



生徒とのやり取り例

- T:** Look at the pictures above. What digital devices can you see?
- S1:** I can see a tablet in the left picture and a small robot in the right one.
- T:** Great. What do you think the two people are doing?
- S1:** I'm not sure.
- T:** OK. Anyone else? Have a guess!
- S2:** I think the boy is playing a game on the tablet.
- T:** Yes, that's possible. Any other answers?
- S3:** I think he is talking to a woman through his tablet.
- T:** Yes. Good answer. And how about the elderly woman?
- S4:** Is she replying to the boy through the robot? Maybe the boy's words are delivered through the robot.
- T:** Yes, that's a good guess, S4. The boy may find it difficult to go to see his grandmother. So, he may be using the robot to talk to her remotely. Let's see how avatar robots are helping to improve society in this lesson.

導入 Q 和訳例・解答例

1. 上の写真を見てください。どのようなデジタル機器が見えますか。
(I can see) A tablet and a (small) robot.
2. 二人は何をしていると思いますか。
I think they are talking through the digital devices (remotely).



Lesson 3



Improving Society with Avatar Robots

* avatar 分身

分身ロボットで社会をよりよくすること



1. Look at the pictures above. What digital devices can you see?
2. What do you think the two people are doing?

Goals



I can understand the potential of using avatar robots.



I can express my opinion about robots in the future.



I can exchange ideas about a problem in my life.

OVERVIEW



Sometimes people cannot go outside for several reasons — physical or mental issues, looking after children, or caring for elderly people. However, everyone can participate in society through the robots we will learn about.

◎CD II-2

※以下、本文和訳例は各 Part 本文の右ページ参照



1 “With an avatar robot, people who are confined to bed like me can also interact with people in different locations. I’ve realized we can find meaning in our lives by connecting to society.”

A man’s voice is being delivered through a robot to a large audience in a lecture hall. The voice is Banda Yuta’s, but now he is actually in bed in the hospital. The robot everyone is listening to is his avatar. 5

These days, people usually think that every robot is equipped with artificial intelligence (AI). An AI robot can do housework and even communicate with humans. However, an avatar robot is not equipped with AI. It only has a built-in camera, speaker, and microphone. The operator 10 controls it remotely with a smartphone or personal computer. He or she can talk freely to people in other places, and even express emotions with the robot’s gestures. People around the robot feel as if the operator were actually there.

◎CD II-3



▲ Yoshifuji’s image of an avatar robot

2 The avatar robot was developed by Yoshifuji Kentaro. In his early teens, 15 he could not attend school regularly, so he often felt very lonely. Later, after entering technical college, he became passionate about developing AI to help lonely people. However, he was never satisfied with the results. He finally realized that his family and teachers, not AI, had saved him from loneliness. “I may have escaped from my lonely world thanks to interacting with real 20 people. AI may not be able to help lonely people.”

At university, he created a new way to connect people. First, he bought a robot and disassembled it to understand how it worked. By researching online and consulting robot experts, he came up with the concept of an avatar robot. To make his robot move like a human, he studied pantomime and 25 *gyoruri*. After a year of trial and error, the prototype of his avatar robot was born.

- 1 a. 分身ロボットの特徴
b. 聴衆と話すことの重要性
c. AI ロボットの利点

- 2 a. 孤独な人々を救う AI ロボット
b. 過去に吉藤を救った人々
c. 分身ロボットはどのように開発されたか

Q. Choose the correct title for each part.

1

- a. Features of Avatar Robots
b. The Importance of Talking with an Audience
c. Advantages of AI Robots

2

- a. AI Robots to Help Lonely People
b. People Who Saved Yoshifuji in the Past
c. How Avatar Robots Were Developed

Improving Society with Avatar Robots

CD II-4

3 Avatar robots have been utilized in various fields. In the field of social welfare, they help disabled people enter society. In Banda's case, he was in a traffic accident at the age of four. As a result, he was not able to walk or even leave his bed. However, meeting Yoshifuji completely changed Banda's
5 life. Yoshifuji invited Banda to try using an avatar robot. Banda gave feedback on it as a person with a disability. He also attended meetings from his bed through the robot, and began working as Yoshifuji's assistant. Banda said, "I feel like I am needed in society, which makes me happy. With my avatar robot, I can go anywhere and do anything."

