

**Class**

**Name**

## Unit 1 Muscles Move Our Bodies

**Listen to the audio and fill in the blanks.**

**Track 03**



Write a (1)\_\_\_\_\_ to a friend. Run fast to catch the bus for (2)\_\_\_\_\_.

Stand up and stretch after (3)\_\_\_\_\_ too much TV. What's the connection

(4)\_\_\_\_\_ these actions? They all use our (5)\_\_\_\_\_ and muscles!

The bones and muscles which help us move are called "locomotive organs." Bones form the structure of our body. They (6)\_\_\_\_\_ our body, too. They also protect important organs like our heart, lungs, and (7)\_\_\_\_\_.

Muscles surround the bones. They extend and flex to make the body move. Let's see how muscles work to move bones.

Step 1. Flatten two straight (8)\_\_\_\_\_ using a pencil. Push a paper fastener through one end of each straw.

Step 2. Put a (9)\_\_\_\_\_ straw into a plastic bag. Tie the opening of the bag to the straw so no air can get out.

Step 3. Tape (10)\_\_\_\_\_ sides of the bag to both straws, front and back. You can tape a drawing of a hand to the (11)\_\_\_\_\_ straw.

Step 4. Blow air into the plastic bag through the bendy straw. What happens?

When you blew air, the plastic bag (12)\_\_\_\_\_ up. It got thicker and shorter, and it made the front straw (13)\_\_\_\_\_ up. This is how arms move.

Our muscles are connected to our bones. When the muscles in our arms

(14)\_\_\_\_\_, they get thicker and bend our arms. When our muscles extend, they get (15)\_\_\_\_\_ and straighten our arms again.

Thanks to our bones and muscles moving together, we are able to move. Without them, we wouldn't be able to do simple things, like turn the pages of this book!

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## Unit 2 Amazing Bones

Listen to the audio and fill in the blanks.

Track 06



Jessie was playing (1)\_\_\_\_\_ with her little brother Pete when he fell and (2)\_\_\_\_\_ himself.

“Ow!” He held onto his (3)\_\_\_\_\_.

“Are you okay?” asked Jessie.

“I think so,” said Pete bravely. He wanted to keep (4)\_\_\_\_\_, but Jessie wanted to make sure his (5)\_\_\_\_\_ weren't hurt.

“What are bones?” asked Pete.

“Bones are hard (6)\_\_\_\_\_ inside our bodies. They help us walk and run. They (7)\_\_\_\_\_ our organs.”

“Do all bones look the (8)\_\_\_\_\_?”

“No, they don't. Your skull is (9)\_\_\_\_\_. It protects your brain. Your ribs are curved like a banana. They (10)\_\_\_\_\_ your heart and lungs. Your spine looks like a long stick of bamboo. It helps you stand up and lie (11)\_\_\_\_\_.”

“Wow, I have so many bones,” said Pete.

“You do. You have (12)\_\_\_\_\_ 200! Now, you might have hurt your leg bone. We should go to the orthopedic (13)\_\_\_\_\_ to check. That's a bone doctor.”

Pete had an x-ray. The orthopedic doctor said Pete had a (14)\_\_\_\_\_ in his leg bone and recommended lots of calcium.

Pete (15)\_\_\_\_\_ milk and thought about his amazing bones.

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## Unit 3 Light Energy

Listen to the audio and fill in the blanks.

Track 09



(1)\_\_\_\_\_ is very important to our world.

We know that plants need sunlight to (2)\_\_\_\_\_. How do they do it? Plants convert light energy into chemical (3)\_\_\_\_\_. This chemical energy makes the plants big and (4)\_\_\_\_\_.

Solar batteries convert light energy into electric energy. They make electrical things work. Let's see how (5)\_\_\_\_\_ energy is converted into (6)\_\_\_\_\_ energy.

Step 1. Tear or cut a (7)\_\_\_\_\_ piece of paper into long pieces.

(8)\_\_\_\_\_ it to the blades of a propeller using (9)\_\_\_\_\_ tape.

Step 2. Connect a solar battery to a motor with wires and (10)\_\_\_\_\_ clips.

