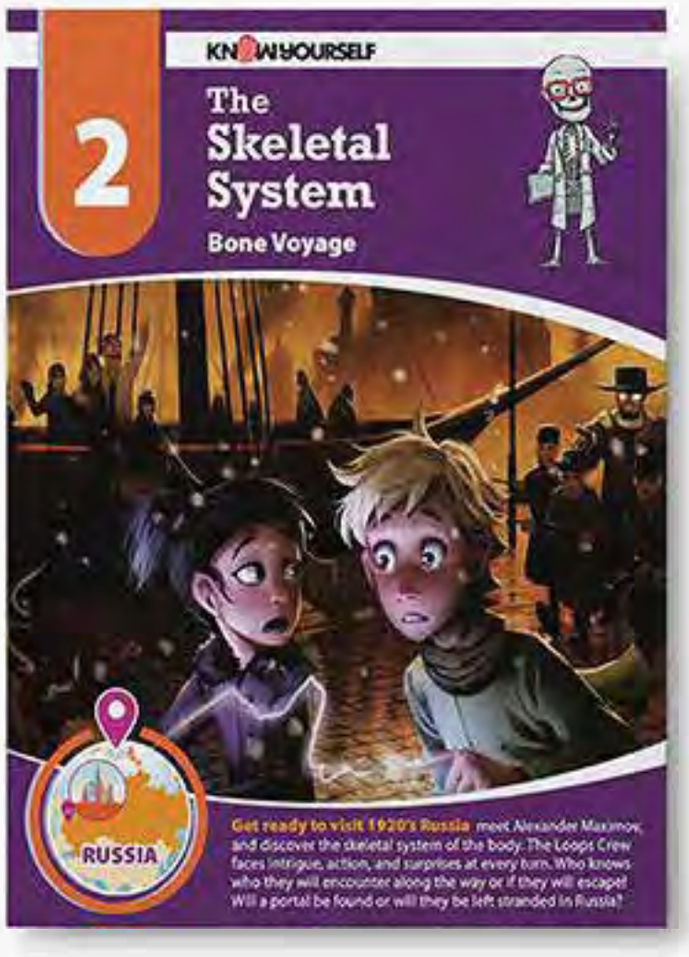
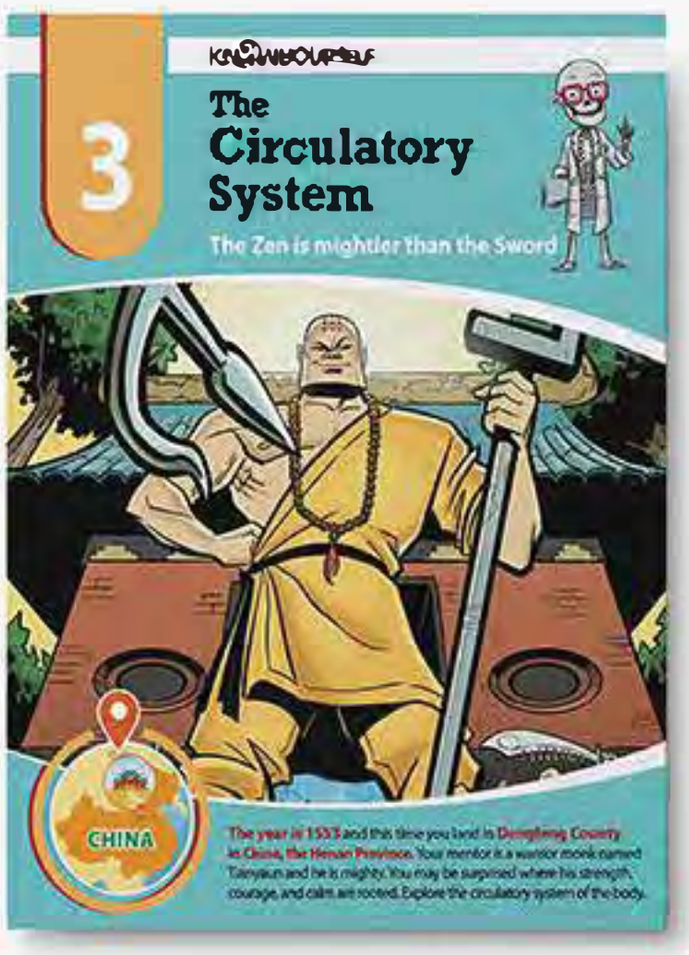
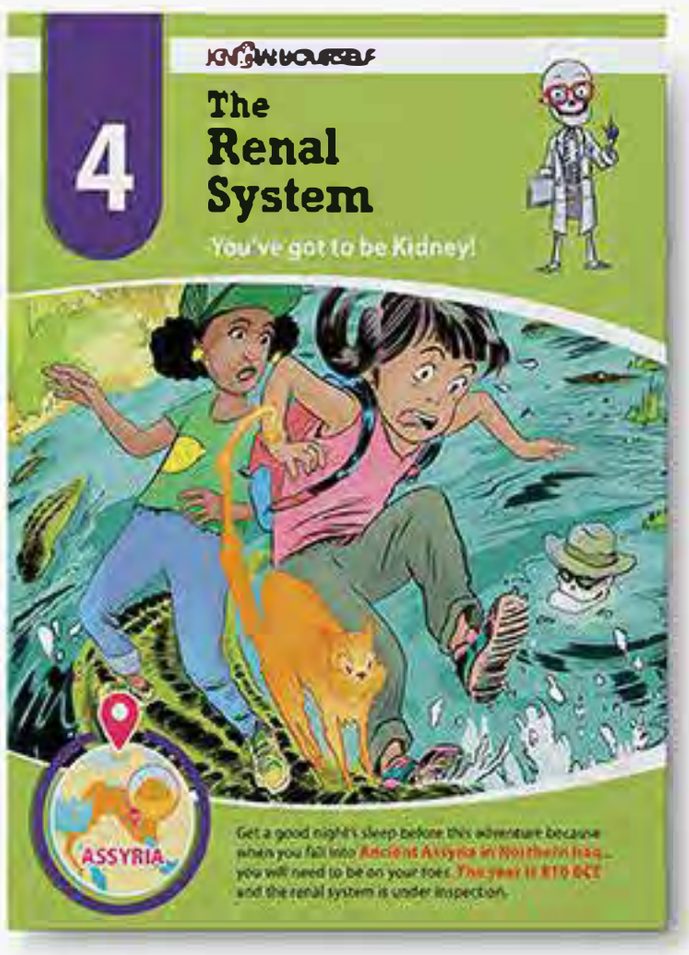
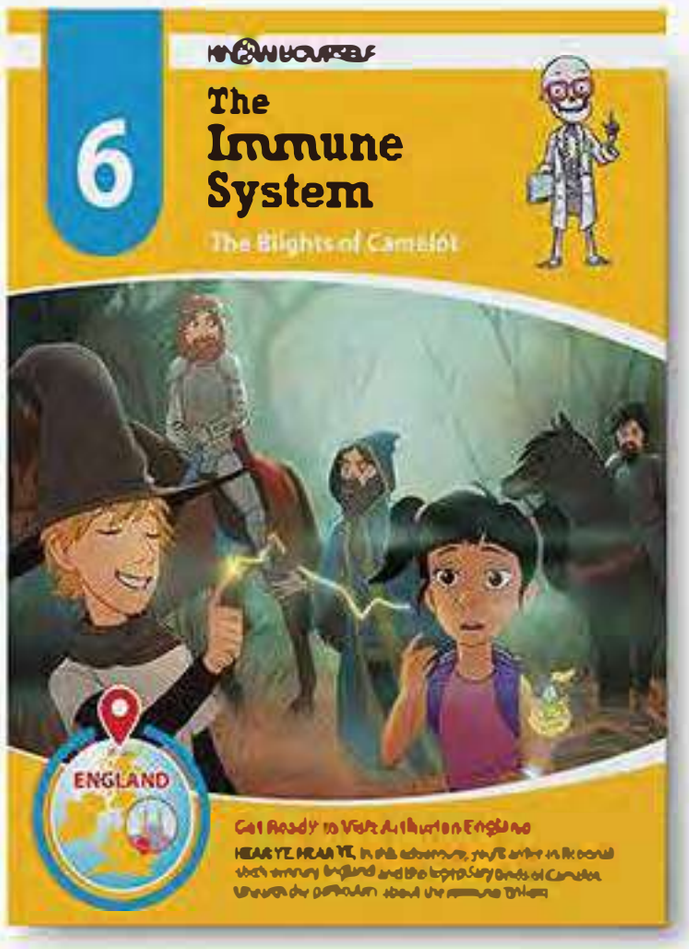




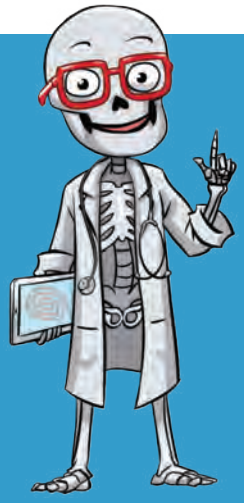




KNOW YOURSELF

1 The Five Senses

Fangs of Philosophy



Follow Pinky and her friends (The Loops Crew) on **a time-traveling adventure to ancient Greece**. As the Loops Crew begins their day everything seems to be normal until they find a portal that leads them on a journey, meeting Aristotle and learning about the five senses.

Hello Adventurer!

Welcome to Adventure 1 - The Five Senses.

In this workbook, you will learn about Ancient Greece and your body's five senses. There will be information to read, activities to complete, and quizzes to take when you are ready to challenge yourself! Take your time along the way - spend as much or as little time as you like on each activity, and do not forget to use additional resources to learn more about the topics you are interested in. Good luck, and have fun!

Great to have you along on this journey through the Five Senses.

Get ready for an epic quest!

Καλώς Ορίσατε

(Kalos Orisate)*

That means "Welcome!" in Greek.

***Say it like this: "**kah-**los** oh-**ree**-sot-tay."**

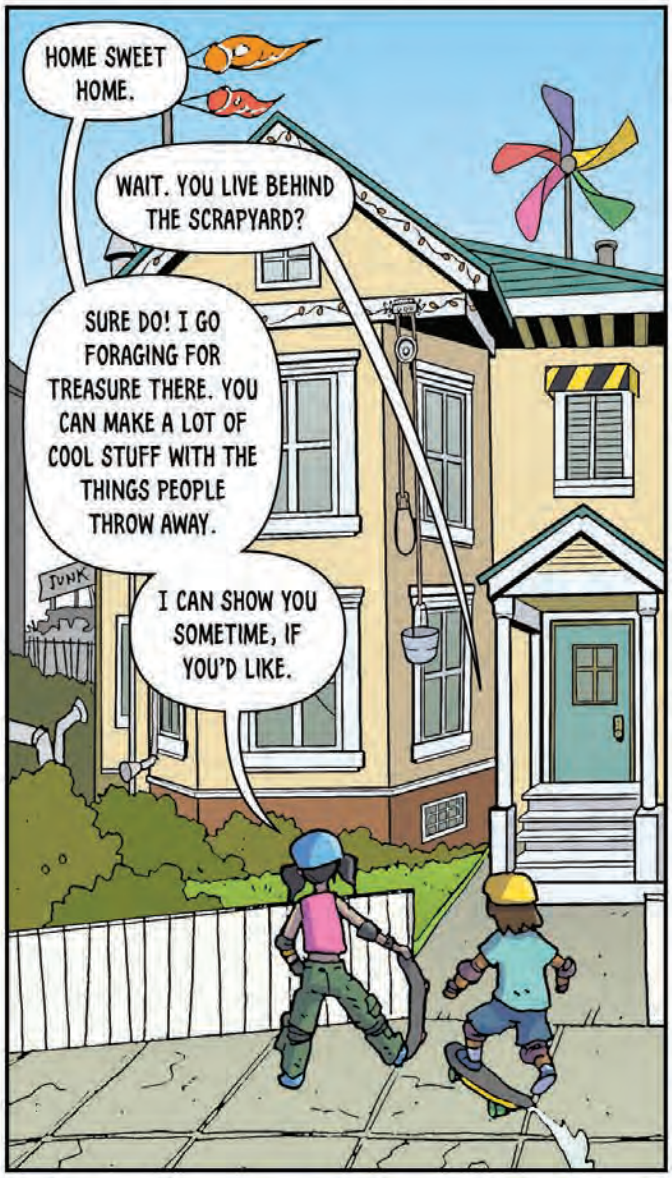
*Syllables in bold are the strongest.