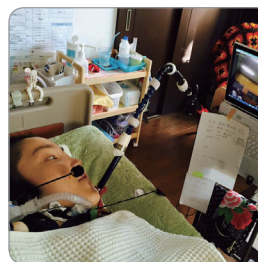
10 In the field of education, avatar robots have great potential as well. A robot can be put on a desk in a classroom. With an avatar robot, even a student in the hospital can attend classes. Moreover, he or she can enjoy chatting with classmates at recess or after school.

CD II-5

4 Yoshifuji opened a cafe staffed by avatar robots. The robots working in
15 this cafe are larger in size than his other robots. This is because they have to move around and serve customers. People who cannot easily go out because of physical or mental issues can work there remotely. Through their avatar robots, they can greet customers, take orders, and serve food or drinks. The cafe provides employment opportunities for people who have
20 difficulty directly participating in society.

From his experience, Yoshifuji knows that avatar robots can address the social problem of isolation. They can be "you" in public or at work. So, even if you cannot leave your home, you can still meet people, expand your world, and enjoy your life. Yoshifuji hopes avatar robots will allow more
25 and more people to interact in the future.

(615 words)



- 3 a. 分身ロボットについての番田の感想
b. 分身ロボットの教育への可能性
c. 分身ロボット活用例

3

- a. Banda's Feedback on Avatar Robots
b. The Potential of Avatar Robots for Education
c. Examples of How Avatar Robots Are Used

- 4 a. 吉藤が働くカフェ
b. 社会における分身ロボットの役割
c. 吉藤とスタッフを結ぶ分身ロボット

4

- a. A Cafe Where Yoshifuji Works
b. Roles of Avatar Robots in Society
c. Avatar Robots Connecting Yoshifuji with Staff



Part 1

解答例

We can interact with people in different locations. / We can talk freely to people in other places, and even express emotions with the robot's gestures.

What can we do with an avatar robot?

分身ロボットを用いて何ができますか。

単語

◎CD II-6

avatar
/ævə'tɑ:r/
confine
/kən'faɪn/

lecture
/léktʃər/

built-in
/bɪltɪn/
microphone
/maɪkrə'fəʊn/
operator
/ɑ:pə'reɪtər/
remotely
/rɪ'məʊtli/

通常／フレーズ

◎CD II-7/10

1 “¹With an avatar robot, / people who are confined to bed like me / can also interact with people / in different locations. //

²I've realized / we can find meaning in our lives / by connecting to society.” //

◎CD II-8/11

2 ³A man's voice is being delivered / through a robot / to a large audience / in a lecture hall. // ⁴The voice is Banda Yuta's, / but now he is actually in bed / in the hospital. // ⁵The robot / everyone is listening to / is his avatar. //

◎CD II-9/12

3 ⁶These days, / people usually think / that every robot is equipped with artificial intelligence (AI). // ⁷An AI robot can do housework / and even communicate with humans. // ⁸However, / an avatar robot is not equipped with AI. // ⁹It only has a built-in camera, / speaker, / and microphone. // ¹⁰The operator controls it remotely / with a smartphone or personal computer. // ¹¹He or she can talk freely / to people in other places, / and even express emotions / with the robot's gestures. // ¹²People around the robot / feel as if the operator were actually there. //

ファスター

◎CD II-13

◎CD II-14,15

Listening Quiz

(1) T / (F)

(2) T / (F)

(3) (T) / F



Notes

⁴ Banda Yuta 番田雄太 (1988~2017)