Step 3. Put the propeller on the axis of the motor.

Step 4. Place the solar battery (11)\_\_\_\_\_ the sun.

What did you see? You saw the propeller turn.

How did it work? Light from the sun (12)\_\_\_\_\_ on the battery. The battery converted this light energy into electric energy.

The electric energy from the battery (13)\_\_\_\_\_ the motor. The electric energy became kinetic energy when the propeller turned.

So, light energy (14)\_\_\_\_\_ into electric energy. Then electric energy turns into kinetic energy.

We can't see the energy change forms because it happens so (15)\_\_\_\_\_.

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## Unit 4 Roller Coaster Cars

Listen to the audio and fill in the blanks.

Track 12



Mike (1)\_\_\_\_\_ to an amusement park with his dad. They had

(2)\_\_\_\_\_ on some small rides.

They sat down to eat some (3)\_\_\_\_\_. Mike heard some happy screams. He turned and saw a (4)\_\_\_\_\_ roller coaster.

“Dad, look at that!” he (5)\_\_\_\_\_.

The cars on the roller coaster came (6)\_\_\_\_\_ down a hill and went up another.

“How do the roller coaster cars go so (7)\_\_\_\_\_?” Mike asked. “Do they have an (8)\_\_\_\_\_ like a bus?”

“No, they don't. The track (9)\_\_\_\_\_ the cars up a big hill. As they go up, they create potential energy. Then they go down the other side. (10)\_\_\_\_\_ pulls them downward. The potential energy (11)\_\_\_\_\_ kinetic energy. This energy pulls the cars fast (12)\_\_\_\_\_ the track.” “Wow, that's amazing!”

“Yes, potential energy gets (13)\_\_\_\_\_ to kinetic energy all the time. When you drop a ball, it has potential energy. As it hits the ground, that is turned into kinetic energy, and it (14)\_\_\_\_\_ up. So, would you like to ride the roller coaster?”

“(15)\_\_\_\_\_ not, Dad. Let's just go on the merry-go-round again!”

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## Unit 5 Our Hearts Pump Blood

**Listen to the audio and fill in the blanks.**

**Track 15**



We (1)\_\_\_\_\_ air into our lungs. Our lungs extract oxygen.

We (2)\_\_\_\_\_ food. The stomach breaks it down and our intestines turn it into nutrients.

We need oxygen and nutrients to (3)\_\_\_\_\_. They need to move around our body. Blood delivers nutrients and oxygen to all (4)\_\_\_\_\_ in the body.

The heart pumps (5)\_\_\_\_\_ through the body. If the heart stops, the body can't get the oxygen and nutrients it (6)\_\_\_\_\_.

The heart and (7)\_\_\_\_\_ vessels are called "circulatory organs." Let's see how they work.

Step 1. Prepare a hand pump and (8)\_\_\_\_\_, a big bucket of water, and some red ink.

Step 2. Put the pipe in the water and (9)\_\_\_\_\_ it quickly. Check the speed and amount of flowing water.

Step 3. Now, check the speed and (10)\_\_\_\_\_ of flowing water when you press the pump slowly.

In the (11)\_\_\_\_\_, the pump is the heart. The pipe is a blood vessel, and the red water is blood.

When the heart beats fast, blood flows fast. More blood can move (12)\_\_\_\_\_ the body. When the heart beats (13)\_\_\_\_\_, blood flows slowly. Only a small amount of blood can move.

Look after your heart. A healthy heart moves faster.

It moves blood from the heart all through the body and back again. Blood keeps (14)\_\_\_\_\_ round and round.

Your blood is flowing as you (15)\_\_\_\_\_ this!

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## Unit 6 Blood Moves All Around

**Listen to the audio and fill in the blanks.**

**Track 18**



Oh, no! Alex (1)\_\_\_\_\_ cuts himself with his scissors.

Mom comes and puts a bandage on the wound. As she treats it, Alex asks

(2)\_\_\_\_\_ blood comes from.

“Blood (3)\_\_\_\_\_ from the heart. It moves all around inside your body.”