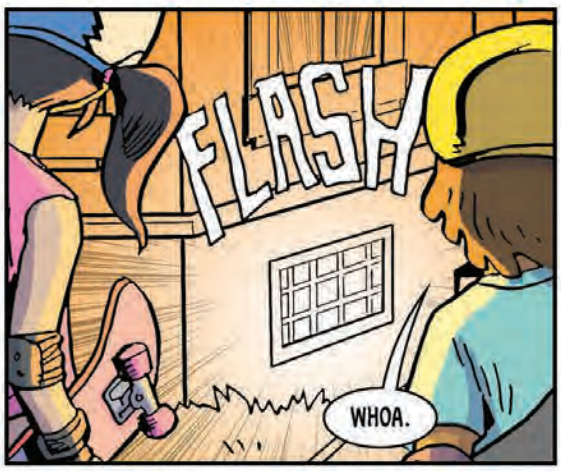
Through
this portal
the adventure begins


THAT DISASTER WAS AWESOME, PINKY!
THAT INDY WASN'T TOO SHABBY, EITHER.
HEY! WANNA TRY OUT THE NEW RAILS?
SURE! I'VE BEEN PRACTICING MY NOSE GRIND...
HUH?
I'VE NEVER SEEN A WATCH LIKE THAT BEFORE.
UH, STOKELY? I'VE...GOT TO RUN.
HEY! WAIT!
CAN I RIDE BACK WITH YOU? I LIVE NEARBY...
BUT, WELL, BUT, I....
OKAY.

FANGS OF PHILOSOPHY

THE SEVENTH SENSE: PART 1





Learning Calendar

Part 1
Know Your History

Gather the adventure equipment you'll need from around the house - find the checklist on pages 26 and 27!

Locate Greece on a world map using a globe, an atlas, or an online map (e.g., https://upload.wikimedia.org/wikipedia/commons/0/0a/World_map_2004_CIA_large_2m.jpg).

Read the comic **Fangs of Philosophy** - find it at the beginning of this Adventure Guide!

Travel to Ancient Greece and *Know Your History*.

Challenge yourself to *Know Your Olympics*.

Recite *Regarding Rhetoric*.

Explore *Making Maps*.

Celebrate *Games like the Ancient Greek!*

Crack the *Ancient Greece Crossword*.

Dig into *Ancient Greek History Challenge*.

Part 2
Know Your Five Senses

Read *Know Your Five Senses*.

Get *Scent-imental!*

Witness *Wonderful Sound Waves*.

Detect *Secret Messaging.*

React to Refraction.

Investigate: *Are You a Super Taster?*

Experience *Receptor Collector*.

Play *Five Senses Scavenger Hunt & Sensational Mystery Activity*.

Uncover the *Five Senses Word Search*.

Make *Sense of the Five Senses*.

Part **3**

Know Your Appetite

Read *Know Your Appetite*.

Read the recipes on the following pages. Make a shopping list, purchase ingredients, and get your kitchen ready!

Make *Koftas with Yogurt Sauce* and *Classic Greek Salad*.

Share your dishes with your family. Discuss *Thoughts for Young Chefs* around the table!

Part **4**

Show What You Know!

Wrap up knowledge with *Who NOSE How it Goes*.

Check Out *Further Reading* for more opportunities to learn.

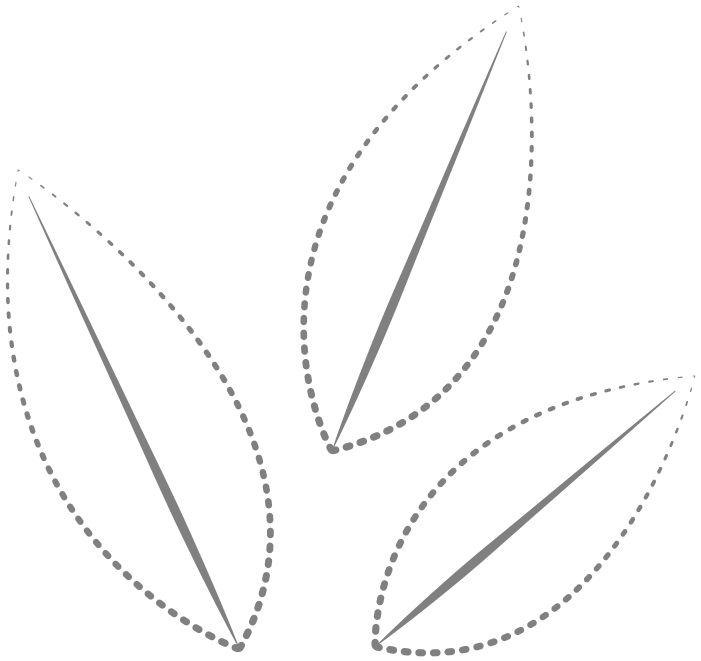
Celebrate Games

Like the Ancient Greeks

Pretend you and your friends are enacting a real-life Olympic games and celebrate! Victorious athletes of the Olympic games could expect to be crowned with a wreath made up of sacred olives, olive leaves and twigs.

Olive trees were considered sacred to Ancient Greeks as they played an important role in daily life. Olive oil and parts of the olive tree were used in greek medicine, personal hygiene, cooking and diet, trade, and even transport by sea.

Make a crown of your own to honor your Olympic games winner!



Materials:

- **Scissors**
- **Tape**
- **Green, brown, and black construction paper (8.5 x 11 inches)**
- **Aluminum foil**
- **A marker**
- **Glue**

Directions:

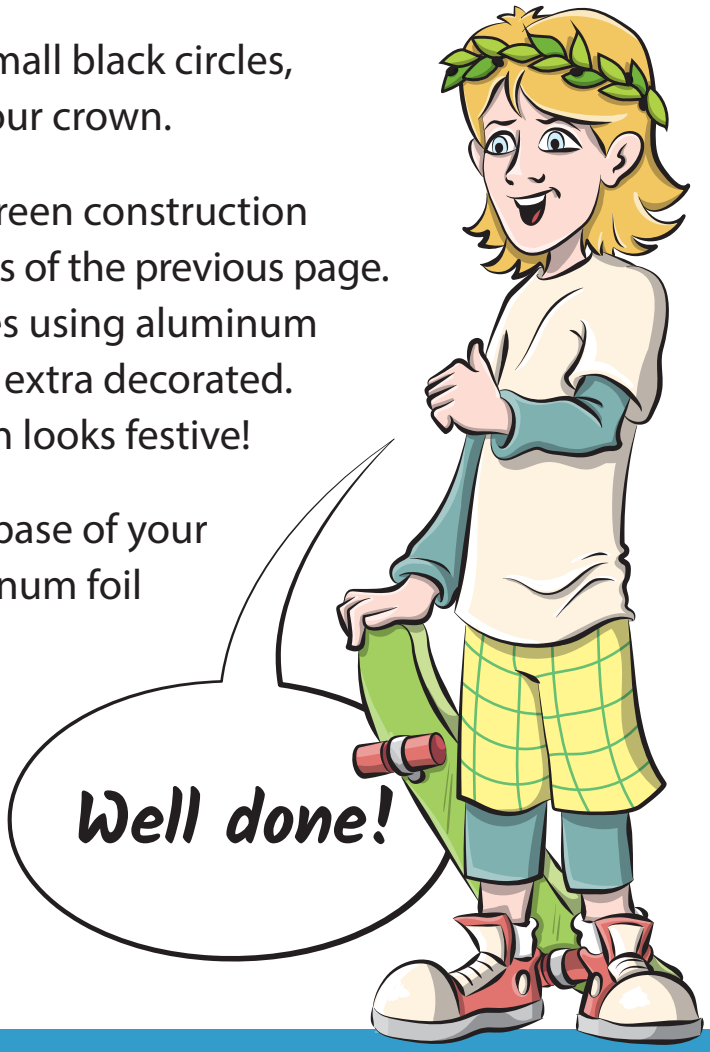
1. Use your scissors to cut two brown pieces of paper into a long rectangular line (about 1 inch thick). Afterwards, tape the two together and have an adult help you fit the circle around your entire head. This will be the base of your crown- it is okay if it seems a little long!

2. Then use scissors again to cut out small black circles, these will represent the olives on your crown.

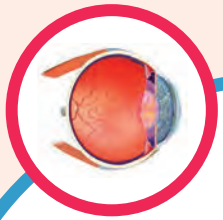
3. Cut out olive leaves by using your green construction paper and marker to copy the shapes of the previous page. Cut out a few green olive leaf shapes using aluminum foil - this will make your crown look extra decorated. Make plenty of leaves so your crown looks festive!

4. Glue your cut leaf and olives to the base of your crown, leaving the olives and aluminum foil leaves as the finishing touches.

5. Once the glue is dry, you are ready to celebrate like the Greeks. Use extra materials to help others celebrate too.



Your sensory receptors and brain, explained:

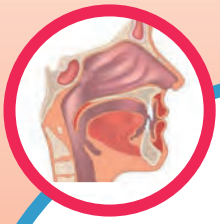


SEE

Sensory receptors inside each of your eyes process information on the retina and send signals to the somatosensory cortex of the brain.

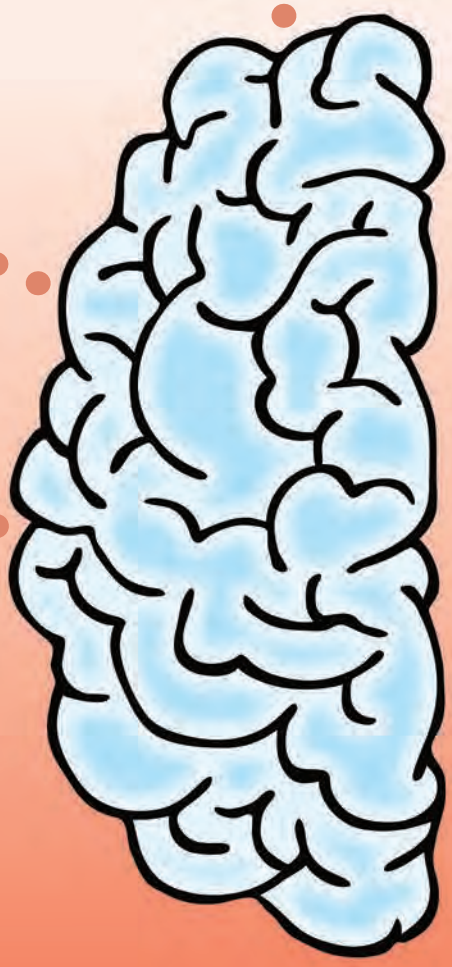
HEAR

Sound waves are sensed through your ears using your ear canal, eardrum, tiny bones, and the cochlea. The cochlea contains sensory receptors on its hairs and transmits messages to the auditory cortex of the brain.



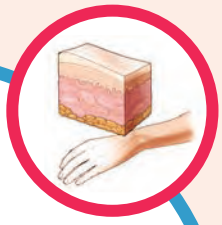
SMELL

Tiny hair-like neurons inside of your nose containing odor receptors receive floating odor molecules and match messages to the olfactory cortex of the brain.



