive. Then our operators concentrate on the tasks that involve more art.”	<input type="checkbox"/>	<input type="checkbox"/>
5. “But none can equal the human mind’s ability to do a lot of different tasks, especially unexpected ones.”	<input type="checkbox"/>	<input type="checkbox"/>

- F INFER MEANING** Find and underline the following words in the reading passage. Use the context to identify their meanings. Then match each word to its definition.

template (paragraph A)	adept (paragraph H)	impetus (paragraph I)
sturdier (paragraph I)	tote (paragraph J)	tactile (paragraph P)

- 1. _____ very skilled at something
- 2. _____ to carry something
- 3. _____ relating to the sense of touch
- 4. _____ a force that causes something to happen
- 5. _____ a model that people refer to or use to do something
- 6. _____ tougher and more durable

- G REFLECT** Discuss the questions below in a group.
- 1. What tasks or jobs not mentioned in the reading passage do you think robots would be good at, and why?
 - 2. According to the reading passage, the workplace of the near future will “likely be an ecosystem of humans and robots working together to maximize efficiency.” Do you agree? Why or why not?

DEVELOPING READING SKILLS

READING SKILL Understanding Cohesion

Cohesion refers to the way that ideas are linked in a text. Writers use certain techniques (cohesive devices) to refer to ideas mentioned elsewhere in the passage. These techniques include using pronouns (*one[s], another, the other, she, it*), demonstrative pronouns and adjectives (*this, that, these, those*), and synonyms.

In the example from the reading passage below, the writer uses the pronoun *they* to refer to *imaginary robots* in the first sentence:

Ever since, imaginary robots . . . have had a huge influence on the plans of robot-makers. They have also shaped the public's expectations of what robots are and what they can do.

In the next example, the writer uses the demonstrative adjective *that* with the noun *play* in the second sentence to refer to *a play* mentioned in the first sentence:

The word "robot" was coined by the Czech writer Karel Čapek in 1920, in a play that set the template for a century's machine dreams and nightmares. The robots in that play . . .

Note: The referent—the word or idea that is referred to—is not always close to the cohesive device. It may be in a different sentence or even a different section of the text.

A UNDERSTAND COHESION Read the sentences. Circle the word or idea that the underlined words or phrases refer to.

- 1. The Cat piled the dug-up earth on a spot where it wouldn't get in the way; it would start a new pile when necessary. Every dip, dig, raise, turn, and drop of the 41-ton machine required firm control and careful judgment.
- 2. The seat in this excavator, though, was empty. The operator lay on the cab's roof. It had no hands; three snaky black cables linked it directly to the excavator's control system.

B UNDERSTAND COHESION Find the following excerpts in the reading passage. Write the words or ideas that each underlined word or phrase refers to.

- 1. Paragraph D: ... where it wouldn't get in the way ... _____
- 2. Paragraph G: Today, millions of these industrial machines bolt, ... _____
- 3. Paragraph H: Ready-Campbell's device isn't like that. _____
- 4. Paragraph M: But after they see that ... _____
- 5. Paragraph O: ... especially unexpected ones. _____

C UNDERSTAND COHESION Read the sentences. What do you think the underlined words refer to, and why? Discuss with a partner.

The workers disliked the robots because they were slower and less precise than them.
They were cheaper, though, so the factory owner loved them.

VOCABULARY EXTENSION

WORD PARTNERS *artificial* + Noun

The word *artificial* means human-made, or not naturally occurring. Here are some nouns that collocate with *artificial*. Check any phrases you don't know in a dictionary.

<i>artificial intelligence</i>	<i>artificial turf</i>	<i>artificial light</i>
<i>artificial limb</i>	<i>artificial sweetener</i>	<i>artificial heart</i>

- A** Complete each sentence using the correct form of a noun from the box above.
- 1. Many people who can't eat sugar use artificial _____ in their drinks.
 - 2. Unlike many artificial _____, the sun's rays reduce stress, improve our moods, and generate vitamin D in our bodies.
 - 3. The machine learned how to perform the task on its own using artificial _____.
 - 4. They're playing the match on artificial _____, not on real grass.
 - 5. She lost her arm in an accident, so she's getting an artificial _____.
 - 6. In extreme cases, doctors are able to temporarily implant an artificial _____ into a patient while waiting for the real organ to arrive.