! Key Phrases ¹ be confined to ² connect to

! Key Language ³ be being done

本文和訳例

- ①「分身ロボットを使えば、私のように病床にある人もさまざまな場所にいる人々と交流できます。² 社会とつながることで、私たちは人生の意味を見出すことができると実感しました。」
- ②³ ある男性の声がロボットを介して講堂にいる大勢の聴衆に届けられている。⁴ 声は番田雄太のものだが、彼は今、実際には病院のベッドにいる。⁵ みな聴いているロボットは彼の分身だ。
- ③⁶ 近年、人々はたいてい、どのロボットにも人工知能(AI)が備わっていると思っている。⁷ AI ロボットは家事を行い、人間とコミュニケーションをとることすらできる。⁸ しかし、分身ロボットにはAIは備わっていない。⁹ それにはカメラ、スピーカー、そしてマイクが内蔵されているだけだ。¹⁰ 操作者はスマートフォンやパソコンでそれを遠隔で操作する。¹¹ 別の場所にいる人々に自由に話しかけたり、ロボットの身振りで感情を表現したりさえもできる。¹² ロボットの周りの人々は、まるで操作者が本当にそこにいるように感じるのだ。

Listening Quiz スクリプト・和訳・解答

- (1) Banda is now on the stage in a lecture hall.

番田は今、講堂のステージ上にいる。

- (2) An avatar robot can express emotions because it is equipped with AI. **F**

分身ロボットはAIを備えているので、感情を表現できる。

- (3) People in different places can talk freely through avatar robots. **T**

分身ロボットを通して、さまざまな場所にいる人々が自由に会話できる。

Key Phrases 例文

¹My grandfather *is confined to* a wheelchair.
祖父は車いすの生活を送っている。

²Can you check if my computer *is connected to* the Wi-Fi?
コンピュータがWi-Fiにつながっているか確認してもらえますか。

Key Language 例文

³My bicycle *is being repaired* now.
私の自転車は現在修理中です。

Word Checker

¹**avatar** : a character that you create to represent yourself

¹**confine** : to make someone stay in a place that they cannot leave

³**lecture** : a long talk on a certain topic that someone gives to a group of people

⁹**built-in** : being a part of something that cannot be removed from it

⁹**microphone** : a device that you speak into to record your voice or make it louder while speaking

¹⁰**operator** : someone who controls a machine or device

¹⁰**remotely** : from a distance

Text Checker

¹What can people who are confined to bed do with an avatar robot?

— They can interact with people in different locations.

³How is the man communicating with the audience in the lecture hall? — (His voice is being delivered) Through a robot.

⁴Who is speaking from his bed in the hospital? — Banda Yuta (is).

⁶What do people usually think about every robot? — They (usually) think that every robot is equipped with artificial intelligence (AI).

⁷What can an AI robot do besides housework? — It can (even) communicate with humans.

⁹What does an avatar robot have? — It (only) has a built-in camera, speaker, and microphone.

¹⁰How is an avatar robot controlled? — (It is controlled remotely by the operator) With a smartphone or personal computer.

¹¹What can the operator do by using an avatar robot?

— He or she can talk freely to people in other places, and even express emotions with the robot's gestures.

¹²How do people around the robot feel about the operator?

— (They feel) As if the operator [he or she] were actually there.

Further Questions

⁷What kind of an AI robot would you like to use? — I'd like to use the pet-type AI robot like *aibo*. I can't have a pet right now, but this kind of robot will make me feel like I have a pet.