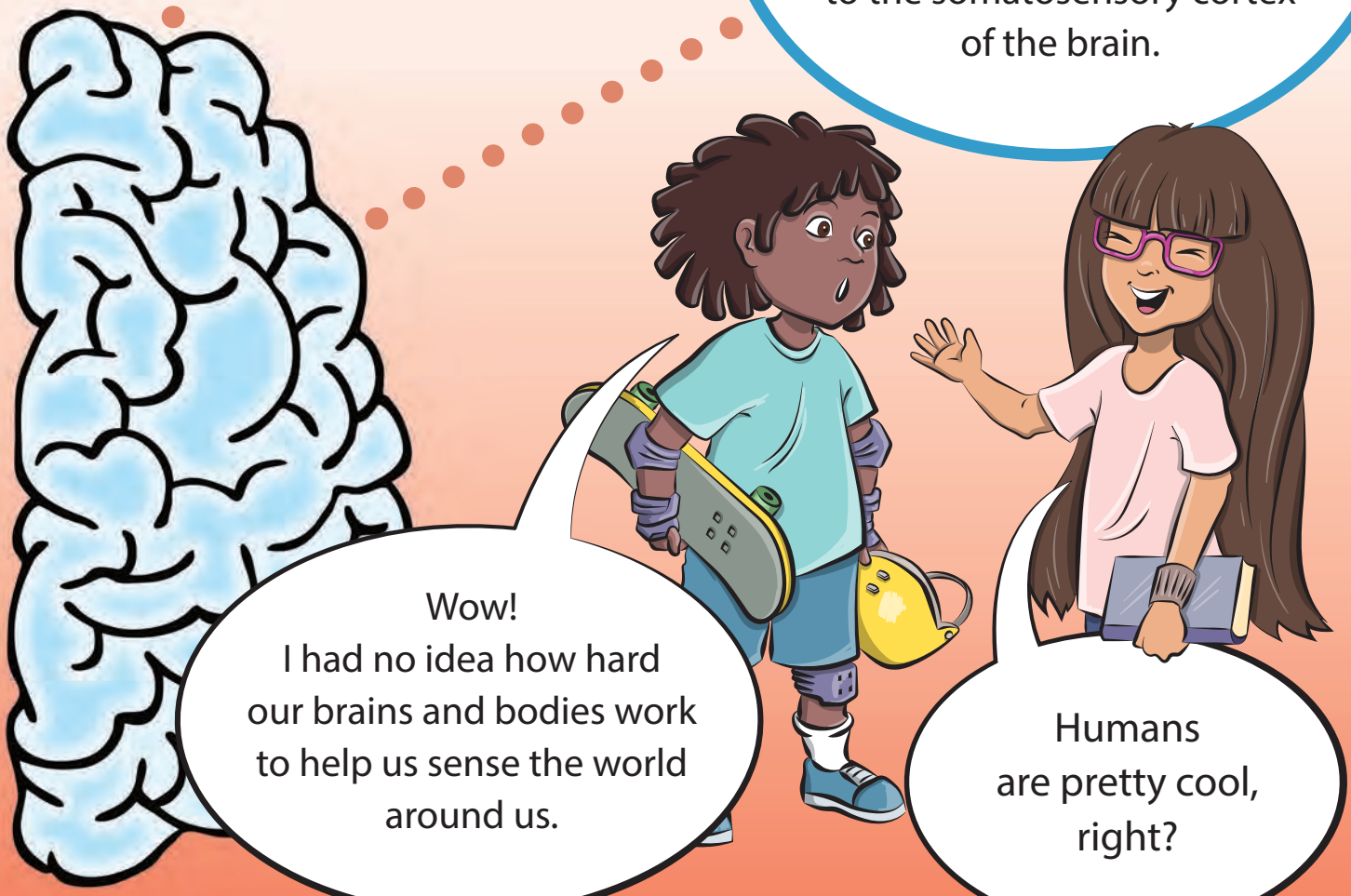
TASTE

Taste buds present on your tongue contain sensory receptors which work together with neurotransmitters and peptides to communicate to the gustatory cortex.



TOUCH

Pressure, temperature, and vibration sensed by receptors in your skin provide information to the somatosensory cortex of the brain.



Tune in to HEARING!

Here's an EAR-ful

Sound waves enter your ear and make your eardrum vibrate. This vibration moves three tiny bones in the middle part of your ear, which causes the fluid inside your inner ear to move. The moving fluid sends signals along a special nerve all the way to your brain.

Eardrum

is a thin membrane that vibrates when sound waves hit it.

Outer Ear

is called the auricle. It's the part of the ear that you see. Its shape helps collect sound waves from the air. Sound waves then travel through the ear canal, hit the eardrum, and make it vibrate.

*Say it like this:

Cochlea - "**koke-lee-uh**"
Malleus - "**mal-ee-us**"
Eustachian - "**you-stay-shun**"

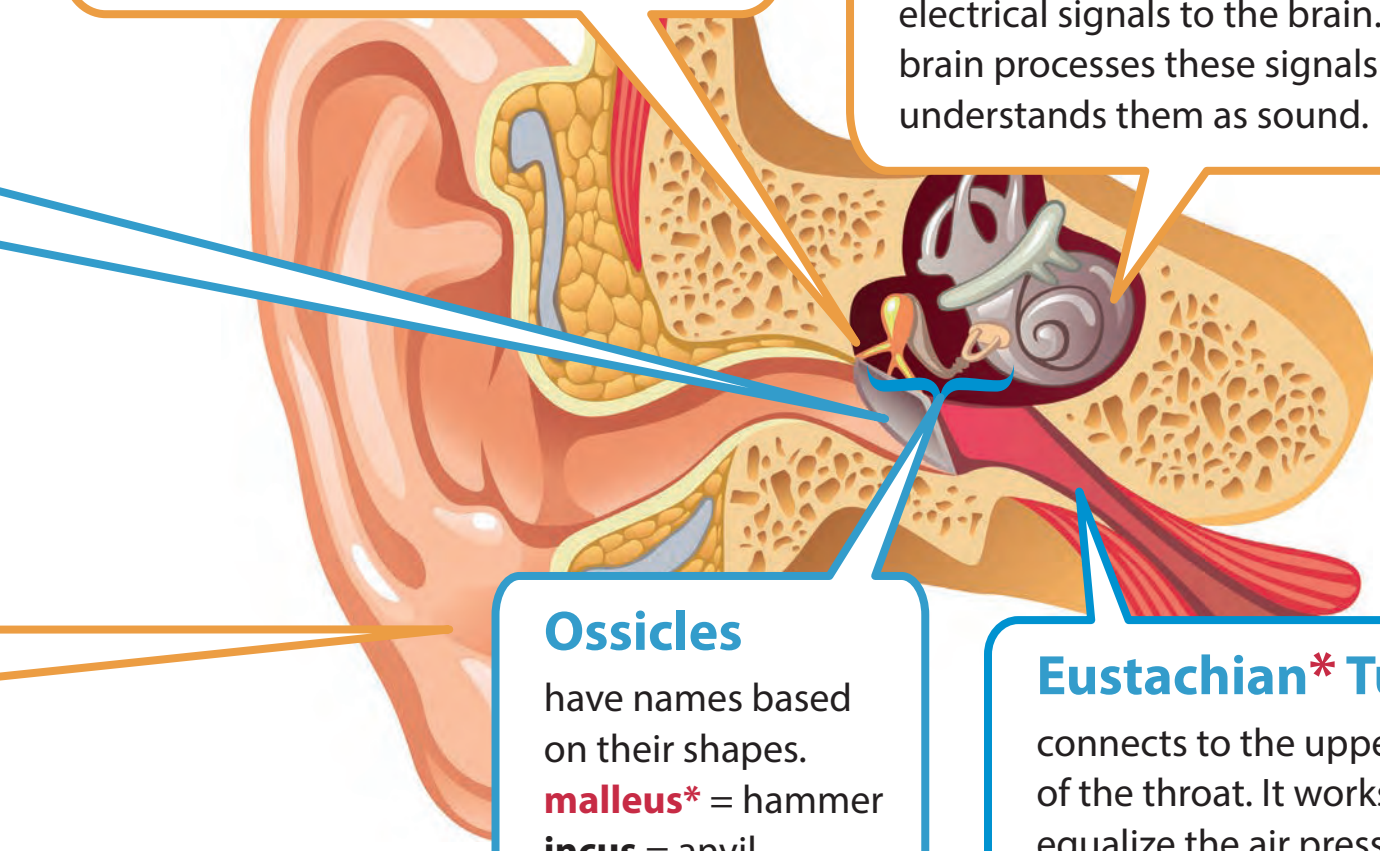
Ear wax helps to fight infection and keep dirt and insects from getting deep inside your ear.

Middle Ear

has three tiny bones, called ossicles. They're the malleus, the incus, and the stapes. When the eardrum vibrates, it causes the ossicles to move like small levers. Their movement amplifies the original vibration.

Inner Ear

has a fluid-filled structure called the **cochlea**.* It looks like a snail shell and has rows of hair cells on the inside. Vibrations from the middle ear create waves in the cochlea's fluid, wiggle the hair cells, and send electrical signals to the brain. The brain processes these signals and understands them as sound.



Ossicles

have names based on their shapes.
malleus* = hammer
incus = anvil
stapes = stirrup

Eustachian* Tube

connects to the upper part of the throat. It works to equalize the air pressure on both sides of the eardrum.

My Favorite Sounds

Nature Sounds: .....

Home Sounds: .....

Music Sounds: .....

School Sounds: .....

Wonderful Sound Waves

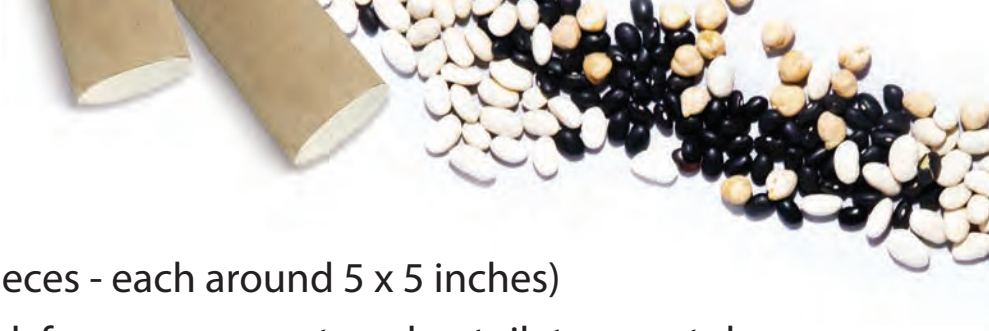
In Ancient Greece, many believed that the movement of the sun, the moon, and the planets created sound. This idea was called **"The Music of the Spheres"**.

Although this was just a theory, the idea led philosophers such as Pythagoras and Plato to study sound waves and rhythm as mathematical relationships.

When objects are in motion, they vibrate and produce sound waves, many following patterns we find in nature.

Pluck a guitar string and you can see the vibrations that create sound. When different lengths and thicknesses of the string are vibrating, you can hear different tones.

Most sound is invisible to your eye. That's when your sense of hearing takes over, collects sound waves, and signals your brain for interpretation.



Materials:

- **1 paper towel** (cut into 2 pieces - each around 5 x 5 inches)
- **2 cardboard cylinders** - look for spare paper towel or toilet paper tubes
- **Some dried beans** (any you have on hand - look for lentils, pinto beans, black beans, or garbanzo beans; you can even compare the sounds of each for more fun!)
- **2 rubber bands**

***Note: You can also substitute the cardboard cylinders, paper towel, and rubber bands with a spare jar or container for ease.**

To explore sound waves and rhythm patterns, we will start by making a **Wonderful Waves shaker** using the materials above. You can begin by placing a square of paper towel over one opening of your cardboard tube (secure with 1 rubber band). Next, place a small handful of your dried beans into the cardboard tube through the second opening. Now place the second paper towel over the second opening, using a second rubberband to secure the shaker. Great job - you've made your own Wonderful Waves shaker!

***Psst - Pinched for time?**
Just place the beans inside of a jar or plastic container.

Now, let's use your new Wonderful Waves shaker to explore sound waves and rhythm patterns.