WORD FORMS *-ize* and *-ization*

You can add *-ize* to certain nouns and adjectives to make verbs. For example, *maximize* means to make maximum use of something, while *socialize* means to be social, or friendly, with people. You can also add *-ation* to *-ize* verbs to make nouns. For example, *maximization* means the process of maximizing something. *Socialization* refers to the process of socializing.

B Complete each sentence using the correct form of a word from the chart below.

Noun/Adjective	custom	familiar	general	visual
Verb with <i>-ize</i>	customize	familiarize	generalize	visualize
Noun with <i>-ation</i>	customization	familiarization	generalization	visualization

- 1. He just moved in, so he hasn't _____ himself with the area yet.
- 2. She thinks all of us like the same things, but that's just a broad _____.
- 3. I know it's hard to imagine, but you have to try to _____ it.
- 4. The new product allows for greater _____ to suit individual preferences.

Sylvia Earle: A Woman in Science

Sylvia Earle is a world-renowned marine biologist and a National Geographic Explorer. She has led more than 100 marine expeditions, logged over 7,000 hours underwater, and authored more than 190 publications. In this video, she talks about the struggles she faced as a young woman working in science and the biases that still exist in modern workplaces.

Critical Thinking

A PREVIEW Read the paragraph above. In general, do you think it is more difficult for women to find work or gain recognition for their work than men? Why or why not? Discuss with a partner.

B MAIN IDEAS Watch the video. Which of the following are main ideas of the talk? Check (✓) the three correct answers.

- ☐ 1. Earle’s parents were not supportive of her career choice.
- ☐ 2. In the past, women were not allowed or encouraged to work in certain fields.
- ☐ 3. The people who hired Earle were looking for female researchers.
- ☐ 4. Today, women are not recognized or rewarded as much as men are for their work.
- ☐ 5. More opportunities exist today for women to pursue careers in scientific fields.

C DETAILS Watch the video again. Choose **T** for true or **F** for false.

- | | | |
|--|----------|----------|
| 1. Earle’s mother often encouraged her to do work usually reserved for men. | T | F |
| 2. The job listing Earle responded to specified they were hiring only men. | T | F |
| 3. Earle has served on the boards of companies. | T | F |
| 4. Earle feels that some women are hired only to give the impression of diversity. | T | F |

Critical Thinking

D PERSONALIZE Do gender expectations affect your life decisions? If so, how? Discuss with a partner.

EXPLORING WRITTEN ENGLISH

- A NOTICE** Read the pairs of sentences. Underline the words and phrases that are different in each pair.
- 1. a. The individual parts are made separately by different departments. Then, the individual parts are brought together and assembled here.
b. The individual parts are made separately by different departments. Then, they are brought together and assembled here.
 - 2. a. The internet began as a military application, but it didn’t take long for the internet to make its way into people’s homes and offices.
b. The internet began as a military application, but it didn’t take long for the innovation to make its way into people’s homes and offices.

LANGUAGE FOR WRITING Using Cohesive Devices

As explained in the Reading Skill box earlier in the unit, writers use cohesive devices to emphasize key concepts they have already mentioned and to avoid repetition. Cohesive devices include reference words (pronouns and demonstrative adjectives, etc.), synonyms, and different word forms.

Reference Words and Synonyms:

*The **employees** all worked in **small cubicles**. They mostly found the tiny workspaces cold and uninviting.*

The writer uses the reference word *they* to refer to *the employees*, and *tiny workspaces* as a synonym for *small cubicles*.

Different Word Forms:

*It used to be difficult to **manufacture** items, but assembly lines and robots have made **manufacturing** much easier.*

Here, the writer uses the noun *manufacturing* instead of repeating the verb *manufacture*.

B APPLY Use cohesive devices to refer to the underlined words in the following sentences. There may be several possible answers for each item.

