The computer revolution, digital technology, and new materials have given humankind the tools to achieve things we could only have dreamed of as little as half a century ago. For example, space travel, prosthetic limbs, electronic communication, automated methods of manufacturing, and “intelligent” domestic appliances have changed the way we live as well as what we aspire to as human beings. However, some of these technological developments are disliked, even feared, by some people. This is particularly true of artificial intelligence (AI), where computer systems are able to perform tasks that normally require human intelligence.

A **THINK ABOUT IT** As a class, list four new technologies that involve artificial intelligence (AI). Then list a reason to fear each.

<table>
<thead>
<tr>
<th>AI technology</th>
<th>Reason to fear</th>
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</thead>
<tbody>
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<td></td>
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</tbody>
</table>

B **TUNE IN** Listen to a discussion with Professor William Mancini about important emerging technologies. Then decide if the statements are True or False, based on the discussion.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Applied science technologists search for solutions to real-world problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  Big data is helping shape education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  The Network of Things will consist of 150 billion connected objects by 2022.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  The Network of Things will eventually add $2 trillion to the US economy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  Professor Mancini believes scientists are close to creating an intelligent robot.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  3-D printers have the potential to transform industry.</td>
<td></td>
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</tbody>
</table>

C **PAIR WORK** With a partner, discuss one of the technologies mentioned. Think of various ways in which that technology could be beneficial.
BUILD your vocabulary

**A  LISTEN** The boldfaced words are from the unit lecture on artificial intelligence. Listen to each sentence. Then guess the meaning of the boldfaced word. Work with a partner.

1. The scientific process of developing an intelligent robot is extremely **complex**, involving interrelated fields of research and in-depth tests performed across extended periods of time.

2. The output of a single industrial robot is **equivalent to** that of five human beings, making the robot a highly efficient option.

3. Science fiction movies have led many people to worry about the possible **implications** of robots with real intelligence. In particular, they see them as a possible threat to humankind’s very existence.

4. Unlike robots, which are designed to follow a certain logic, human beings do not always behave **rationally**. This can make their behavior difficult to understand and predict.

5. Instead of calmly and intellectually acknowledging both the good and bad points of AI, some people become very **reactionary**.

6. Today’s generation can feel much more confident in products that are manufactured using artificial intelligence because these products are much more **reliable**.

7. Some find attempts to **replicate** intelligence and awareness in robots offensive. They believe it’s wrong to reproduce these human characteristics in machines.

8. One important human quality that current robots lack is **self-awareness**. They have no “soul” and can only understand and behave according to how they have been programmed.

9. When people see governments developing sophisticated weapons, it’s easy to understand why they become **skeptical** about claims that new technologies will be used solely for the good of humankind.

10. Although I support AI, I am a compassionate person and greatly **sympathize with** workers who lose their jobs to robots.

**B  TRY IT** Choose the best definition for each boldfaced word.

<table>
<thead>
<tr>
<th><strong>1 complex</strong></th>
<th><strong>2 equivalent to</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a complicated</td>
<td>a more than</td>
</tr>
<tr>
<td>b numerous</td>
<td>b less than</td>
</tr>
<tr>
<td>c straightforward</td>
<td>c the same as</td>
</tr>
</tbody>
</table>
3 implications
   a considerations
   b consequences
   c threats

4 behave rationally
   a reasonably
   b efficiently
   c predictably

5 reactionary
   a emotional
   b negative
   c unreasonable

6 reliable
   a dependable
   b simple
   c expensive

7 replicate
   a please
   b reproduce
   c predict

8 self-awareness
   a the ability to think about yourself
   b the ability to make money for yourself
   c the ability to make others notice you

9 skeptical
   a certain
   b worried
   c reluctant to believe

10 sympathized with
   a thought about
   b felt sorry for
   c remembered

C PAIR WORK Cover Group A as your partner reads sentences 1–3. Listen and write the missing words in Group B. Your partner corrects your answers. Switch roles for 4–6.

GROUP A

1 Sci-fi movies often appeal to those with an interest in future technology.

2 Workers often dislike the boredom and monotony of working on the production line in a factory for many hours, day after day.

3 The distinction between ideas in theory and ideas in practice is an important one.

4 Professor Mancini’s own research, which includes developing “smart security guards” for office buildings, is oriented toward artificial intelligence.

5 The Research Center is interested in the exploration of new ideas that can benefit humankind.

6 People’s concerns about artificial intelligence are at odds with their daily use of intelligent technology.

GROUP B

1 Sci-fi movies often appeal ______ to those with an interest in future technology.

2 Workers often dislike the boredom and monotony ______ working on the production line in a factory for many hours, day after day.

3 The distinction ______ ideas in theory and ideas in practice is an important one.

4 Professor Mancini’s own research, which includes developing “smart security guards” for office buildings, is oriented ______ artificial intelligence.