2 The Skeletal System

Bone Voyage

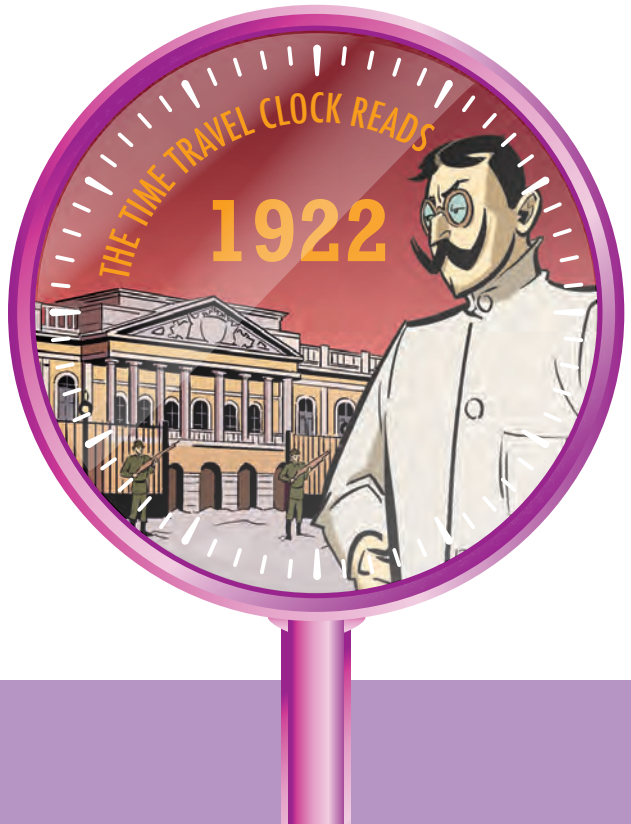
Get ready to visit 1920's Russia, meet Alexander Maximov, and discover the skeletal system of the body. The Loops Crew faces intrigue, action, and surprises at every turn. Who knows who they will encounter along the way or if they will escape! Will a portal be found or will they be left stranded in Russia?

Hello Adventurer!

Welcome to Adventure 2 - The Skeletal System.

In this workbook, you will learn about Russia in the early and mid-20th Century and your body's Skeletal System There will be information to read, activities to complete, and quizzes to take when you are ready to challenge yourself! Take your time along the way - spend as much or as little time as you like on each activity, and do not forget to use additional resources to learn more about the topics you are interested in.

Good luck, and have fun!



Get ready for a bone-chilling adventure!

Добро пожаловать!

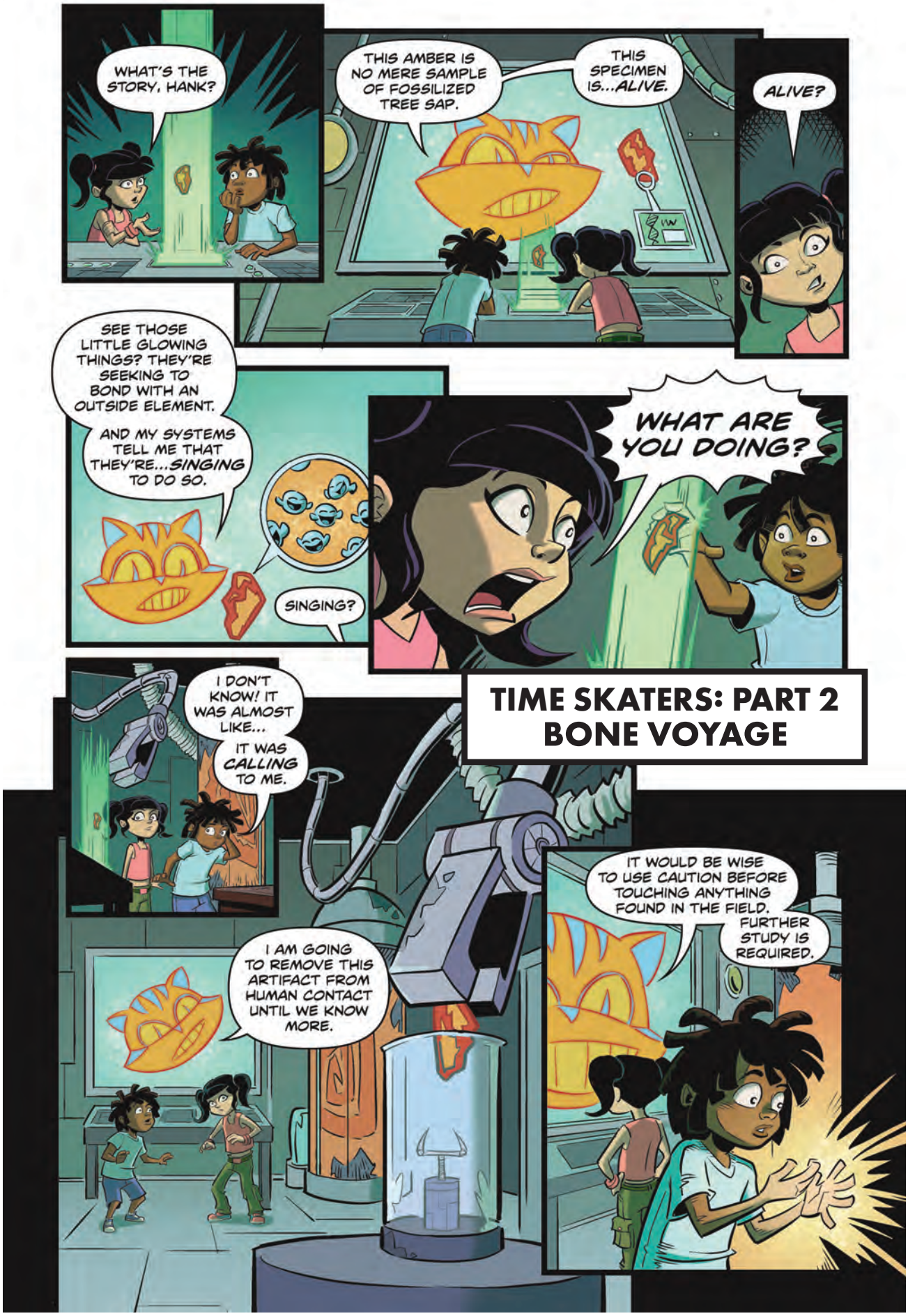
(Dobro Pozhalovat)*

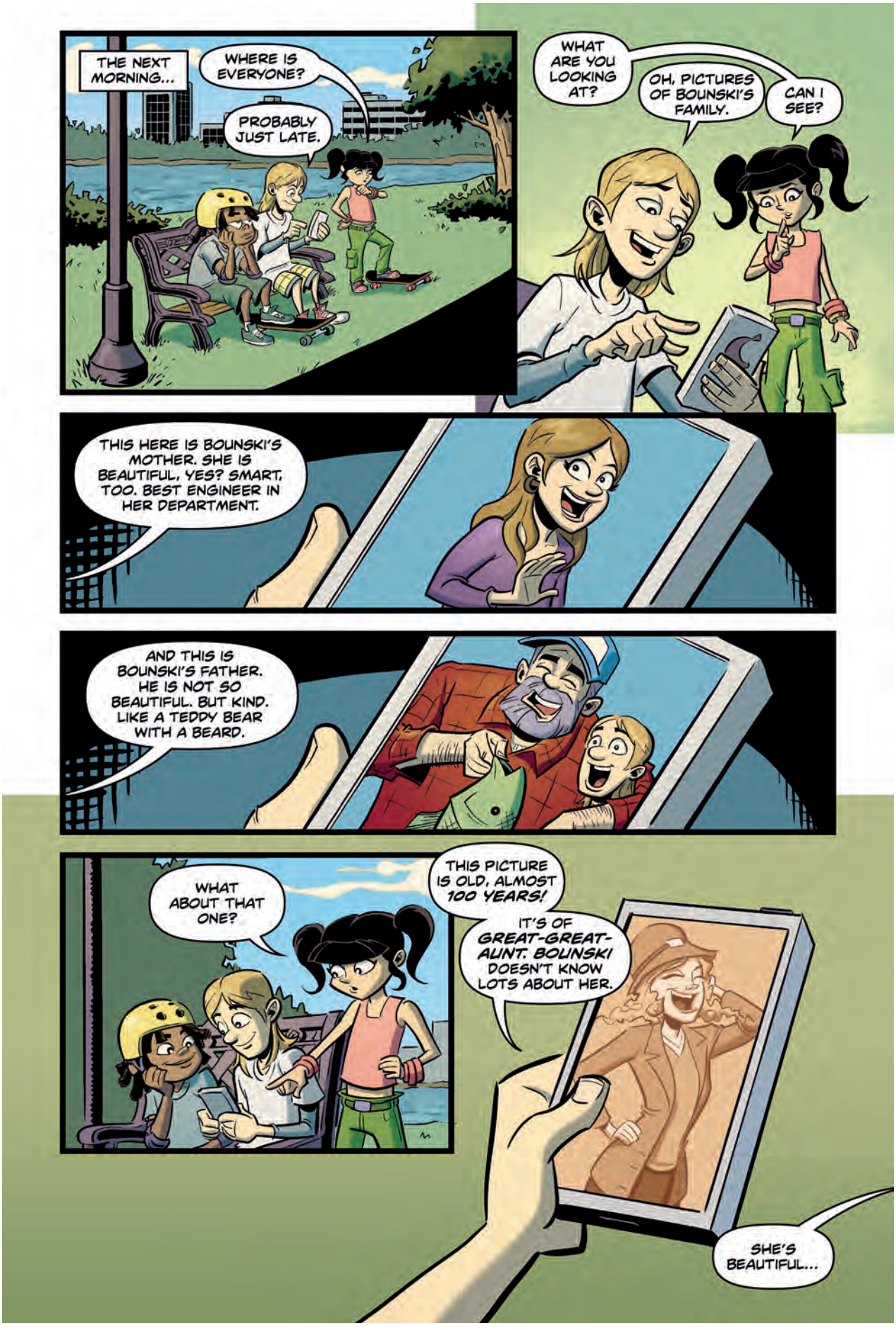
That means "Welcome!" in Russian.

***Say it like this:** "doh-**bro** – pas-**zha**-low-vat."

*Syllables in bold are the strongest.

Time Skaters Adventure 2


WHAT'S THE STORY, HANK?
THIS AMBER IS NO MERE SAMPLE OF FOSSILIZED TREE SAP.
THIS SPECIMEN IS...ALIVE.
ALIVE?
SEE THOSE LITTLE GLOWING THINGS? THEY'RE SEEKING TO BOND WITH AN OUTSIDE ELEMENT.
AND MY SYSTEMS TELL ME THAT THEY'RE...SINGING TO DO SO.
SINGING?
WHAT ARE YOU DOING?
TIME SKATERS: PART 2
BONE VOYAGE
I DON'T KNOW! IT WAS ALMOST LIKE...
IT WAS CALLING TO ME.
I AM GOING TO REMOVE THIS ARTIFACT FROM HUMAN CONTACT UNTIL WE KNOW MORE.
IT WOULD BE WISE TO USE CAUTION BEFORE TOUCHING ANYTHING FOUND IN THE FIELD.
FURTHER STUDY IS REQUIRED.


THE NEXT MORNING...
WHERE IS EVERYONE?
PROBABLY JUST LATE.
WHAT ARE YOU LOOKING AT?
OH, PICTURES OF BOUNSKI'S FAMILY.
CAN I SEE?
THIS HERE IS BOUNSKI'S MOTHER. SHE IS BEAUTIFUL, YES? SMART, TOO. BEST ENGINEER IN HER DEPARTMENT.
AND THIS IS BOUNSKI'S FATHER. HE IS NOT SO BEAUTIFUL. BUT KIND. LIKE A TEDDY BEAR WITH A BEARD.
WHAT ABOUT THAT ONE?
THIS PICTURE IS OLD, ALMOST 100 YEARS!
IT'S OF GREAT-GREAT-AUNT. BOUNSKI DOESN'T KNOW LOTS ABOUT HER.
SHE'S BEAUTIFUL...


