

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)_____.

Class

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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)_____."

Class

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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.

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

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?

Class

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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)_____?

Class

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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."

Class

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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.

Class

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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.