5 The Research Center is interested in the exploration ______ new ideas that can benefit humankind.

6 People’s concerns about artificial intelligence are at odds ______ their daily use of intelligent technology.
Organization
Good notes are well-organized notes.

GOOD NOTES
• They should be arranged neatly and logically.
• They should give you an at-a-glance “picture” of the structure of the lecture.
• They should enable you to recall the content of the lecture at a later date.

One effective way of organizing your notes is to write the main ideas on the left side of your page and the more detailed, supporting ideas on the right side. There may be a number of different levels of detail, so as your notes move to the right, the level of detail increases. Your notes might look something like this:

(Main idea 1)
(Supporting idea 1)
(Example 1)
(Supporting idea 2)
(Supporting idea 3)
(Example 1)
(Example 2)

(Main idea 2)
(Supporting idea 1)

A TRY IT Listen to an excerpt of a speaker discussing people’s misconceptions about artificial intelligence. Take notes. Try to organize your notes from left to right, based on the main ideas and details you hear.

B PAIR WORK Compare notes with a partner. Can you improve your notes?
**A THINK ABOUT IT** You are about to watch the unit lecture on artificial intelligence (AI). With a partner, come up with an example of a form of AI that you would welcome in your daily life, and two reasons why.

**Welcome:**

**Reason 1:**

**Reason 2:**

**LISTEN FOR MAIN IDEAS** Close your book. Watch the lecture and take notes.

**CHECK YOUR UNDERSTANDING** Use your notes. Decide if the statements are T (true) or F (false), based on the lecture. Correct any false statements.

1. It’s mainly scientists, sociologists, philosophers, and economists who feel strongly about artificial intelligence.  
   T/F?

2. The introduction of robots into manufacturing was controversial. The reason was because it was expensive.  
   T/F?

3. Strong forms of artificial intelligence have a kind of real intelligence and are closer to human beings than weak forms.  
   T/F?

4. “Technological singularity” is that moment when scientists succeed in creating a truly intelligent robot.  
   T/F?

5. Artificial intelligence is already providing solutions to global problems.  
   T/F?

6. Sophisticated AI robots are likely to be more rational than emotional.  
   T/F?

**LISTEN FOR DETAILS** Close your book. Watch the lecture again. Add details to your notes and correct any mistakes.
CHECK YOUR UNDERSTANDING  Use your notes. Choose the best answer, based on the lecture.

1 Over time, people tend to ________________ new technologies.
   a accept     b become more suspicious of     c reject

2 Most weak AI systems perform ________________.
   a two or three tasks     b a single task     c household tasks

3 The lecturer mentions several sci-fi films to give examples of ________________.
   a a weak form of AI     b a strong form of AI     c classic movies

4 Some people believe that robots will have human levels of intelligence in ________________ years.
   a 10 or 15     b 20 or 30     c 10 to 50

5 Two examples of global problems that AI might address are ________________.
   a pollution and famine     b pollution and climate change     c famine and climate change

6 AI robots’ lack of emotion means that they won’t be able to ________________ with humans.
   a fall in love     b cooperate     c sympathize

7 People may begin to ________________ if robots take over many of their roles.
   a feel useless     b accept AI     c relax

8 Some believe that creating intelligent robots is morally wrong because it ________________.
   a “fools with mother nature”     b leaves people without jobs     c threatens humankind’s existence
Syllable Stress

**Stressed syllables** in a word are those syllables that are pronounced longer, louder, and higher in pitch. Placing stress correctly can make the difference between being understood and not being understood, so it's important to get it right.

**EXAMPLES**

Remember these rules and examples:

- In English, it is often the first or early syllables in a word that are stressed: favorite, happiness, gladly, bigger.
- Stress occurs primarily in content words, not function words that carry little meaning. (Function words include prepositions such as of, at, between; pronouns such as he, they, it; and conjunctions such as and, while, although.)
- Affixes are not normally stressed, except when we might want to emphasize contrast, as in He was happy not (un)happy. The stress in the word unhappy would normally be on the ha (un@happy).

---

**A** **LISTEN** Listen to the statements from the lecture. Circle the stressed syllables in the underlined words.

1. As I promised last time, today I'm going to talk about artificial intelligence.

2. And although this topic has received a lot of attention lately, in fact, AI has always been controversial.

3. Basically, the robots were more efficient and more reliable.

4. Here I'm talking about vacuuming the home, navigating a route, parking your car for you, playing chess against you.

5. They have no awareness of what they're doing and no choice of whether or not to do it.

6. Strong AI is oriented toward creating a thinking, conscious machine that seems to be equivalent to a human being.

7. The AI is developing a meaningful, even overpowering relationship, with their human "masters."

8. Without emotion, an AI robot will not be able to sympathize with individuals and their unique situations—something that's essentially human and which most of us are very good at.

9. Trouble is, although this "freedom" might seem like a good thing, it could also have a downside and lead to feelings of uselessness.