PINKY! DO YOU READ ME?
I'M BUSY, HANK...
YOU'RE BUSY? WHAT A RELIEF.
IT'S NOT LIKE OUR DEAR FRIEND DR. B. IS LOST IN THE SPACE/TIME CONTINUUM OR ANYTHING!!
SHH!!
SO THIS IS THE HANK BOUNSKI HEAR ABOUT?
HOW DID YOU...
STOKELY!!
IT IS NOT HIS FAULT, PINKY. STOKELY CANNOT KEEP SECRETS.
BUT DON'T WORRY, BOUNSKI WILL NOT TELL ANYONE.
ONE BIG HAPPY FAMILY, GREAT. NOW GET MOVING.
THIS IS A JOB FOR AT LEAST TWO PEOPLE.
SORRY.
STOKELY. ARE YOU READY?
MY MOM, SHE'S MAKING MEATBALL SANDWICHES AND BROWNIES. OH BROWNIES.
I HAVE TO GO.
WHAT'S HIS PROBLEM?
GET BACK TO THE LAB!
DO YOU HAVE ANY PLANS FOR THE NEXT FEW HOURS?

Learning Calendar

Part 1
Know Your History

Gather the adventure equipment you'll need from around the house - find the checklist on pages 22 and 23!

Locate Russia on a world map using a globe, an atlas, or an online map (like this one: https://knowyourself.com/maps)

Read the comic **Time Skaters: Part 2 - Bone Voyage**. Find it at the beginning of this Adventure Guide!

Read about Russia in *Know Your History*.

Study the masters in *Know Your Art*.

Binge on books with *Know Your Novelists*.

Fabricating *like Fabergé*.

Soar among the stars in *Space Racing*.

Write *like a Russian*.

Complete *20th Century Russia Crossword*.

Test all *Tsar Knowledge!*

Part 2
Know Your Skeletal System

Study the skeleton in *Know Your Skeletal System*.

Pull yourself together in *A Bone to Pick*.

Dance your way through *A Bony Twist!*

Think *on your feet!*
Get that *Posture en Pointe*.

Detangle the *Skeletal System Word Search*.

Answer a *Skele-ton of Information*.

Part 3
Know Your Appetite

Read *Know Your Appetite*.

Read the recipes on the following pages. Make a shopping list, purchase ingredients, and get your kitchen ready!

Make *Russian Potato Salad with Dill* and *Sushkis*.

Share your dishes with your family. Discuss *Thoughts for Young Chefs* around the table!

Part 4
Show What You Know!

Rush In *and Bone Up.*

Check out *Further Reading* for more opportunities to learn.

Know Your Art

Look at all of these dolls! They are called Russian nesting dolls, or **matryosh-ka***, if you happen to speak Russian.

matryoshka

***Say it like this: "**ma-tree-**osh**-ka**".**

*Syllables in bold are the strongest.

If you look closely, you'll notice something interesting about these hand-painted wooden dolls:

they fit inside of each other!

Inside of each doll is a smaller version of the same doll, and inside of that one is an even smaller one. This onion-like characteristic has led people to think that the dolls represent the many layers of Russian personality.

Know Your Art

Get creative with colors.

Turn back to the skeletons on the previous page. Look closely at the bones.

Do all of the bones look alike? Can you find some that are similar to each other in appearance? Let's see how bones are grouped according to what they have in common!

Long Bones

include the bones of your arms, legs, fingers, and toes. These bones are slightly curved, which helps them to absorb shock. Their strong shafts are made of compact bone. The inside of the wider ends have spongy bone that is covered with compact bone.

Arms • Legs • Fingers • Toes

Short Bones

are almost entirely made from spongy bone and sealed with a layer of compact bone. They are found in your wrists, ankles, and kneecaps.

Wrist Bones • Ankles • Kneecaps

Flat Bones

do not go up and down like long and short bones do. Your skull, ribs, sternum, hips, and shoulder blades are all flat bones. These flat plates of spongy bone are covered with compact bone.

Skull • Ribs • Sternum • Hips • Shoulder Blades

Irregular Bones

include facial bones such as the jawbone, the vertebrae that make up your spine, and the tiny bones (ossicles) in your ear.

Facial Bones • Spine • Ossicles in the Ear

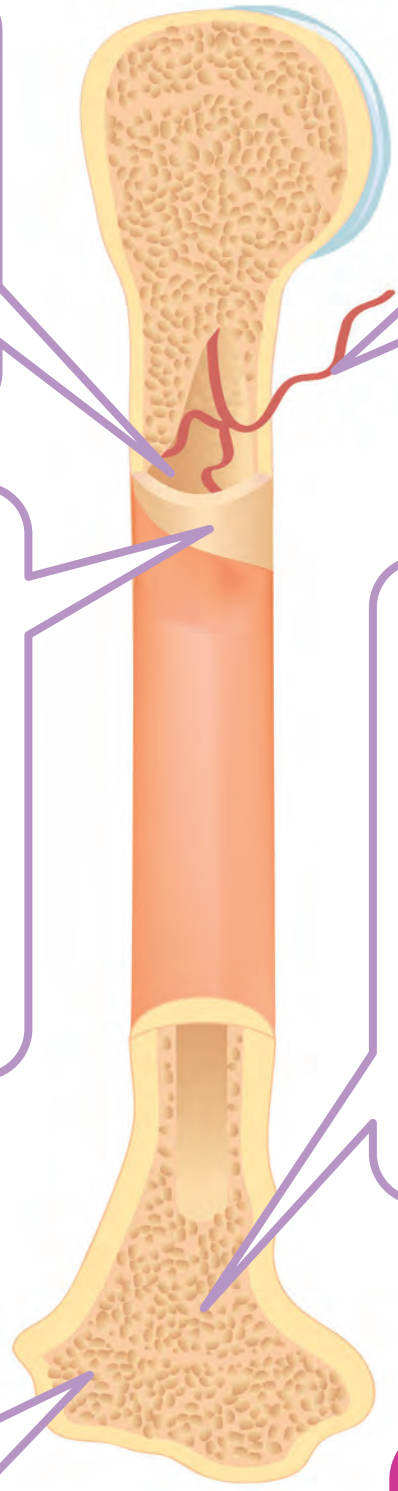
Let's look at what makes up a long bone, shown here. Almost all bones include spongy bone, compact bone, and both red and yellow marrow.

Medullary* Cavity

runs down the middle of the long bone. In children, it's packed with red marrow. In adults, the medullary cavity becomes filled with fat (yellow marrow).

Nutrient Artery

runs the length of the medullary cavity. This artery is the main blood supply to the bone and helps it to stay healthy.



Compact Bone

is also known as cortical bone. Compact bone is the hard bony surface that you see when you look at skeletons. Compact bone is the heaviest type of bone and supports the weight of the body.

Spongy Bone

is also known as cancelous bone. It's really a network of many bony fibers that provide the bone with support. Spongy bone reminds us of a real sponge, with the sponge being the bony fibers and the air pockets being red or yellow marrow.

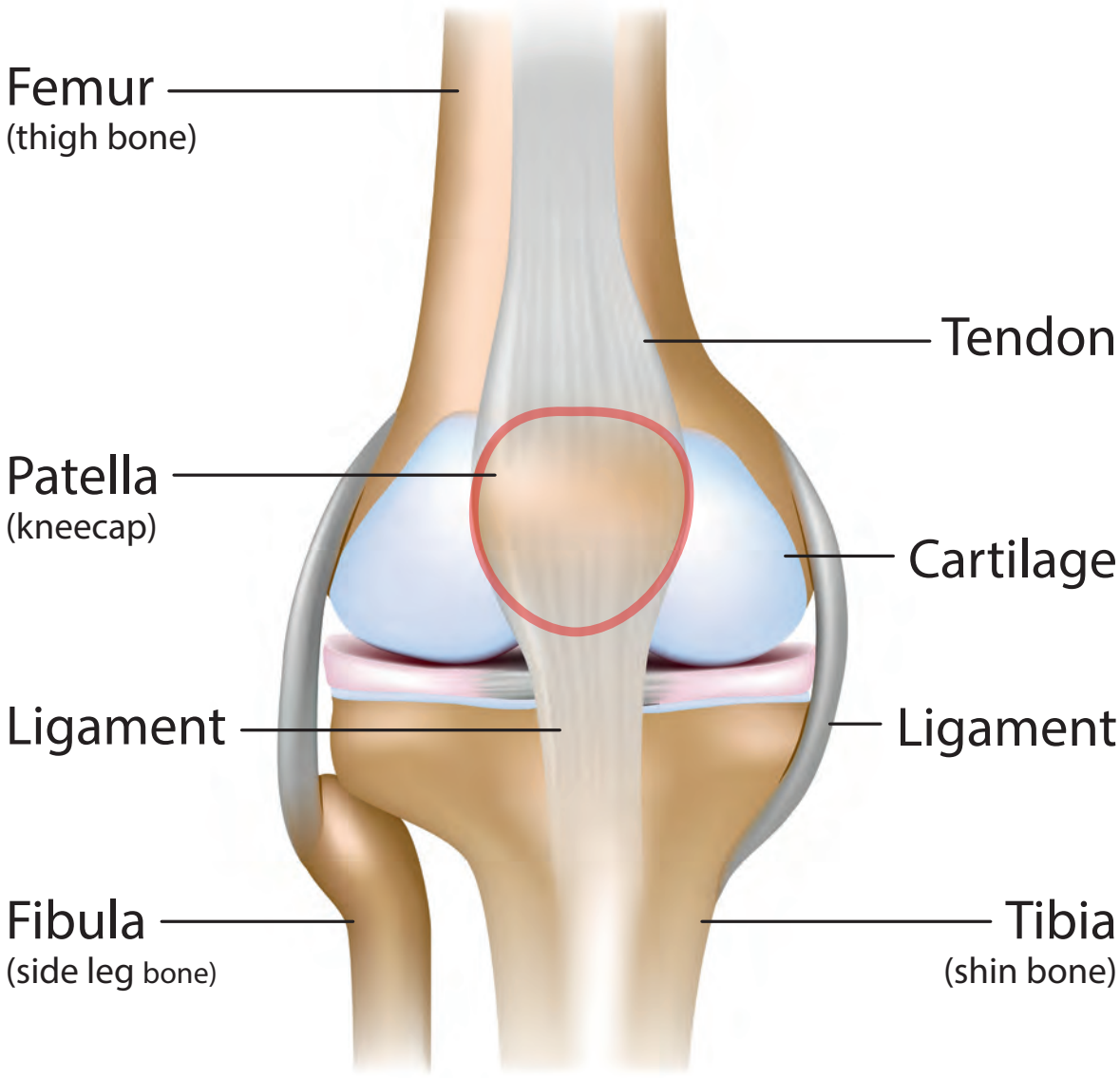
Red Marrow

is found within spongy bone and in the medullary cavity in children's bones. Both red and white blood cells are made in the red marrow.

*Say it like this:
"**meh**-dull-lary"

Keeping it all Together!

Your bones need connective tissue like ligaments, tendons, and cartilage to help them move. These connective tissues join bone to bone and muscle to bone so you can move your body. Let's look at the diagram below to see the connective tissue inside your knee.



The smallest bone in your body is located in your middle ear. It's called the stapes.* Say it like this: "**STAY**-peas".

A Bony Twist!

Get ready for A Bony Twist on listening to some of your favorite music!

Materials:

- **White paper**
- **Markers**
- **Your completed skeleton from "A Bone to Pick"**
- **Music**

This is a fun game you can play with one other person or add more people for more fun. To play, you will need to first create some signs with bones names. Use the skeleton you built in the previous activity "***A Bone to Pick***" for reference.