- 1. Many people worry that robots will take their jobs. In reality, _____ will probably make work a lot easier for humans instead.
- 2. Computers drastically changed the way work was done. These _____ allowed us to calculate quicker, transmit data more easily, and store huge amounts of information.
- 3. Ford reduced the time needed to manufacture a car by over 10 hours. This _____ resulted in lower prices for consumers.

WRITING SKILL Organizing an Essay

An essay is a piece of writing on a specific topic that includes an **introduction**, a **body**, and a **conclusion**.

- The introduction presents general information on the topic and includes a **thesis statement**. The thesis statement presents the main idea of the essay and refers to the main points supporting this idea.
- The body paragraphs support the thesis with facts, details, explanations, and other information. **Transitions** between paragraphs help the reader follow the essay.
- The **conclusion** restates the thesis and leaves the reader with a final thought on the topic.

You usually write an essay in response to an **essay prompt**. The prompt might be an instruction (*Describe/Explain ...*), or it might be a question (*Why ...? To what extent ...? How ...?*). When you respond to a prompt, think about your position on the topic (which will become your thesis statement) and ways to support or explain your position (which may become the topic sentences of your body paragraphs).

C Read the following essay prompt. Then choose the best thesis statement for it. Why is it the best? Discuss your answer with a partner.

What are some ways in which job seekers can make themselves more attractive to employers?

- Job seekers should make sure that they are attractive to employers.
- When employers are trying to fill open positions, they usually get dozens, sometimes hundreds, of applications, so it is important to submit an impressive resume.
- Job seekers can make themselves more attractive to employers by having a professional online presence, writing a good resume, and making a good first impression.

D Check (✓) the three topic sentences that correspond with the correct thesis statement in Exercise C. Then complete the three topic sentences using the transition words in the box.

Finally First In addition

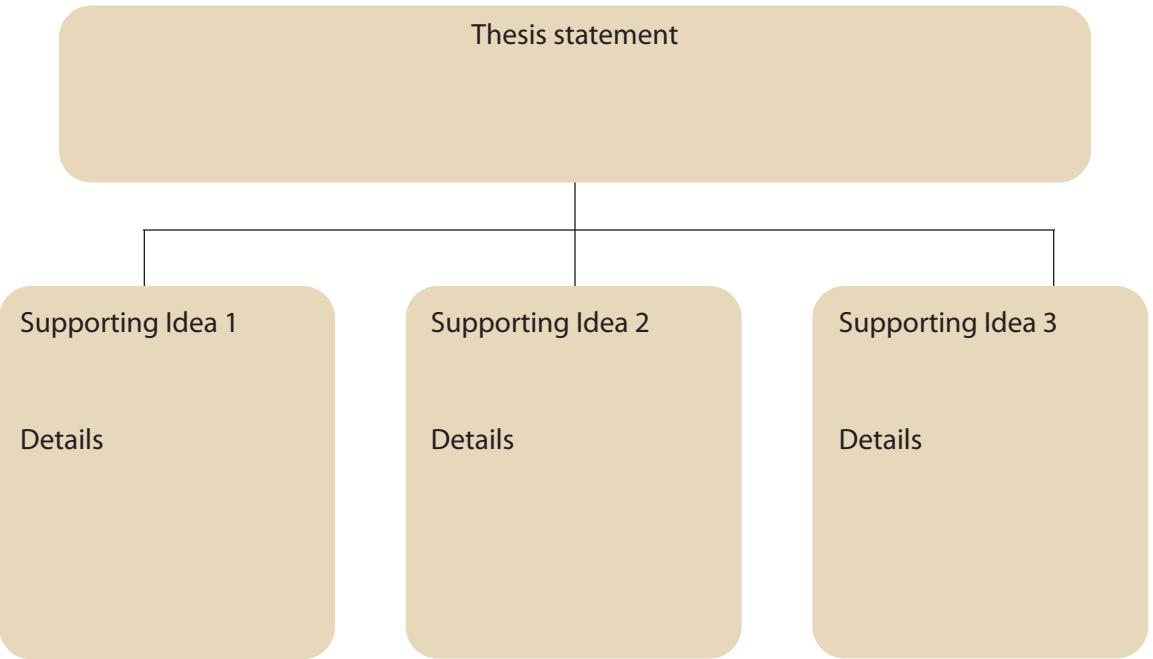
- ☐ 1. _____, making a good impression from the onset is crucial if you want an employer to consider you for a job.
- ☐ 2. _____, applying for as many jobs as possible will increase the likelihood that an employer will notice you.
- ☐ 3. _____, writing a good resume is key if you want employers to view your application favorably.
- ☐ 4. _____, use colorful language to make sure the achievements you list seem impressive.
- ☐ 5. _____, ensure that any information you share about yourself online paints you in a positive light.