10. Some people believe that intelligence, intuition, and self-awareness are the universe's gift to humankind, and to try to replicate or even improve on them is like "fooling with mother nature."

**B** **PAIR WORK** Take turns saying the sentences with a partner, stressing the circled syllables. Repeat any challenging words.
TALK about the topic

Asking for Opinions or Ideas

A FOLLOW THE DISCUSSION Watch as the students talk about artificial intelligence. Read each question. Then check (/) who answers it.

1 “What do you mean by ‘cool’?”
   Shelley Ben Kenzie Hugh
2 “But you want to be surrounded by intelligent people, don’t you?”
   Shelley Ben Kenzie Hugh
3 “Like what? What’s an example?”
   Shelley Ben Kenzie Hugh

B LEARN THE STRATEGIES Watch the discussion again. Listen closely for the comments. Check (/) the discussion strategy the student uses.

<table>
<thead>
<tr>
<th></th>
<th>Asking for opinions or ideas</th>
<th>Expressing an opinion</th>
<th>Offering a fact or example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ben: “So I think, to me, this whole AI thing is pretty disturbing.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Shelley: “But it sounds like, Kenzie, you don’t feel that way?”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Kenzie: “Well, like in 2001: A Space Odyssey. It’s kind of an old movie now—but it shows that a robot can make decisions by itself, even if the decision isn’t good for humans.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Shelley: “Any other reasons to oppose AI?”</td>
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</tbody>
</table>

Discussion Strategy By asking for opinions or ideas, you’ll not only help others become involved in the discussion, but also enrich the discussion itself. It’s as easy as asking, What do you think? The next step—listening—is where your learning begins!

C TRY IT In a small group, discuss one or more of these topics. Try to use the discussion strategies you have learned.

- Hugh and Kenzie mention the idea of sci-fi movies predicting the future. What examples can you think of where science fiction has become science fact?
- What are some of the benefits you would like to see come from the future development of artificial intelligence?
- What are three examples of literature and film reflecting society and three examples of them shaping society?
In Focus Your Attention (p. 65), you learned to organize your notes more effectively by putting the main ideas on the left and the details on the right. With the help of your notes and the basic outline below, try to reconstruct the lecture with a partner. Add as much detail as possible.

**Artificial Intelligence = subject people feel strongly about**
AI = historically controversial
2 forms of AI:

**Benefits**
2 e.g. of benefits of AI:

**Risks**
3 e.g. of risks of AI:

**The future?**

**TIP!**
Remember: There are many ways to organize your notes. You can use symbols, like bullets or arrows. Or you might prefer the more formal outline style, with numbers and letters. Choose a style that suits you.

Now you are ready to take the Unit Test and the Proficiency Assessment.
EXPRESS your ideas

The Future Is Now
This unit has looked at artificial intelligence and some of the benefits and risks associated with it. Which new AI technologies are you most excited about?

TASK Research and give a short presentation on the advantages and disadvantages of a new AI technology. Work in pairs or in groups of 3, applying the teamwork strategies.

Prepare
1. Research one of these AI technologies:

<table>
<thead>
<tr>
<th>3-D printers</th>
<th>Parallela</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Tribe</td>
<td>screenless displays</td>
</tr>
<tr>
<td>Leap Motion</td>
<td>virtual reality</td>
</tr>
<tr>
<td>neurohacking</td>
<td>wireless electricity</td>
</tr>
</tbody>
</table>

2. Include in your presentation what the technology is and some of its advantages and disadvantages.
3. As you prepare, try to apply the teamwork strategies.

Practice
4. Practice your presentation. With your partner or group, consider how well you have implemented the teamwork strategies and discuss how you can improve your presentation.

Present
5. Deliver your presentation to the class. At the end, ask if anyone has any questions or comments.
6. Listen to your classmates’ presentations. As you listen to each presentation, write down a question relating to one of the presenter’s ideas. At the end of each presentation, ask your question.

Evaluate
7. Use the Unit 7 Presentation Evaluation Form (in Appendix C) to think about how well your classmates presented in teams.
8. For each presentation, discuss your feedback with the presenter.

Research and Presentation Strategies: Working as a team
It is quite likely that at some point in your studies or your working life you will be required to prepare and give a presentation with another person or a group. Implementing a few simple strategies can be the difference between a strong performance and a weak one.

• Decide on roles. Each person should know exactly what he or she is doing and what his or her responsibilities are. This avoids role confusion and makes the presentation feel more polished and professional.

• Assign roles according to strengths. Different people have different strengths. Try to give roles to those who have the skills to perform them best.

• Introduce all of the presenters. Introducing yourselves and your roles as presenters is a good practice and helps the audience a) understand the flow of your presentation and b) more easily address questions to particular presenters.

• Signal switches between presenters. Your audience will find it easier to follow your presentation if you signal when you are about to switch to another presenter and what that person is going to talk about.