LOGIC FLOW

和訳例

① 番田のメッセージ…社会とつながることで、私たちは人生の意味を見出すことができる

② 番田雄太…分身ロボットを介して講堂にいる聴衆にスピーチをしている

↑
↓
実際には病院のベッドにいる

③ AI ロボット	・家事を行うことができる／人間とコミュニケーションできる
分身ロボット	<ul style="list-style-type: none"> ・カメラ／スピーカー／マイクを内蔵 ・スマートフォンやパソコンで操作できる ・操作者 <ul style="list-style-type: none"> ↳ 別の場所にいる人々に自由に話しかけることができる ↳ ロボットの身振りで感情を表現することができる ↳ ロボットの周りの人々は、まるで操作者が本当にそこにいるように感じる

TASK 1

和訳例・解答例

(1) 番田はさまざまな場所にいる人々と交流するために何をしますか。

He uses an avatar robot.

(2) 番田自身はどこから話していますか。

He is speaking from his bed in the hospital.

(3) AI ロボットは何ができますか。

It can do housework and even communicate with humans.

(4) 分身ロボットの操作者はどのように感情を表現できますか。

(He or she can express them) With the robot's gestures.

TASK 2

解答例

(1) A person in bed can interact with people in different locations with [through] an avatar robot.

(2) An avatar robot has a built-in camera, speaker, and microphone, but (is) not (equipped with) AI. / An avatar robot has a built-in camera, speaker, and microphone. However, it does not have AI.

(3) An operator controls an avatar robot remotely with a smartphone (or personal computer).

ヒント

・ help + O₁ + with + O₂ (O₁ の O₂ を手伝う)

・ play *shogi* as an opponent
(対戦相手として将棋をする)

・ attend classes from home
(自宅から授業に出る)

・ express a human-like warmth
(人間らしい温かみを表現する)

補充問題

(1) Banda says people can find meaning in their lives by connecting to society. T

(2) An avatar robot can do housework and even communicate with humans. F

(3) Operators control the avatar robot by using a smartphone or personal computer. T

Summary

We can find meaning in our lives by connecting to society. Banda Yuta realized that even if we cannot go out, we can still interact with people through an avatar robot. An avatar robot does not have artificial intelligence (AI). However, the operator can talk freely with people in other places, and also express emotions with the robot's gestures. So, people around the robot feel as if the operator were with them.

(72 words)

Your Opinion

和訳例・解答例

AI ロボットと分身ロボットのどちらを使用したいですか。それはなぜですか。

I'd prefer to use an AI robot. I want it to help me with my homework as my own private teacher. If I could save time doing homework, my life would be much better. (34 words)

I'd prefer to use an avatar robot. The reason is I live far away from my high school. So, if I could attend most of the classes through an avatar robot, I could save a lot of time. (38 words)

LOGIC FLOW

Fill in the blanks below to complete the outline.

1 Banda's message ... we can find meaning in our lives by (^a **connecting**) to society

2 Banda Yuta ... is speaking to an audience in a lecture hall through an avatar robot



is actually in bed in the (^b **hospital**)

3 an AI robot

• can do housework / can communicate with humans

an avatar robot

• with a (^c **built-in**) camera / speaker / microphone

• can be controlled with a (^d **smartphone**) or personal computer

• an operator

— can talk freely to people in other places

— can express (^e **emotions**) with the robot's gestures

→ people around the robot feel as if the operator were actually there

※以下，解答例等は左ページ参照

TASK 1

Answer the questions. Check your answers with your partner.



- (1) What does Banda use to interact with people in different locations?
- (2) Where is Banda himself speaking from?
- (3) What can an AI robot do?
- (4) How can the operator of an avatar robot express emotions?

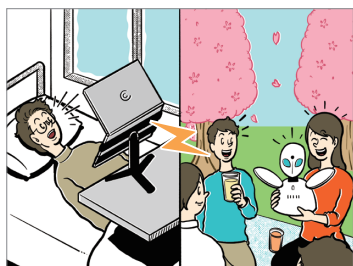
TASK 2

Describe the pictures below to your partner.