E Think of details to support the three topic sentences in Exercise D in your body paragraphs.

- _____
- _____
- _____

F Work with a partner. Discuss the following essay prompt. Think of an appropriate thesis statement, three ideas to support it, and details for each body paragraph.

How can employers improve employee morale in the workplace?



G VOCABULARY FOR WRITING The following words can be useful when writing about technology and the workplace. Find the words in the reading passage and use the context to guess their meanings. Then use the words to complete the definitions.

judgment (paragraph D) **operator** (paragraph E) **monitor** (paragraph F)
concentrate (paragraph N) **efficiency** (paragraph S)

- A(n) _____ is the person who drives or runs a machine or a piece of equipment.
- When you _____, you focus on one particular thing.
- _____ is the ability to make good use of the time and resources available.
- _____ is the ability to understand a situation and make good decisions.
- When you _____ something, you watch it or regularly check on it.

WRITING TASK

GOAL You are going to write an essay on the following topic:
Describe how an emerging technology will impact jobs in the future.

A RESEARCH Research different emerging technologies (other than robots) that you think will have an impact on jobs in the future. Write notes below.

B SELECT YOUR IDEA Note your best ideas from Exercise A below. Summarize the ways in which each technology will impact jobs. Then choose the technology you think you'll have the most to write about.

Technology	Positive impacts	Negative impacts

C WRITE A THESIS STATEMENT Decide how you want to cover the technology: positively or negatively. Then draft a thesis statement summarizing your position.

D PLAN Use your information in Exercises B–C to complete an outline for your essay. Include general information about the topic in your introduction, before the thesis statement.

OUTLINE

Notes for introduction:

Thesis statement:

Body paragraph 1:

Topic sentence:

Details:

Body paragraph 2:

Topic sentence:

Details:

Body paragraph 3:

Topic sentence:

Details:

Notes for conclusion:

E FIRST DRAFT Use the information in your outline to write a first draft of your essay. Remember to make use of cohesive devices to refer to things you have already mentioned, and to avoid repetition.

F REVISING PRACTICE The essay below is similar to the one you are writing. Follow the steps to create a better second draft.

1. Add the sentences (a–c) in the most suitable spaces.
 - a. Pre-installed games and multimedia programs added an element of fun to computers, and the internet gave users access to a wealth of information.
 - b. These amazing machines have served us well in the past, and will no doubt be indispensable to our futures.
 - c. One fear people had was that they would not be able to adapt to computers quickly enough.
2. Now fix the following problems (a–c) with the essay.
 - a. Use a cohesive device to replace the **bold** words in paragraph B.
 - b. Use a cohesive device to replace the **bold** word in paragraph D.
 - c. Cross out one unnecessary sentence from the conclusion in paragraph E.

- A** It’s hard to imagine a world without computers. These amazing devices enable countless aspects of modern life and allow us to accomplish incredible things. However, when computers first entered the workplace, many people were afraid of the changes they would bring. History has fortunately proven these fears unfounded: computers have been easier to adapt to than many expected, they have not made work overly repetitive, and they have not replaced human workers.
- B** ____ Many people feared getting left behind, particularly as more young people who grew up around computers started entering the workforce. However, what **many people** failed to realize was that using a computer wasn’t as difficult as they had thought. The commands were more intuitive than many had expected, and this intuitiveness would only increase as computers developed and became even easier to operate.
- C** In addition, people feared that computers would make work repetitive and mechanical. The machines of the time—with their basic functions and interfaces—were seen by many as uninteresting, and people began to worry that their jobs would become boring. These fears were cast aside as computer interfaces improved and computers became more versatile. ____ As computers got better, it quickly became clear just how immersive they could be.
- D** Finally, perhaps the biggest fear people had of computers was that they’d simply be replaced by **computers**. It was unclear how much computers could do, and this made people wonder if the skills and experience they had would soon be made irrelevant. Today, we know that computers free us up from having to do repetitive tasks or difficult calculations. They provide frameworks and templates that make our jobs easier, allowing us to focus on the parts of our work that matter most.
- E** The fear people once had of computers is understandable: they were, after all, powerful machines capable of doing things that humans couldn’t. When you think about it, this is interesting—almost funny—because the computers then weren’t even very powerful. However, there was no real basis for many of the fears people had. ____