“Even my (4)\_\_\_\_\_ and toes?”

“Everywhere! There’s blood under the (5)\_\_\_\_\_ all over your body. Blood contains essential nutrients and (6)\_\_\_\_\_. The heart is a powerful pump that moves blood (7)\_\_\_\_\_ inside the body through our blood vessels.”

“Are all blood vessels the (8)\_\_\_\_\_?”

“No, there are (9)\_\_\_\_\_ kinds of blood vessels: arteries, veins, and capillaries. Arteries push blood away from the heart. Veins (10)\_\_\_\_\_ blood back to the heart. Capillaries connect the two. They are very small and carry blood to the tips of your fingers. You (11)\_\_\_\_\_ a capillary on your finger, so it (12)\_\_\_\_\_.”

“My blood vessels must be very long!” says Alex.

“You have 120,000 km of blood vessels in your (13)\_\_\_\_\_!” says Mom.

“Now, let’s (14)\_\_\_\_\_ after your heart with a tasty salad for (15)\_\_\_\_\_.”

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## Unit 7 Making Magnetic Fields

**Listen to the audio and fill in the blanks.**

**Track 21**



We know how electric (1)\_\_\_\_\_ work. We know how magnets work.

Did you know that electric currents can make (2)\_\_\_\_\_ move?

It's true! Electricity creates magnetism. Let's take a look.

Step 1. Make an electrical circuit using a battery, wires, and a (3)\_\_\_\_\_.

Step 2. Put the compass (4)\_\_\_\_\_ one of the wires. Make sure the wire is (5)\_\_\_\_\_ to the needle of the compass.

Step 3. (6)\_\_\_\_\_ the switch. See the needle move.

Step 4. Now, put the battery the (7)\_\_\_\_\_ way around. Put the wire parallel to the needle like before.

Step 5. Press the switch. See which way the needle moves now.

How did the electric current move the needle of the compass?

Compasses use magnets to work. Earth's (8)\_\_\_\_\_ are like giant magnets. The needle of a compass is a (9)\_\_\_\_\_ magnet. The south pole of the compass needle points (10)\_\_\_\_\_ Earth's north pole. When we pressed the switch, the electric current created a magnetic field. The wire was now magnetic. Electricity (11)\_\_\_\_\_ flows from positive to negative.

The needle of the compass pointed (12)\_\_\_\_\_ the flow of electricity in the wire. We turned off the switch. The wire wasn't magnetic (13)\_\_\_\_\_. The needle pointed north again.

We then moved the battery the other way around. We moved the direction of the electrical flow.

The needle of the compass pointed in the new (14)\_\_\_\_\_.

Add more batteries in a serial connection or put the wires and compass closer. The (15)\_\_\_\_\_ of the needle will be bigger.

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## Unit 8 Earth Is a Magnet

Listen to the audio and fill in the blanks.

Track 24



Bella went (1)\_\_\_\_\_ with her family. She went to get (2)\_\_\_\_\_ with her dad. They saw a squirrel in the trees. They (3)\_\_\_\_\_ it for a while but soon realized they were (4)\_\_\_\_\_.

“Dad? Where are we?”

“Don’t (5)\_\_\_\_\_, Bella. We’ve been walking south. The campsite is to our (6)\_\_\_\_\_. We can use a compass to get back.”

Following the compass north, they (7)\_\_\_\_\_ found their campsite. Mom started a fire with the wood.

“Wow, this tiny compass (8)\_\_\_\_\_ knows the way. How does it work?”

“Good (9)\_\_\_\_\_, Bella!” said Dad. “You learned about magnets in (10)\_\_\_\_\_, didn’t you?”

“Yes! The same poles repel, and (11)\_\_\_\_\_ poles are attracted to each other.”

“(12)\_\_\_\_\_! Earth is like an enormous magnet. It has a north and south pole. The needle of a compass is a tiny magnet.”

“Let me (13)\_\_\_\_\_. The south pole of the magnet points to the north pole of (14)\_\_\_\_\_. That’s why compasses always point north!”