(1)

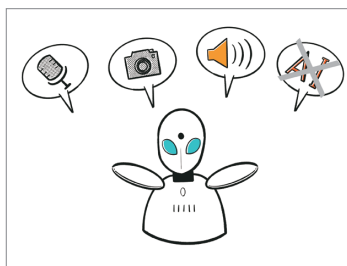
A person in bed can ...



[interact, location, avatar]

(2)

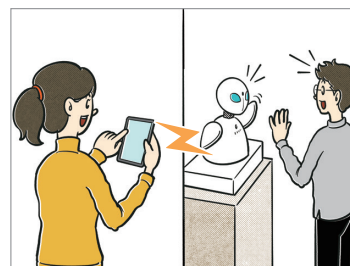
An avatar robot has ...



[built-in, AI]

(3)

An operator ...



[control, smartphone]

Your Opinion



Which would you prefer to use, an AI robot or an avatar robot? Why?

REPRODUCTION

STEP 2 Retelling 解答例

Part 1 With an avatar robot, people who are confined to bed can also interact with people in different locations.

The robot has a built-in camera, speaker, and microphone. The operator controls it remotely with a smartphone or personal computer. He or she can talk freely to people in other places, and even express emotions with the robot's gestures. In this way, people around the robot feel as if the operator were actually there.

Part 2 Yoshifuji Kentaro developed the avatar robot. At technical college, he became passionate about developing AI to help lonely people. However, he realized that his family and teachers, not AI, had saved him from loneliness. So, at university, he created a new way to connect people. After a year of trial and error, he made the prototype of his avatar robot.

STEP 1 Preparing

Use the outlines below to prepare for your presentation.

Part 1

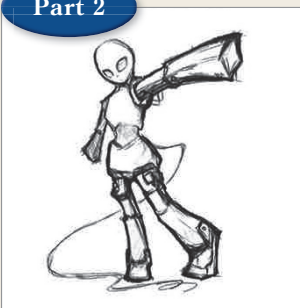


With an avatar robot, people ^① who are confined to bed can also interact ^② with people in different locations.

- An avatar robot has ^③ a built-in camera, speaker, and microphone.
- The operator controls ^④ it [the avatar robot] remotely with a smartphone (or personal computer).
- The operator can talk ^⑤ freely to people in other places and even ^⑥ express emotions with the robot's gestures.
- People around the robot ^⑦ feel as if the operator were actually there.

[confine, interact, built-in, remotely, smartphone, place, emotion, operator]

Part 2

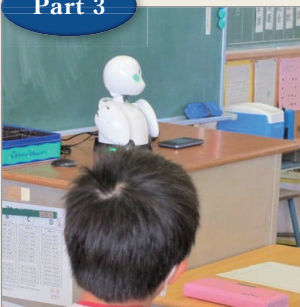


Yoshifuji Kentaro ^⑧ developed the avatar robot.

- At technical college, Yoshifuji became ^⑨ passionate about developing AI (to help lonely people).
- Yoshifuji realized ^⑩ that his family (and teachers), not AI, had saved him from loneliness.
- At university, Yoshifuji created ^⑪ a new way to connect people.
- Yoshifuji made ^⑫ the prototype of his avatar robot.

[develop, passionate, AI, family, save, new, connect, prototype]

Part 3



Avatar robots ^⑬ have been utilized in various fields.

- In the field of social welfare, avatar robots ^⑭ help disabled people enter society.
- Banda began ^⑮ working as Yoshifuji's assistant in the hospital can attend classes with an avatar robot.
- A student can ^⑯ enjoy chatting with classmates (at recess or after school).

[utilize, help, society, assistant, hospital, class, chat, classmate]

Part 4



Yoshifuji opened ^⑰ a cafe staffed by avatar robots.

- A cafe provides employment opportunities for ^⑱ people who have difficulty directly participating in society.
- Yoshifuji knows that ^⑲ avatar robots can address the social problem of isolation.
- Yoshifuji hopes ^⑳ avatar robots [they] will allow more and more people to interact in the future.