G REVISED DRAFT Now use the questions below to revise your essay.

- ☐ Does your introduction provide relevant background information on the topic?
- ☐ Does your thesis state or refer to the main points of your essay?
- ☐ Do your body paragraphs include enough details to fully explain your ideas?
- ☐ Do you use cohesive devices to avoid repetition?
- ☐ Do all your sentences relate to the main idea?
- ☐ Does your concluding paragraph restate the thesis and include a final thought?

H EDITING PRACTICE Read the information below. Then find and correct mistakes with cohesive devices in each sentence (1–3).

When using cohesive devices, remember to:

- use pronouns that match the referent in gender and number.
- choose the correct synonym when using a dictionary or thesaurus.

1. One advantage of robots is that it can work non-stop without rest.
2. Automation may help you cut costs, but they may result in a drop in quality.
3. She joined the company in 2016. Since then, the society has hired many other women.

I FINAL DRAFT Follow these steps to write a final draft.

1. Check your revised draft for mistakes with cohesive devices.
2. Now use the checklist on page 248 to write a final draft. Make any other necessary changes.
3. Work in pairs and read your partner’s final essay. Give feedback on each other’s writing.



An employee in a 1980s office using a computer

SELF-ASSESS Consider the language and skills you learned in this unit.

How well can you . . . ?	Very well	Pretty well	I need improvement
use the key vocabulary from this unit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
recognize claims and counterclaims	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understand cohesion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
use cohesive devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
organize an essay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A VOCABULARY Do you remember the meanings of these words and phrases? Look back at the unit and review the ones you don't know.

accelerate <small>AW</small>	assembly <small>AW</small>	automation <small>AW</small>	executive	founder <small>AW</small>
imaginary	incentive	inevitable <small>AW</small>	influence	master
maximize <small>AW</small>	relate to	repetitive	spur	troublesome

B VOCABULARY EXTENSION Complete these tasks with a partner.

1. Take turns making sentences using the words and phrases in the box.

artificial artificial intelligence artificial limb

2. Make sentences using both the *-ize* and *-ization* forms of two words from the chart in Exercise B on page 15.

C READING SKILL Read the sentences below. Circle what the underlined words refer to.

- Ford's breakthrough had a major influence on the automobile industry. It not only reduced production times, but also costs.
- Today, moving assembly lines are a staple of production. However, in the early 1900s, the concept was new . . .

D LANGUAGE FOR WRITING Write one or two sentences about robots in the workplace. Use at least one cohesive device. Underline the cohesive device and circle the word or idea that it refers to. Then share your sentences with a partner.

SELF-ASSESS Look back at the chart above. Did you assess your skills correctly? What skills or language do you still need help with?

CITY CHALLENGES2



Train Street in Hanoi, Vietnam, is a popular destination for tourists and photographers.

IN THIS UNIT, YOU WILL:

- Read an article about urban wildlife
- Watch a video about a self-cooling building
- Write about a solution to an urban challenge

THINK AND DISCUSS:

1. Hanoi is a modern, thriving city, but the people who live on Train Street have to face unique challenges. Should this street be preserved? Why or why not?
2. Would you enjoy visiting Hanoi's train Street? What about working or living there? Why or why not?

EXPLORE THE THEME

Look at the information on these pages and answer the questions.

- 1. Which of the six categories do you think is most important? Why?
- 2. Are there any categories you would add, remove, or modify?
- 3. Rate a city or town you're familiar with using the six categories.

What Is a Good City?