“That’s right!” said Dad. “Explorers used compasses to (15)\_\_\_\_\_ around the world.”

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## Unit 9 Bacteria vs. Fungi

Listen to the audio and fill in the blanks.

Track 27



Bacteria and (1)\_\_\_\_\_ are living things that are all around us. You probably have yogurt, made by bacteria, and (2)\_\_\_\_\_, a type of fungi, in your fridge at home.

(3)\_\_\_\_\_ is made from milk. Bacteria in the milk create lactic acid. They turn the liquid milk into thick yogurt.

Mushrooms are a type of fungi. Of course, we know we can eat some kinds of mushrooms! (4)\_\_\_\_\_ is another type of fungi. Like bacteria, mold can make new foods. This process of making new foods is called (5)\_\_\_\_\_.

Milk turns to yogurt because of fermentation. Other fermented foods (6)\_\_\_\_\_ kimchi, cheese, and soy (7)\_\_\_\_\_.

While bacteria are very small, fungi grow large (8)\_\_\_\_\_ to see with our bare eyes.

Let's make our own mold and watch it grow.

Step 1. Spray a little water on a slice of (9)\_\_\_\_\_.

Step 2. Put the bread in a zipper bag and seal it.

Step 3. Put the zipper bag in a warm and (10)\_\_\_\_\_ place.

Step 4. Observe the mold over about 7 to 10 days. Leave the bread inside the bag and don't forget to wash your hands properly (11)\_\_\_\_\_.

Fungi need somewhere warm and humid to (12)\_\_\_\_\_.

They can't get nutrients alone, so they get them from other things. These things can include animals or plants. It can include old food like the bread we used. Now you know why old fruit gets (13)\_\_\_\_\_ if you leave it too long!

Some bacteria can (14)\_\_\_\_\_ their own nutrients. Unlike fungi, bacteria are made of only a single (15)\_\_\_\_\_.

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## Unit 10 Strange Smells

Listen to the audio and fill in the blanks.

Track 30



Dad is back from (1)\_\_\_\_\_ tennis. But... what's that smell?

Mark says, "Dad, your feet smell (2)\_\_\_\_\_.! Is it because of athlete's foot?"

Dad (3)\_\_\_\_\_ embarrassed. He goes to (4)\_\_\_\_\_.

Mom explains, "Bacteria make feet smell bad, and fungi (5)\_\_\_\_\_ athlete's foot."

"Oh," says Mark, "are bacteria and fungi (6)\_\_\_\_\_?"

"They are. Bacteria and fungi are both very small, and they do a lot of work.

(7)\_\_\_\_\_ of them can make food go bad and (8)\_\_\_\_\_ cause illnesses."

"Bacteria and fungi are very scary, aren't they?" asks Mark.

"They're not all bad. Because of their hard work, (9)\_\_\_\_\_ food, dead animals, and dead (10)\_\_\_\_\_ become nutrients. Mold and mushrooms are both (11)\_\_\_\_\_ of fungi."

"Wow, mushrooms are (12)\_\_\_\_\_ and cool."

"Yes, they are! Bacteria and mold both cause (13)\_\_\_\_\_ as well. This helps make the bread and (14)\_\_\_\_\_ paste you and Dad like so much. Bacteria in the yogurt you have in the morning strengthen your body!" (15)\_\_\_\_\_ Mom.

"Wow! They do so many things! It would be a whole different world if they didn't exist."

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## Unit 11 62 Degrees in the Morning?

Listen to the audio and fill in the blanks.

Track 33



It's a very hot summer (1)\_\_\_\_\_.

You decide to check the (2)\_\_\_\_\_ weather conditions on some weather (3)\_\_\_\_\_.

Wait, this can't be right. Is it really 62 (4)\_\_\_\_\_ in the morning, and 80 degrees in the (5)\_\_\_\_\_? Oh, is it 86 degrees on Thursday?

How can the (6)\_\_\_\_\_ be this high? That's far too hot!

Well, it's quite simple. There's no need to worry at all.

There are two (7)\_\_\_\_\_ ways to measure temperature: Celsius and Fahrenheit.