Directions:

PREPARING YOUR BONE SIGNS

1. Take your paper and markers out onto a flat surface. Place your skeleton nearby or assistance.

2. To design your signs, you will need to write in large, uppercase writing that can be read from a distance. Write either a bone or group of bones onto each piece of paper. Reference your skeleton if you need help remembering the name of a bone or bone group.

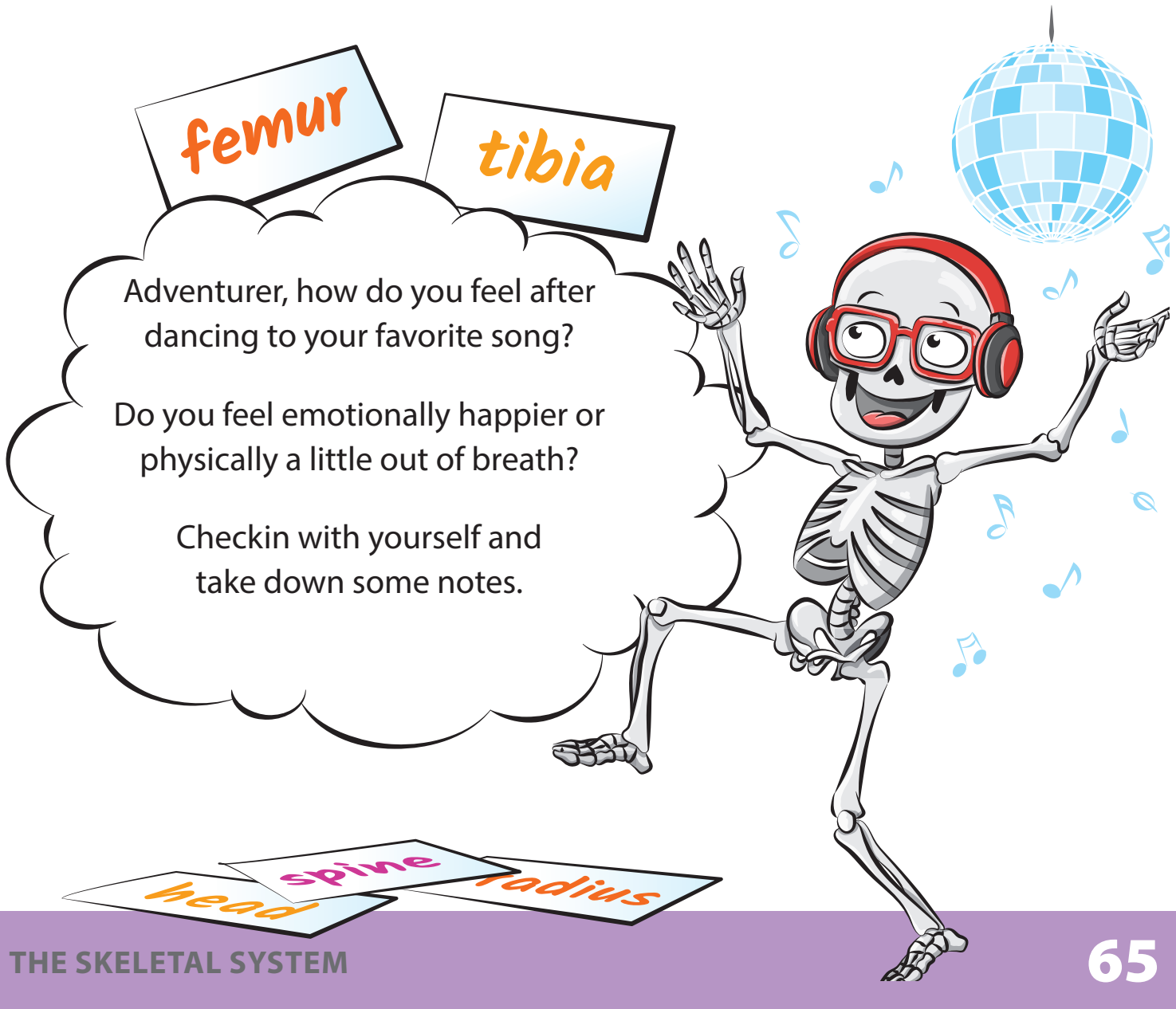
3. Make as many or as few signs as you like!

4. Once your signs are complete, grab your favorite music, a friend, and get ready to twist!

HOW TO PLAY

1. Playing the game is easy. Just turn on your favorite jams and see how well you know your bones. When your friend shows you a sign, bust a bony move using whichever bones are shown on the signs you made.

Note: You can make ***A Bony Twist*** more challenging by writing the name of each bone on each piece of paper, or less challenging by just writing groups of bones on each piece of paper. For example, write femur, tibia, or scapula for a challenge. For something a bit easier, use groups of bones instead - for example, upper extremities, rib cage and spine, lower extremities, and head.



3 The Circulatory System

The Zen is mightier than the Sword

The year is 1553 and this time you land in **Dengfeng County in China, the Henan Province.** Your mentor is a warrior monk named Tianyaun and he is mighty. You may be surprised where his strength, courage, and calm are rooted. Explore the circulatory system of the body.

Hello Adventurer!

Welcome to Adventure 3 - The Circulatory System.

In this workbook, you will learn about Ancient China and your body's circulatory system. There will be information to read, activities to complete, and quizzes to take when you are ready to challenge yourself! Take your time along the way - spend
as much or as little time as you like on each activity, and do not forget to use additional resources to learn more about the topics you are interested in.

Good luck, and have fun!

Get ready to start flowing!

LEARN ABOUT

The Circulatory System

This bodily highway delivers all the nutrients you need!

VISIT

Ancient China

As pirates threaten the coast, the civilians must unify if they are to withstand the assault.

MEET

Tianyuan and the Shaolin Monks

as they harness their internal strength.

欢迎

(Huānyíng)*

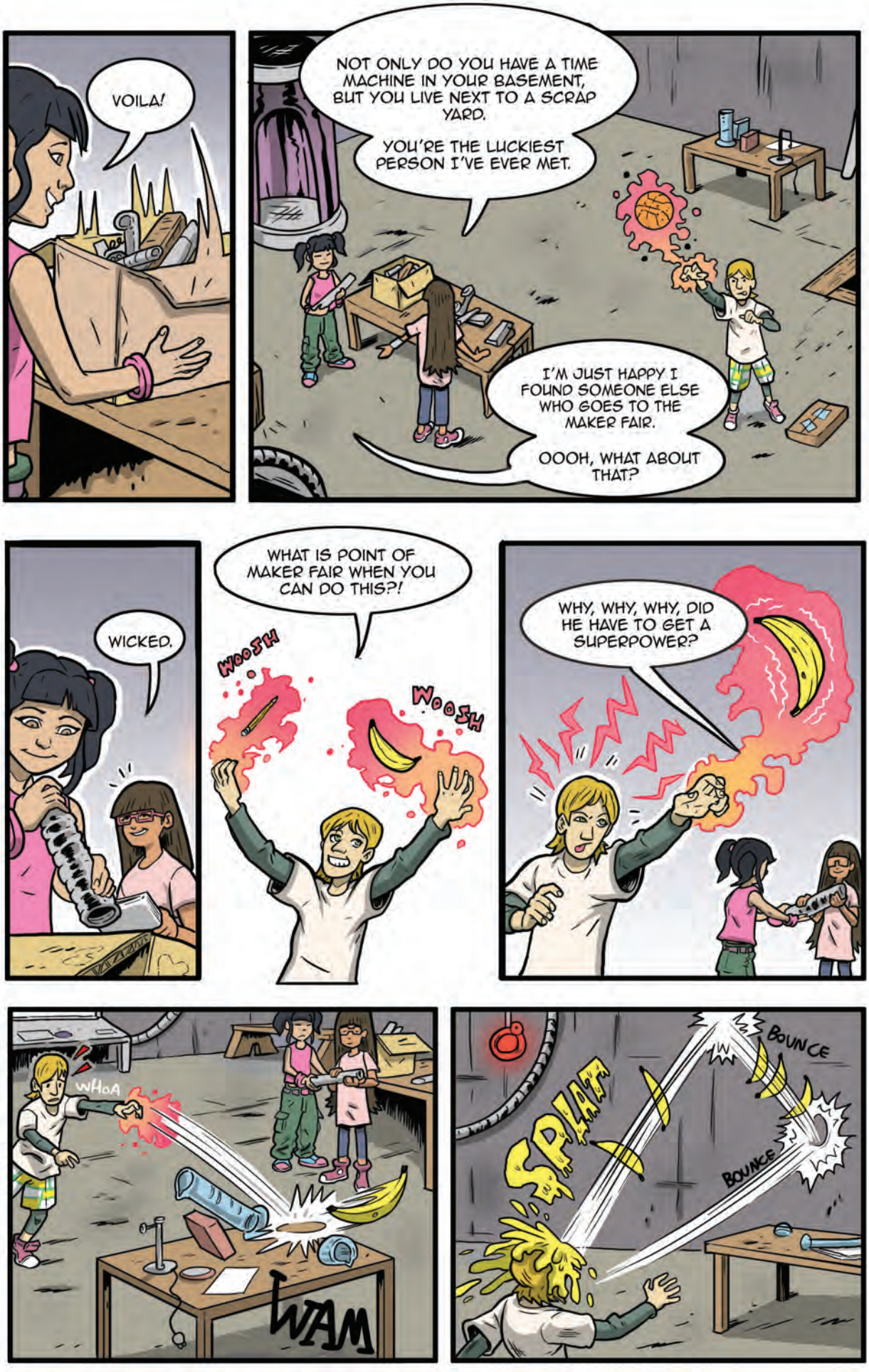
That means "Welcome!" in Mandarin Chinese.

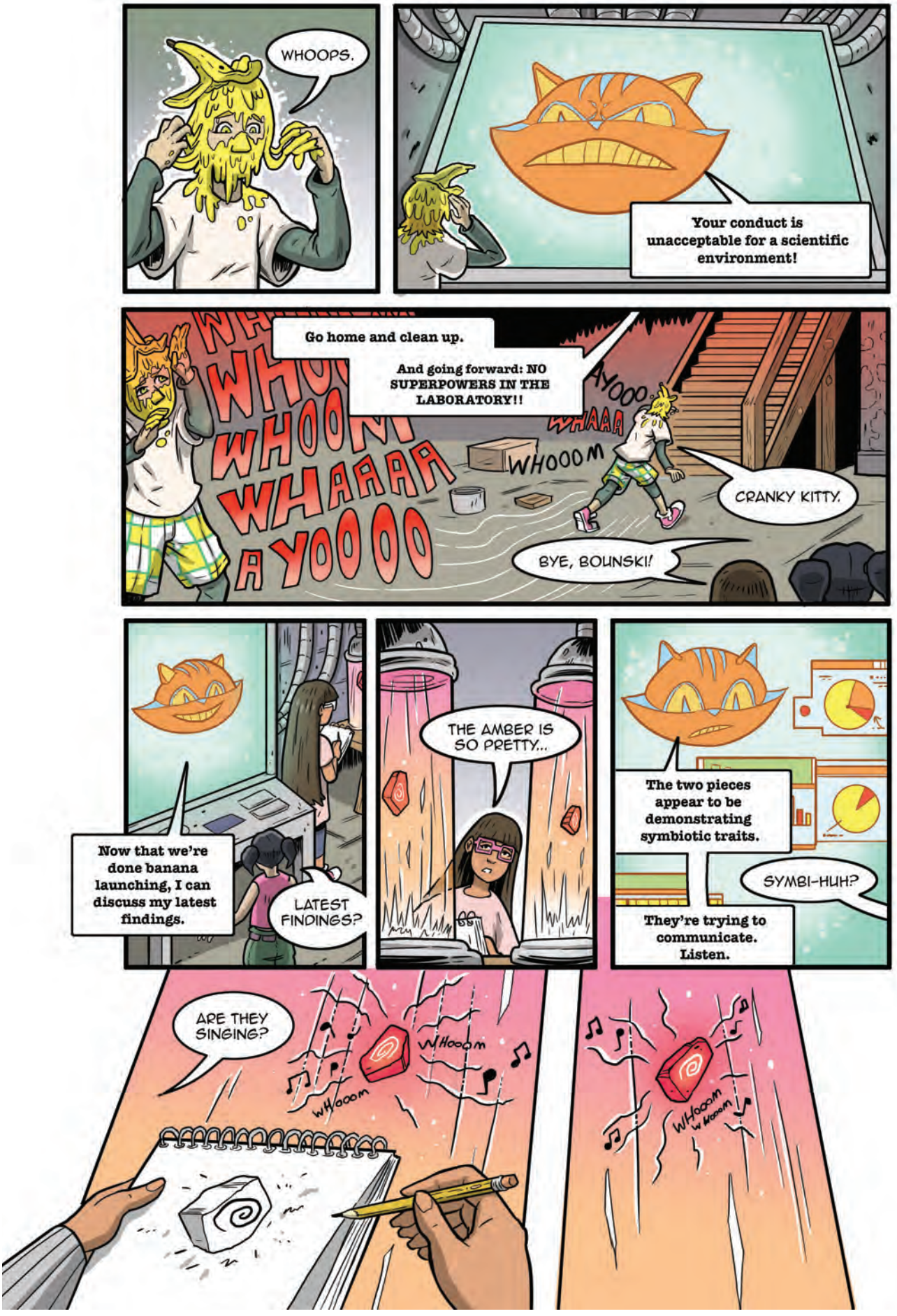
***Say it like this: "**hoo-ahn-**YING**"**

The strongest syllable is shown in CAPITALS.