[staff, difficulty, participate, address, isolation, interact, future]

Part 3 Avatar robots have been utilized in various fields. In the field of social welfare, they help disabled people enter society. For example, Banda began working as Yoshifuji's assistant. Additionally, in the field of education, a student in the hospital can attend classes with an avatar robot. He or she can also enjoy chatting with classmates at recess or after school.

Post-reading Activity

Part 4 Yoshifuji opened a cafe staffed by avatar robots. It provides employment opportunities for people who have difficulty directly participating in society. In fact, Yoshifuji knows that avatar robots can address the social problem of isolation. Therefore, he hopes they will allow more and more people to interact in the future.

STEP 2 Retelling

Make a group of four people. Take turns retelling each part of this lesson.



Check Points

Content



・レッスンの内容が正確に伝えられていた

☒ Excellent

☒ Good

☒ OK

☒ Not yet

English



・文法やつながり表現が適切に用いられていた

☒ Excellent

☒ Good

☒ OK

☒ Not yet

・英語特有の音に注意して話していた

Ex. 発音・イントネーション・リズム

Attitude



・聞き手への配慮がなされていた

Ex. 声の大きさ・スピード・アイコンタクト

リデリング後の題材総括の例

T: Now let's share our opinions of Lesson 3. S1, what did you learn from this lesson?

S1: We can do many things with avatar robots. For example, someone who may be in the hospital can use robots to talk to people in other places.

T: Yes, that's an important use of robots. How about you, S2?

S2: I learned that robots help many people.

T: Can you give an example?

S2: One example is people who cannot easily leave their homes. The robots help them work remotely.

T: Yes, that's right. Thank you, everyone.

STEP 3 Expressing

Express your opinions on one of the following questions in more than 50 words.



Questions 和訳例

- A. どのようなロボットがほしいですか。
B. 孤独な人々を救うアイデアはありますか。
C. 他にアイデアはありますか。

Questions

- A. What kind of robot would you like to have?
B. Do you have any ideas to help lonely people?
C. Any other ideas?

Questions 解答例

A. I wish I had a robot that could control the weather. For example, it could limit the amount of rain or snow. These days, heavy rain, extreme heat, and typhoons are happening more frequently all around the world. I would expect this robot to help many people suffering from these extreme weather conditions. (53 words)

B. I hope that schools in the future will have a special room that is not used for teaching. We would call this room a "welcome space." Students who feel lonely in the classroom and want to leave can spend time in the special room. They can meet staff or other students and make friends more easily there. (57 words)

Model

What do you think about how Yoshifuji faced the challenges in his life?

— I admire Yoshifuji's passion for making robots. He found a possible solution to his problems and those of society. I think he made such a great effort because he actually knew how difficult it was to be lonely. Like him, I wish to make many people feel happy in any way I can. (53 words)

Expressions 【希望・期待を述べる】

- ▶ I wish to do / I would like to do (～したい)
- ▶ I hope that ... (…であることを願う)
- ▶ I have a dream of doing (～する夢がある)
- ▶ I would prefer to do (～するほうを好む)
- ▶ I would rather ~ than ... (…するよりむしろ～したい)
- ▶ I would expect + O + to do (Oが～することを望む)

C. Have you ever experienced loneliness? How did you overcome it?

— When I was in elementary school, I changed schools because my family and I moved away. When I first attended the new school, I missed my old friends and wished to go back to my old school. However, I gradually made friends with many of my new classmates. I overcame my loneliness by talking to them. (56 words)

その他の有用表現

▶ I desire to do (～を強く望む)



► You are interviewing Yoshifuji Kentaro. Listen to his answers and fill in the blanks.



スクリプト・和訳

Interviewer: ¹Why did you decide to develop avatar robots?