What's the difference (8)\_\_\_\_\_ them?

Step 1. (9)\_\_\_\_\_ a weather chart which describes the degrees with Fahrenheit.

Step 2. Find Celsius degrees using a (10)\_\_\_\_\_ changing Fahrenheit to Celsius.

First, subtract 32 from the Fahrenheit temperature.

Step 3. Next, multiply the result by 5/9.

$$\text{(Fahrenheit degrees - 32) } \times \frac{5}{9} = \text{Celsius degrees}$$

You can always (11)\_\_\_\_\_ Fahrenheit into Celsius with this formula.

Let's take an (12)\_\_\_\_\_. One weather site says it's 62°F in the morning.

First, (13)\_\_\_\_\_ 32, which is the freezing point of Fahrenheit temperature, from 62. That gives us 30.

Next, multiply the result by 5/9. That's 50/3.

The result of that is about 16.7, which (14)\_\_\_\_\_ that 62°F is 16.7°C.

That's not very hot, is it? Why don't you try to turn more Fahrenheit temperatures into Celsius?

Try some different (15)\_\_\_\_\_. What Fahrenheit temperature is 25°C?

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## Unit 12 Different Temperatures

**Listen to the audio and fill in the blanks.**

**Track 36**



Emma goes on a trip to the U.S. with her (1)\_\_\_\_\_. After a day of fun, they come back to their accommodations. Dad watches the weather forecast on (2)\_\_\_\_\_.

Wait, it will be 77 degrees (3)\_\_\_\_\_!

"Dad, how can it be so hot?" (4)\_\_\_\_\_ Emma.

"Don't (5)\_\_\_\_\_, Emma. That's the temperature in Fahrenheit. 77°F is 25°C."

"What's the (6)\_\_\_\_\_, Dad?"

"Fahrenheit measures temperature a bit (7)\_\_\_\_\_. 0°F is the freezing point of salt water."

"Why (8)\_\_\_\_\_ water?"

"Because that was the (9)\_\_\_\_\_ thing a human could make at that time. 32°F is the (10)\_\_\_\_\_ point of pure water. 212°F is the boiling (11)\_\_\_\_\_ of water."

"Then what is Celsius?" asks Emma.

"Another (12)\_\_\_\_\_ proposed Celsius temperature in 1742. It adopted the (13)\_\_\_\_\_ of °C. He set the freezing point of water as 0°C and the boiling point of water as 100°C. Except for the U.S. and a few other (14)\_\_\_\_\_, most places in the world use Celsius."

Why don't you find an American weather forecast and see what degrees look like in (15)\_\_\_\_\_?

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## Unit 13 The Wonder of Rainbows

**Listen to the audio and fill in the blanks.**

**Track 39**



Refraction and reflection are two ways of (1)\_\_\_\_\_ light.

Look at a bird with binoculars. It looks close even though it's far away. That's because of (2)\_\_\_\_\_. Binoculars bend and (3)\_\_\_\_\_ the light.

The birds fly over a (4)\_\_\_\_\_. You can see them in the water. The light (5)\_\_\_\_\_ off the water and is reflected.

Let's look at (6)\_\_\_\_\_ and refraction at the same time. We will make our own rainbow!

Step 1. Fill a (7)\_\_\_\_\_ glass with water. Put the mirror in the water at an (8)\_\_\_\_\_.

Step 2. Place the glass near a (9)\_\_\_\_\_ so the sun can shine on the mirror.

Step 3. Check the reflection on the wall. (10)\_\_\_\_\_ the angle of the glass to make a rainbow on the wall.

How did this work?

The sunlight was refracted as it entered the water. It slowed down and changed (11)\_\_\_\_\_. Then the light hit the (12)\_\_\_\_\_. It was reflected. It bounced off the mirror and came back. As it left the water, it was refracted again.

Light is made of many (13)\_\_\_\_\_. We usually see it as only white. When the light hit the mirror and left the water, the light was split up into different colors. We saw a (14)\_\_\_\_\_.

In nature, we only see rainbows when the sun shines after it rains. There are water droplets in the air. Light is refracted and reflected like in the experiment.