A bird's-eye view of the Eiffel Tower in Paris, France

Cities are the busiest places on Earth, so keeping them running smoothly is not easy. Historically, many of the world's most famous cities were not just centers of commerce and prosperity; they were also hubs for crime and disease.

Over the decades, these problems have lessened, allowing many cities to mature into major cultural attractions. But what lessons do established cities have to offer newer ones? How should emerging cities strive to improve, and what ideals should they aim for?

Every year, many organizations rate cities around the world using different criteria. One such organization is Resonance Consultancy, which uses six categories to rank cities. Categories like these aren't just tools of assessment: they also offer city planners insight into what makes a city *good*.

METHODOLOGY

Cities are rated based on the six metrics below.

PLACE The quality of a city's natural and built environment, including the sub-categories of Weather, Safety, Neighborhoods & Landmarks, and Outdoors.

PRODUCT A city's key institutions, attractions, and infrastructure, including the sub-categories of Airport Connectivity, Attractions, Museums, University Rankings, Convention Centers, and Pro Sports Teams.

PROGRAMMING The arts and entertainment scene in a city, including the sub-categories of Shopping, Culture, Restaurants, and Nightlife.

PEOPLE The immigration rate and diversity of a city, including the sub-categories of Foreign-Born and Educational Attainment.

PROSPERITY A city's employment rate and its number of corporate head offices, including the sub-categories of Fortune 500 Companies, Household Income, and Income Equality.

PROMOTION The quantity of stories, references, and recommendations shared online about a city, including the sub-categories of Google Search Results, Instagram Hashtags, Facebook Check-ins, and TripAdvisor Reviews.

TOP 10 CITIES

Highlighted rankings (2023)

1. LONDON

1 People 1 Promotion

2. PARIS

2 Promotion 3 Product

3. NEW YORK

2 Promotion 3 Programming

4. TOKYO

2 Programming 3 Product

5. DUBAI

1 Place 4 Promotion

6. BARCELONA

5 Product 6 Place

7. ROME

3 Place 3 Programming

8. MADRID

6 Programming 14 Place

9. SINGAPORE

10 Prosperity 11 Promotion

10. AMSTERDAM

8 Product 10 People

PREPARING TO READ

A BUILD VOCABULARY The words in **blue** are used in the reading passage. Read the text below. Then write the correct form of each word next to its definition.

Around the world, the pigeon has become **synonymous** with city life. Derived from the rock dove—a similar bird that builds its nest high up on rocky cliffs—it is no wonder pigeons have adapted so well to urban life. Tall buildings with high ledges and small open spaces make an ideal **habitat** for these resourceful birds. The food humans leave behind provides them with a rich and constantly replenishing source of nourishment. And the relative lack of **predators**—like hawks and eagles—means the species is able to thrive and reproduce freely.

Experts who track pigeon populations estimate that there are up to 400 million pigeons living in cities worldwide. Unfortunately, these birds are usually **perceived** as troublesome pests because of the waste they leave behind and the diseases they spread. In order to **minimize** pigeon population growth, some cities like Venice, Bangkok, and Singapore have imposed fines for feeding pigeons. Obviously, this alone won't be enough to completely **eradicate** the problem. In all likelihood, pigeons are here to stay. The best thing we humans could probably do would be to **embrace** them, and adapt to living with them the same way they have adapted to living with us.

- 1. _____ (v) to reduce the extent of something
- 2. _____ (v) to accept something enthusiastically
- 3. _____ (v) to put an end to something
- 4. _____ (v) to think of something a certain way
- 5. _____ (adj) closely associated with or connected to something
- 6. _____ (n) an animal that hunts other animals for food
- 7. _____ (n) the natural home of a plant or animal species



A pigeon on a ledge in New York City

B BUILD VOCABULARY Complete the sentences below with the correct form of the words and phrases in **blue**. Use a dictionary to help you.

boundary (n)	consistently (adv)	constraint (n)	counterpart (n)
hypothesis (n)	reliance (n)	reversal (n)	stem from (v)

- 1. Her idea about the changing migration patterns of some of the birds in this city has yet to be proven. For now, it's just a(n) _____.
- 2. Together, the river and the mountain range form a clear and natural _____ that separates the two countries from each other.
- 3. Many of the locals feel that most of the city's problems _____ corrupt government officials.
- 4. In a stunning _____, the city council announced its decision not to go ahead with the renewal project.
- 5. Some people regard the pigeon as the flying _____ of the rat. They both thrive in cities and live on trash.
- 6. To improve traffic in the city, we need to reduce our _____ on cars by developing an efficient and comfortable public transportation system.
- 7. Kyoto is _____ ranked as one of the best cities to visit in Japan.
- 8. To grow, the city needs to overcome some natural _____, like limited space and fresh water.