Time Skaters Adventure 3

The Zen is Mightier than the Sword


VOILA!
NOT ONLY DO YOU HAVE A TIME MACHINE IN YOUR BASEMENT, BUT YOU LIVE NEXT TO A SCRAP YARD.
YOU'RE THE LUCKIEST PERSON I'VE EVER MET.
I'M JUST HAPPY I FOUND SOMEONE ELSE WHO GOES TO THE MAKER FAIR.
OOOH, WHAT ABOUT THAT?
WICKED.
WHAT IS POINT OF MAKER FAIR WHEN YOU CAN DO THIS?!
WOOSH
WOOSH
WHY, WHY, WHY, DID HE HAVE TO GET A SUPERPOWER?
WHOA
WAM
SPLAT
BOUNCE
BOUNCE


WHOOPS.
Your conduct is unacceptable for a scientific environment!
Go home and clean up.
And going forward: NO SUPERPOWERS IN THE LABORATORY!!
WHOOM
WHAAAA
AYOOO
CRANKY KITTY.
BYE, BOUNSKI!
Now that we're done banana launching, I can discuss my latest findings.
LATEST FINDINGS?
THE AMBER IS SO PRETTY...
The two pieces appear to be demonstrating symbiotic traits.
SYMBI-HUH?
They're trying to communicate. Listen.
ARE THEY SINGING?
WHooom
WHooom
WHooom
WHooom

Learning Calendar

Part 1

Know Your History

Gather the adventure equipment you'll need from around the house - find the checklist on pages 24 and 25!

Locate China on a world map using a globe, an atlas, or an online map.

Prepare your mind with the comic **Time Skaters Adventure 3 - The Zen is Mightier than the Sword**. Find it at the beginning of this Adventure Guide!

Meditate on the past with *Know Your History*.

Dip into *Know Your Script*.

Discover *Silk Road Secrets*.

Get moving and *Go Play Go*.

Fabricate *Fancy Fans*.

Solve *Ancient China Crossword*.

Take *Know Your History Information Review.*

Part 2

Know Your Circulatory System

Keep current and *Know Your Circulatory System*.

De-stress with *Know Your Calm*.

Hop to *Heartbeat Hopskotch.*

Complete *Pour Your Heart Out.*

Go *with the Flow.*

Complete the *Circulatory System Word Search*.

Take *Know Your Circulatory System Information Review*.

Part 3
Know Your Appetite

Imbibe inspiration in *Know Your Appetite*.

Read the recipes on the following pages. Make a shopping list, purchase ingredients, and get your kitchen ready!

Make *Easy Chinese Moon Cakes* and *Chinese Dumplings*.

Share your dishes with your family. Discuss *Thoughts for Young Chefs* around the table!

Part 4
Show What You Know!

Take the Adventure 3 *Cumulative Information Review.*

Check out *Further Reading* for more opportunities to learn.

Fancy Fans

The history of Chinese fans goes back thousands of years — archaeologists have even discovered intact fans from the 2nd century B.C. A fan works by creating airflow, which increases the rate at which your sweat evaporates. This helps to cool you off faster. Before air conditioning or electric fans, a fan was effective and easy to carry around, which is probably why this Chinese innovation spread around the world.

Fans were often decorated with art and poetry, and made out of materials ranging from paper to feathers and bamboo. Folding fans are also used in some performances of Kung Fu!

You can make a very simple folding fan at home using nothing but paper, tape, and some tools to decorate.

Materials:

- **Construction paper or other crafting paper (2 sheets)**
- **Pens and/or markers**
- **Tape**
- **Optional: Feathers, sequins, glitter glue, stickers, etc.**

Directions:

1. Lay your paper down with the short sides touching. Pull one piece over the other about half an inch so they slightly overlap.

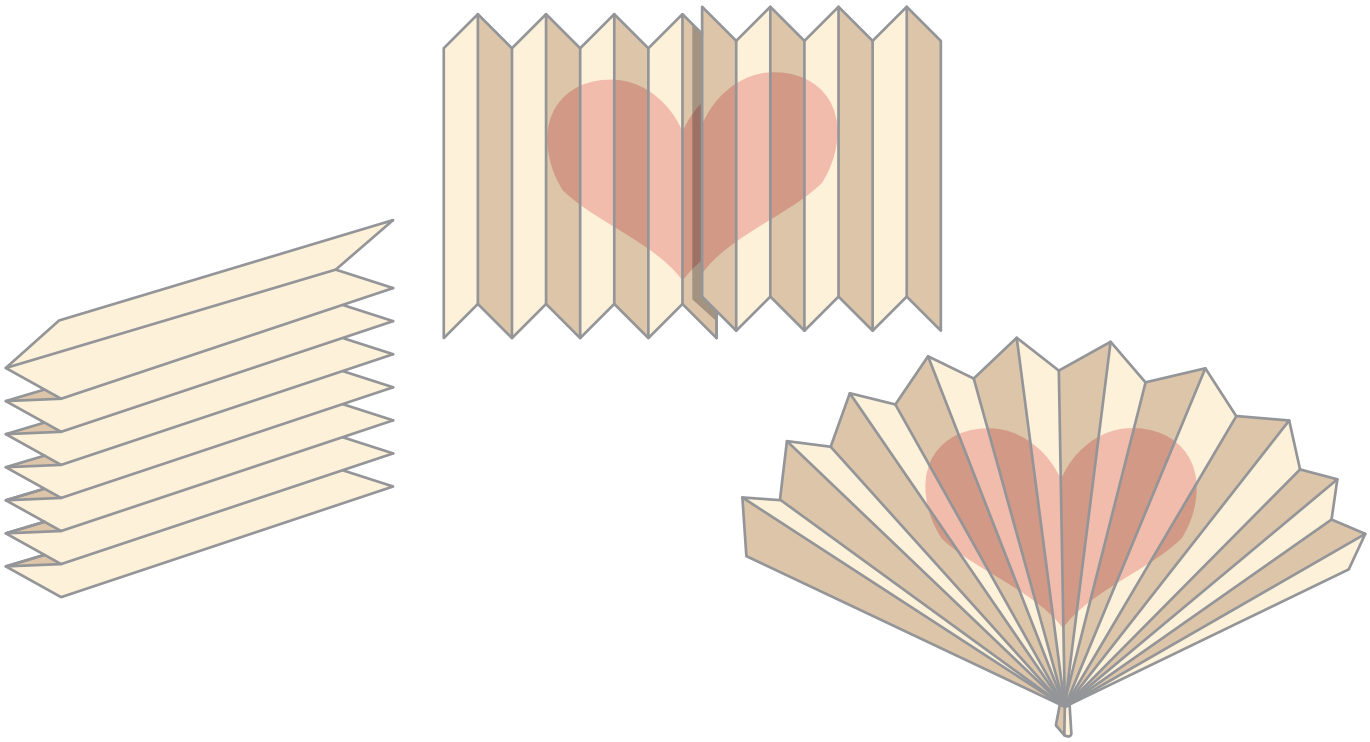
2. Use your art skills to make a design, draw a picture or write a message.

3. Starting from one end, fold the paper half an inch over one way and then the other in an accordian fashion. Do this with both pieces of paper.

4. Connect the two pieces of paper by taping the last and first fold together. Do your best to maintain your picture.

5. Hold the accordion shape together so it is very small, and then tape together the bottom inch of the paper to make a grip. Make sure the rest of the fan is still able to spread out!

Now you have a fan you can use to cool yourself off just like people have done across the world for millennia.



Flow Through Circulation:

The Heart of the Matter

You can feel your heart at work in your chest - *lub-dub, lub-dub, lub-dub.* It's beating constantly. Your heart is the hardest working muscle in your body, but what is it doing exactly?

Your heart is an important part of your circulatory system. Its job is to pump blood throughout your body. The movement of blood through your heart and around your body is called **circulation**.

Why is blood so important?

Blood is responsible for providing your body with oxygen and special chemicals like hormones, as well as for removing waste and carbon dioxide. Your blood contains plasma and three types of blood cells: red blood cells, white blood cells, and platelets. You can learn more about each part on the next page.

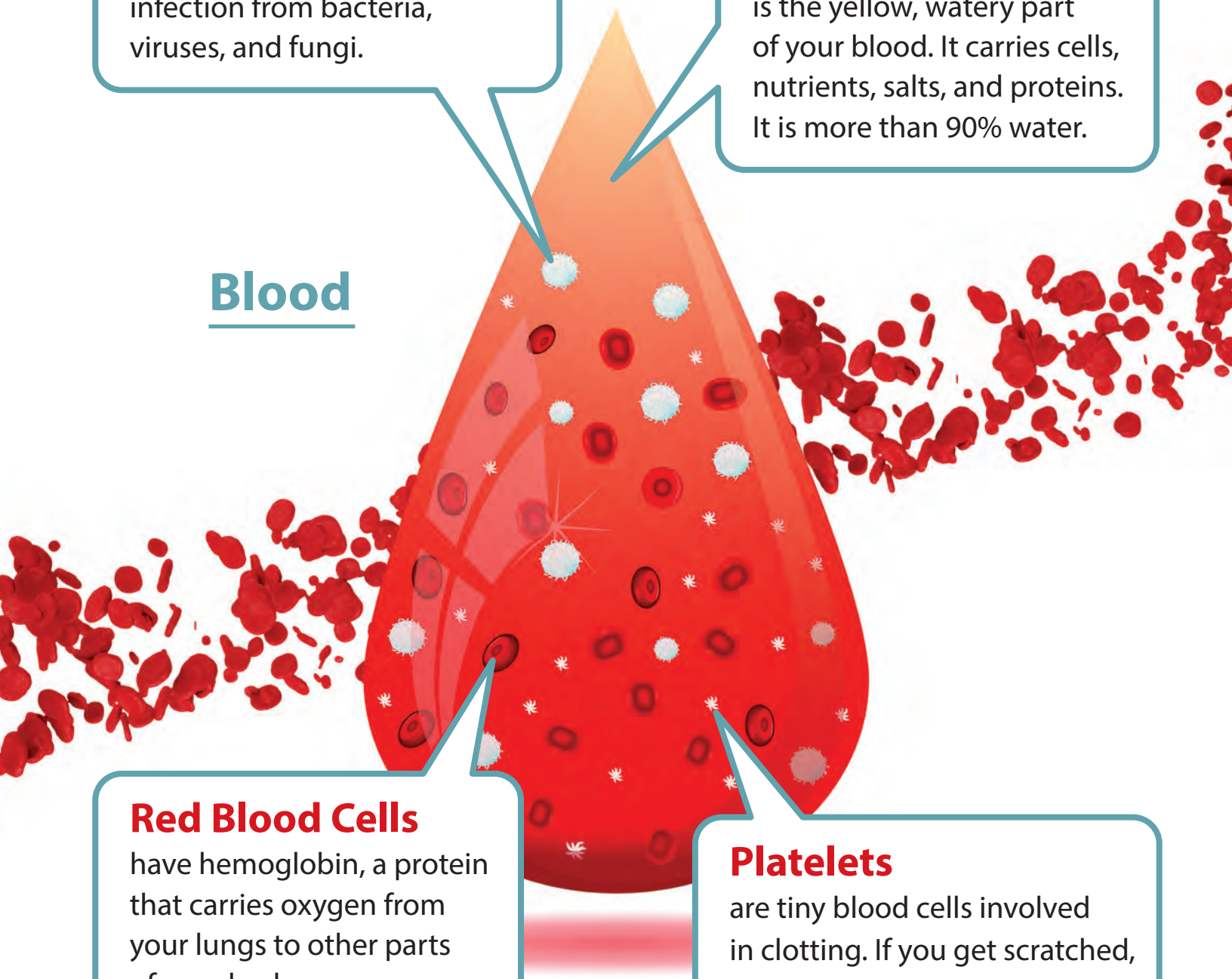
White Blood Cells

are part of the immune system. They help your body fight infection from bacteria, viruses, and fungi.