Aren't rainbows (15)\_\_\_\_\_?

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## Unit 14 All the Colors of the Rainbow

Listen to the audio and fill in the blanks.

Track 42



Noah and his mom are (1)\_\_\_\_\_ in a heavy shower on the way to town. They run (2)\_\_\_\_\_ a cafe. They order some hot (3)\_\_\_\_\_. It soon stops raining, and the sun comes out.

"Wow, Mom, look at that! It's a rainbow! Let's go and find the end. I want to

(4)\_\_\_\_\_ the rainbow."

Mom (5)\_\_\_\_\_. "You can't touch a rainbow, Noah. Rainbows are made of light."

"Oh, I think we (6)\_\_\_\_\_ about it in school. Is it because of light reflection?"

"Yes, and light refraction. Because it rained, there are still raindrops in the air. The sun

(7)\_\_\_\_\_ on the drops. When the light (8)\_\_\_\_\_ the drops, it is refracted."

"It bends!"

"That's right. It then hits the back of the water drop and is (9)\_\_\_\_\_."

"It bounces back!"

"(10)\_\_\_\_\_. As it leaves the drop, it is refracted again."

"So the light is refracted twice and reflected once? All inside a (11)\_\_\_\_\_ raindrop?" asks Noah.

"Yep. As it exits the (12)\_\_\_\_\_, the light is split into many wavelengths."

"And the wavelengths are all different colors?"

"That's right! All the colors of the rainbow."

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## Unit 15 Creating Organs and Limbs

**Listen to the audio and fill in the blanks.**

**Track 45**



Your body consists of many (1)\_\_\_\_\_ all working together. It is like a wonderful and (2)\_\_\_\_\_ machine.

However, they don't always work (3)\_\_\_\_\_. Hearing can become very bad. (4)\_\_\_\_\_ stop working properly. Limbs can be lost in an accident.

What can people do? They might be able to get an (5)\_\_\_\_\_ organ to do the work of their real organs.

Doctors can give you an artificial limb. It might be an arm with (6)\_\_\_\_\_ that can really move.

Doctors can replace a damaged heart with an artificial one. They can replace your inner ear so you can hear (7)\_\_\_\_\_.

Artificial organ (8)\_\_\_\_\_ design and make artificial organs. They look at our real organs and try to copy them. They make them from plastics and (9)\_\_\_\_\_. They test them over and over.

There is still a lot of work to do, though. Artificial organs are not as good as real ones. They are often very (10)\_\_\_\_\_. They don't look the same. There are also some organs that humans cannot yet (11)\_\_\_\_\_.

But artificial organ producers keep trying. They do all they can to (12)\_\_\_\_\_ people who need artificial organs and limbs.

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## Unit 16 Online Doctors

**Listen to the audio and fill in the blanks.**

**Track 48**



You start to feel (1)\_\_\_\_\_. You don't know what's wrong. You need to (2)\_\_\_\_\_ to a doctor. But the doctor's (3)\_\_\_\_\_ is too far away. Or maybe there's a bad (4)\_\_\_\_\_ outside.

How can you speak to a doctor? You can try telemedicine. Telemedicine allows people to speak to their doctor without (5)\_\_\_\_\_ the house. You may have used video (6)\_\_\_\_\_ for school or to speak with family. But you can use it with your doctor, too.

Talk to an (7)\_\_\_\_\_ doctor on the computer or the (8)\_\_\_\_\_.

The doctor can check your medical (9)\_\_\_\_\_. They can see what's wrong with you. They can prescribe medicine and tell you what to do next.

Not (10)\_\_\_\_\_ likes online doctors, however. Some people (11)\_\_\_\_\_ to see doctors face-to-face. Others think online doctors could (12)\_\_\_\_\_ something important.

However, it can help many people. Disabled people or people in the (13)\_\_\_\_\_ might prefer online doctors. People can even speak to an online doctor from another country. Telemedicine can make many lives (14)\_\_\_\_\_.

Online doctors can (15)\_\_\_\_\_ people's lives.