Yoshifuji: ²Well, it had to do with the deep loneliness I felt in my teens. ³I could not go to school regularly because of my poor health and some bullying I experienced. ⁴I would lock myself in my room, stay in bed, and stare at the ceiling all day. ⁵I was not able to laugh or even talk in those days. ⁶That experience was my driving force. ⁷I'd like to solve the problem of isolation and create a world where children don't feel lonely.

Interviewer: ⁸That'll be great for children. ⁹Let me ask you one more question. ¹⁰What is the most important thing in creating avatar robots?

Yoshifuji: ¹¹I believe every person wants to be needed. ¹²When I was lonely at home, what I wanted the most was to be needed by the people around me. ¹³So, even if people cannot move around or leave their house, I would like them to connect with other people, make memories, and participate in society. ¹⁴My hope is to design not only robots but a future for all people.

Interviewer: ¹⁵Thank you for your interesting stories. ¹⁶I hope your project will be very successful in the future.

インタビュアー: ¹なぜあなたは分身ロボットを開発しようと思ったのですか。

吉藤: ²そうですね、それには10代のころに感じていた深い孤独感が関係しています。³体が弱かったのといじめを受けていたため、私は学校に毎日行くことができませんでした。⁴私はよく部屋に閉じこもり、ベッドに寝ころび、一日中天井を眺めていました。⁵そのころは笑うことも、話すことすらもできませんでした。⁶その経験が私の原動力でした。⁷孤独の問題を解消し、子どもたちが孤独を感じない世の中を作りたいと思います。

インタビュアー: ⁸子どもたちにとってとてもよいことですね。⁹もう一つ質問させてください。¹⁰分身ロボットを作るうえで、最も大切なことは何でしょうか。

吉藤: ¹¹私は、誰でも必要とされたいと考えています。¹²私が家で孤独だったとき、一番ほしかったのは、周りの人に必要とされることでした。¹³だから、たとえ動き回ることや家から出ることができなくても、そういった人たちにも、他の人々となつがり、思い出を作り、社会に参加してほしいのです。¹⁴ロボットだけでなく、すべての人々の未来をデザインすることが私の願いです。

インタビュアー: ¹⁵興味深いお話をありがとうございました。¹⁶将来、あなたのプロジェクトが大成功することを祈っています。

The Driving Force Behind Yoshifuji's Invention

• deep loneliness in his teens

... absent from school because of ^① his poor health and some bullying

→ create a world where children ^② don't feel lonely

Yoshifuji's Belief

• every person ^③ wants to be needed

• even if people cannot move around or leave their house,

he would like them to ^④ connect with other people

— make memories

— ^⑤ participate in society

Q2 解答例

A: What is a problem in your life?

B: I come to school by bike every day, and there are no bike lanes on the roads in my town. It's very dangerous to ride on narrow roads with other vehicles.

A: What can you do to solve the problem?

B: I think I could appeal to the local government to add bike lanes. But first, I would have to collect signatures from people who support my idea.

Q1. Check your answers with your partner.

Q2. Interview your partner about a problem in his/her life. Then, talk about a possible solution.



Ex. I have to ride my bike to school on dangerous, narrow roads. /

I have to carry heavy textbooks to school every day.

driving force 原動力 absent 欠席の bullying いじめ belief 信念

have to do with ~に関係がある stare at ~を見つめる ceiling 天井



Pronunciation

摩擦音と破擦音 (/ʃ/ /ʒ/, /tʃ/ /dʒ/)