C USE VOCABULARY Discuss these questions with a partner.

- 1. What are some animals that are commonly found in cities? What makes cities such great **habitats** for these animals?
- 2. How are the animals that live in your town or city **perceived**? Are they well liked or thought of as pests?
- 3. How can the problem of pests in a city be **minimized**? Is it possible to **eradicate** pests completely? Why or why not?
- 4. Are there any wild **predators** that live in your town or city? How much of a threat are they to the people who live there?

D PREDICT Look at the photos in the reading passage and read the first sentence of each paragraph. Then answer the questions. Check your answers as you read the passage.

- 1. What urban challenge does the reading passage discuss?
- 2. How do you think this issue affects people living in cities?
- 3. What solution(s) to the challenge do you think the reading passage offers?


Critical Thinking

Wild Cities

By Christine Dell'Amore

A coyote crosses a bridge
in Chicago, U.S.A.

Coyotes, bears, raccoons, and other animals are adapting to urban life, resulting in increased contact with humans.

- A**  **At first glance**, it's a scene that plays out daily in cities across America. A U.S. Postal Service carrier steps out of his mail truck and strides across the street, letters in hand. That much is unremarkable. But this postman either doesn't notice or doesn't seem to care that a hefty American black bear, likely a young male, is sitting a few yards away, vigorously scratching his shedding winter coat.
- B** Immediately to the left, Interstate 240 roars behind a chain-link fence, apparently just white noise to the bear, which eventually wanders down the sidewalk deeper into this neighborhood barely a half mile from downtown Asheville, North Carolina.
- C** Along the highway, a team of researchers with the North Carolina Urban/Suburban Bear Study is captivated by another discovery: a deep hollow inside a gnarled silver maple tree. Bear N209, a radio-collared female that's among more than a hundred bears being tracked in a study, hibernated¹ there over the winter, despite the constant rush of vehicles mere feet away.
- D** "These bears still surprise me," Colleen Olfenbutt, the state's black bear biologist, shouts over the din of traffic. She holds a ladder steady as a colleague scrambles inside the tree and measures the den. It's the biggest tree den Olfenbutt has seen in her 23 years of studying black bears. "They're so much more adaptable than we give them credit for."
- E** Indeed, it's hard to imagine that black bears would take so well to living in Asheville. In this city of about 95,000, nestled in the Blue Ridge Mountains, bears shuffle down residential streets in broad daylight and climb onto people's decks and front porches. Some Asheville residents have **embraced** their furry neighbors, and nearly every person you talk with has a video of their most recent bear encounter.
- F** The advent of the city bear in Asheville and elsewhere **stems from** a combination of trends, including changes in land use and the tempting buffets² available when living near people. These factors have boosted North America's black bear population to nearly 800,000. At the same time, sprawling cities and suburbs have swallowed up large areas of bear **habitat**, leaving the animals little choice but to adapt to living with human neighbors.
- G** It's a phenomenon happening in urban areas around the world, and it's not unique to black bears. Many mammals that eat a wide variety of foods are moving in and changing their behaviors as they learn urban survival skills.
- H** Unfortunately, humans and bears don't always live in harmony—even in open-minded Asheville, where bears have killed pets and injured at least one person in recent years. In 2020, a mother bear defending her cubs attacked Valerie Patenotte's dog, which later died. "We understand everyone has to coexist," says Patenotte as we stand on her back deck overlooking the distant mountains. "We just want more space from bears."

¹ If an animal **hibernates**, it sleeps through winter to make it through the cold season.

² A **buffet** is a large spread of food. People pay a predetermined amount to eat as much of the food as they want.