◎CD II-41

/ʃ/ /ʒ/は摩擦音（→p.37）である。また、この摩擦音と破裂音（→p.21）が合わさった/tʃ/ /dʒ/は破擦音と呼ばれる。

(1) /ʃ/ 「ウ」の発音をするように、唇を丸め、息だけで「シッ」と発音する。

/ʒ/ /ʃ/と同じ要領で、「ジッ」と声を出す。

Ex. /ʃ/ sheep, issue, ocean, machine, nation

/ʒ/ leisure, pleasure, measure, casual

(2) /tʃ/ 舌先を上歯茎にあて、舌先を離しながら、息だけで「チッ」と発音する。

/dʒ/ /tʃ/と同じ要領で、「ヂッ」と声を出す。

Ex. /tʃ/ chair, teacher, watch, nature

/dʒ/ job, gym, danger, bridge

TRY! Lesson 3 Part 1 を、/ʃ/ /ʒ/, /tʃ/ /dʒ/の発音を意識して音読してみよう。

Ex. large, lecture, actually, usually, artificial, intelligence

Strategies for Reading and Writing

スキミング

必要な情報を探しながら、すばやく英文を読む方法をスキミングという。スキミングの手順は、以下の通りである。

- ① 必要な情報およびそれに関連するキーワードを確認する。
- ② それを探しながら、英文をすばやく読み進める。
- ③ 探している情報やキーワードを見つけたら、その周辺をていねいに読み理解する。

Tips この方法は、広告やグラフなどから情報を読み取る際にも効果的である。

Ex. Lesson 3 Part 3 のスキミング：

- ① 「分身ロボットがどの分野でどのように用いられているか」を知りたい場合
→ キーワードとなる「field」という語を探す。
- ② field という語が出てくる箇所 → ②と⑪の英文
- ③ ② In the field of social welfare, / ⑪ In the field of education,
それぞれの文以降で、具体的な内容が述べられていることがわかる。

TRY! Lesson 4 Part 1 の英文について、以下の情報を探してみよう。

1. (まだ食べられるにもかかわらず) 日本で廃棄される食べ物の量
2. 国連が発展途上国に提供している食べ物の量

解答例

1. 約 640 万トン
2. 約 320 万トン [約 350 万トン]

Marin is preparing for her presentation on a lost Indian civilization based on an article.



The ancient rock carvings were discovered in India's western state of Maharashtra. They are believed to be tens of thousands of years old. Most of them were hidden under the soil, but some were above the ground. On the rocks, we can see not only animals that have lived in this area but also animals that have never existed there. The state government is now investigating those carvings because they may hold clues to an unknown civilization.

*carving 彫刻, Maharashtra マハラシュトラ州, soil 土, investigate ～を調査する, unknown 不明の

Q1. Complete Marin's presentation. Use the words below in the correct form.

[may hunt / must be / be investigated / cannot live]

I'm going to talk about one of India's lost civilizations. Tens of thousands of years ago, there (¹ **must**) (**have**) (**been**) an ancient civilization in Maharashtra, India. Look at the pictures. In addition to land animals, you can see the images of marine animals such as sharks and whales. Ancient people (² **may**) (**have**) (**hunted**) those animals for food. However, strangely, you can also see the images of rhinos and hippos. It is believed that they (³ **cannot** [can't]) (**have**) (**lived**) in India. This civilization is full of mysteries, so it (⁴ **is**) (**being**) (**investigated**) by the state government now.

*shark サメ, rhino サイ (rhinocerosの略式), hippo カバ (hippopotamusの略式)

Q2. Get into pairs and ask each other the question below.

Why do you think the images of rhinos and hippos were carved on the rocks?

I think the people who carved those images must have come from a place where rhinos and hippos lived.
— They may have wanted to tell future generations about those animals.

Key Points for Expressing (→p.184)

① 過去について推量・判断した内容を表現したいとき

must have *done* 「～だった [した] にちがいない」 may have *done* 「～だった [した] かもしれない」
cannot [can't] have *done* 「～だった [した] はずがない」
should [ought to] have *done* 「～すべきだったのに (～しなかった)」
need not have *done* 「～する必要がなかったのに (～した)」

② 進行中の動作を受け身で表現したいとき

be being *done* 「～されている [いた] ところだ」

③ 完了形を受け身で表現したいとき

have [has] been *done* / had been *done* 「(現在まで) ～されてきた / (それまでに) ～されていた」