Plasma

is the yellow, watery part of your blood. It carries cells, nutrients, salts, and proteins. It is more than 90% water.

Blood



Red Blood Cells

have hemoglobin, a protein that carries oxygen from your lungs to other parts of your body.

Platelets

are tiny blood cells involved in clotting. If you get scratched, platelets migrate to the cut, clot the blood, and stop the bleeding.

Heartbeat Hopskotch

The heart is responsible for supporting your movement, as well as helping you breath, eat, and drink. With every heartbeat, the heart is delivering **oxygen** and **nutrients** to the body. The blood also transports **carbon dioxide*** and **waste products** out of the body.

One heartbeat cycle starts when blood from the body enters the heart from the inferior and superior **vena cava***. It flows from the right atrium to the right ventricle, and then to the lungs. In the lungs, blood releases carbon dioxide and waste products and picks up oxygen. Then the blood travels back to the heart's left atrium. From there, it moves from the left atrium to the left ventricle and is pumped out to the body.

This cycle takes place in just one second!

*Say them like this:

carbon dioxide - "**CAR-bin die-OX-ide**"
vena cava - "**VANE-uh KAV-uh**"

The strongest syllable is always shown in **CAPITALS** and **red**.

Adventurer, how quickly can you complete the heartbeat hopscotch on the next page? One round equals one heartbeat cycle.

Materials:

- **Sidewalk chalk**

Directions:

1. Create a simple Heartbeat Hopskotch by copying the hopscotch of the next page using your sidewalk chalk (ask an adult to help you find the best area for your hopscotch). Make sure each square is at least 1 foot-by-1 foot, but don't worry if your lines aren't perfect!

2. Travel like the flow of blood. Complete a heartbeat cycle by hopping through your hopscotch drawing.

3. Quiz yourself to see if you know your heart beat cycle by describing the cycle with your eyes closed.

Did you know that your heart beats 60 to 100 times a minute? That is over 100,000 times a day!

4 The Renal System

You've got to be Kidney!

Get a good night's sleep before this adventure because when you fall into **Ancient Assyria in Northern Iraq**... you will need to be on your toes. **The year is 810 BCE** and the renal system is under inspection.

Hello Adventurer!

Welcome to Adventure 4 - The Renal System.

In this workbook, you will learn about Ancient Assyria and your body's Renal System. There will be information to read, activities to complete, and quizzes to take when you are ready to challenge yourself! Take your time along the way - spend as much or as little time as you like on each activity.

Good luck, and have fun!

Get ready to clean things up!

LEARN ABOUT

The Renal System

The process by which your body takes out the trash

VISIT

Ancient Assyria

A shortage of clean water threatens to drive people against one another

MEET

Queen Sammu-Ramat

and the court of Babylon

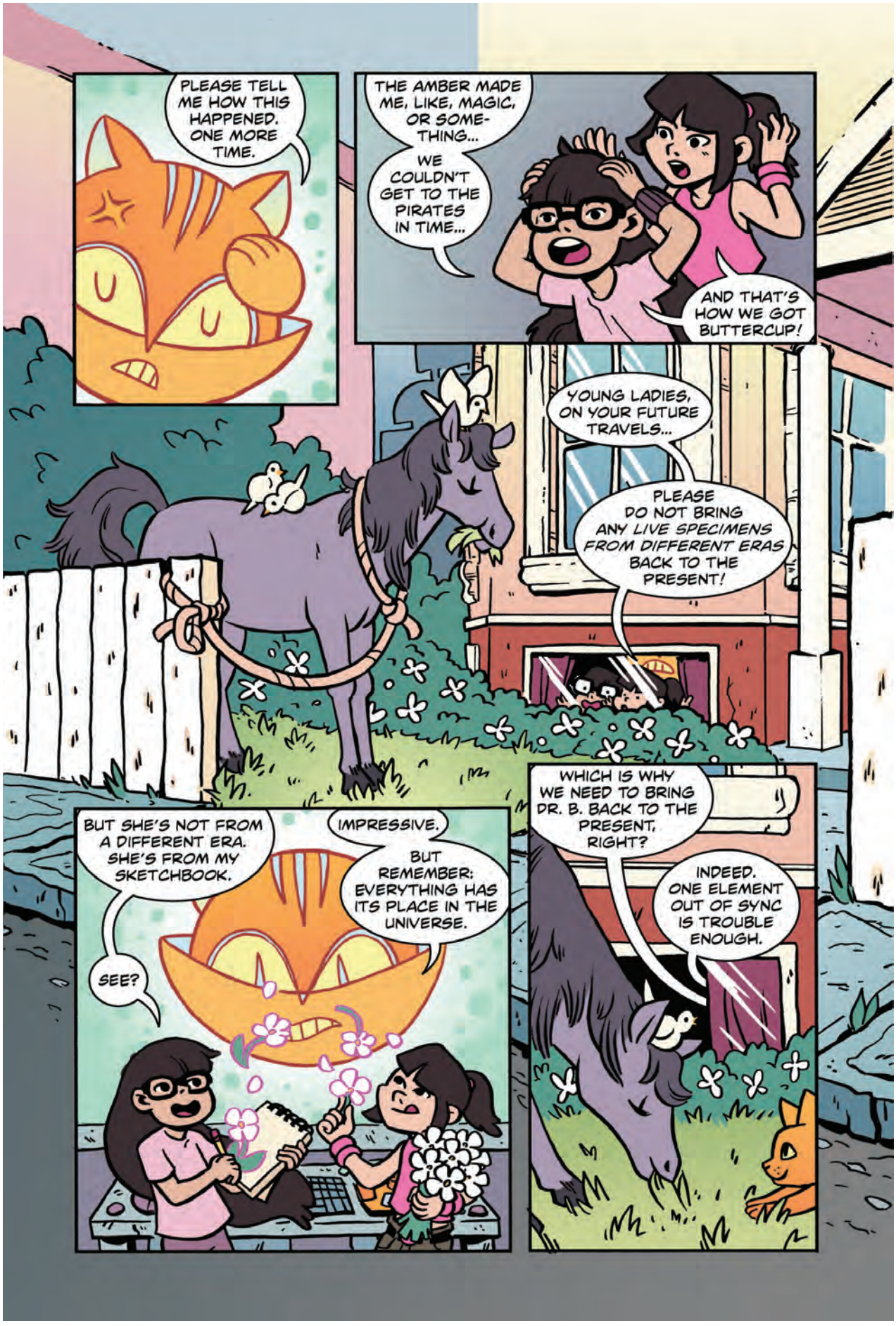
Join us along the Euphrates.*

The Euphrates was an important water source for the people of ancient Assyria.

***Say it like this: "you-FRAY-tees"**

The strongest syllable is shown in **CAPITALS** and **red**.

Time Skaters Adventure 4: You've Got to be Kidney!


PLEASE TELL ME HOW THIS HAPPENED. ONE MORE TIME.
THE AMBER MADE ME, LIKE, MAGIC, OR SOME-THING...
WE COULDN'T GET TO THE PIRATES IN TIME...
AND THAT'S HOW WE GOT BUTTERCUP!
YOUNG LADIES, ON YOUR FUTURE TRAVELS...
PLEASE DO NOT BRING ANY LIVE SPECIMENS FROM DIFFERENT ERAS BACK TO THE PRESENT!
WHICH IS WHY WE NEED TO BRING DR. B. BACK TO THE PRESENT, RIGHT?
INDEED. ONE ELEMENT OUT OF SYNC IS TROUBLE ENOUGH.
BUT SHE'S NOT FROM A DIFFERENT ERA. SHE'S FROM MY SKETCHBOOK.
IMPRESSIVE.
BUT REMEMBER: EVERYTHING HAS ITS PLACE IN THE UNIVERSE.
SEE?


WHOOSH
SNAP!
BY THE WAY, THAT CARBON-BASED FELINE HAS NO RELATION TO ME.
I'LL GET HER!
I'M GOING TO GET HER HOME. HOPE MY PARENTS LET ME KEEP HER...
TAKE THESE!
WE CAN'T LET THAT HORSE ROAM THE STREETS!
BUTTERCUP!
HEY, PINKY! HEY, HANK! UM, YOU WON'T BELIEVE THIS, BUT I THINK I JUST SAW SKETCH...
RIDING A HORSE DOWN THE STREET?
YEAH.
I'LL TELL YOU ALL ABOUT IT LATER.
CHECK THAT OUT.
AS WE COLLECT MORE AMBER, THEY SEEM TO GROW INCREASINGLY EXPRESSIVE.
SEE HOW EACH PIECE'S COLOR IS BECOMING MORE DEFINED?
I LIKE THE YELLOW ONE.

Learning Calendar

Part 1
Know Your History

Locate Ancient Assyria on the map on page 1.

Read the comic **Time Skaters Adventure 4: You've Got to be Kidney!** Find it at the beginning of this Adventure Guide!

Gather the adventure equipment you'll need from around the house - find the checklist on pages 24-27!

Enlighten yourself in *Know Your History*.

Decipher ancient languages in *Know Your Script*.

Make *Your Mark* in Ancient Assyrian Script.

Discover the *Mystery of the Hanging Gardens of Babylon*.

Create *Your Creature* and show the world what lurks within.

Crack the *Ancient Assyria Crossword*.

Don't *Make a Mess(opotamia)* - put your knowledge to the test!

Part 2
Know Your Renal System

Examine purification in *Know Your Renal System*.

Confront *Separation Anxiety*.

Turn the old into new while in *Need of Nephrons*.

Estimated hours 5.5 hours of fun

Filter with friends as a *Potent Processor.*

Solve the *Renal Rumble.*

Uncover the *Kidneys' Claim to Fame!*

Part 3

Know Your Appetite

Estimated hours 1.5 hours of fun

Feast your eyes on *Know Your Appetite.*

Review the recipes. Make a Shopping List. Get your Kitchen Ready.

Fix up some *Tahini Hummus* and *Walnut Butter Cookies.*

Share your dishes with your family. Discuss *Thoughts for Young Chefs* around the table!

Part 4

Show What You Know!

Estimated hours 2.5 hours of fun

Take some time to *Babble On about Babylon.*

Check out *Further Reading* for more opportunities to learn.

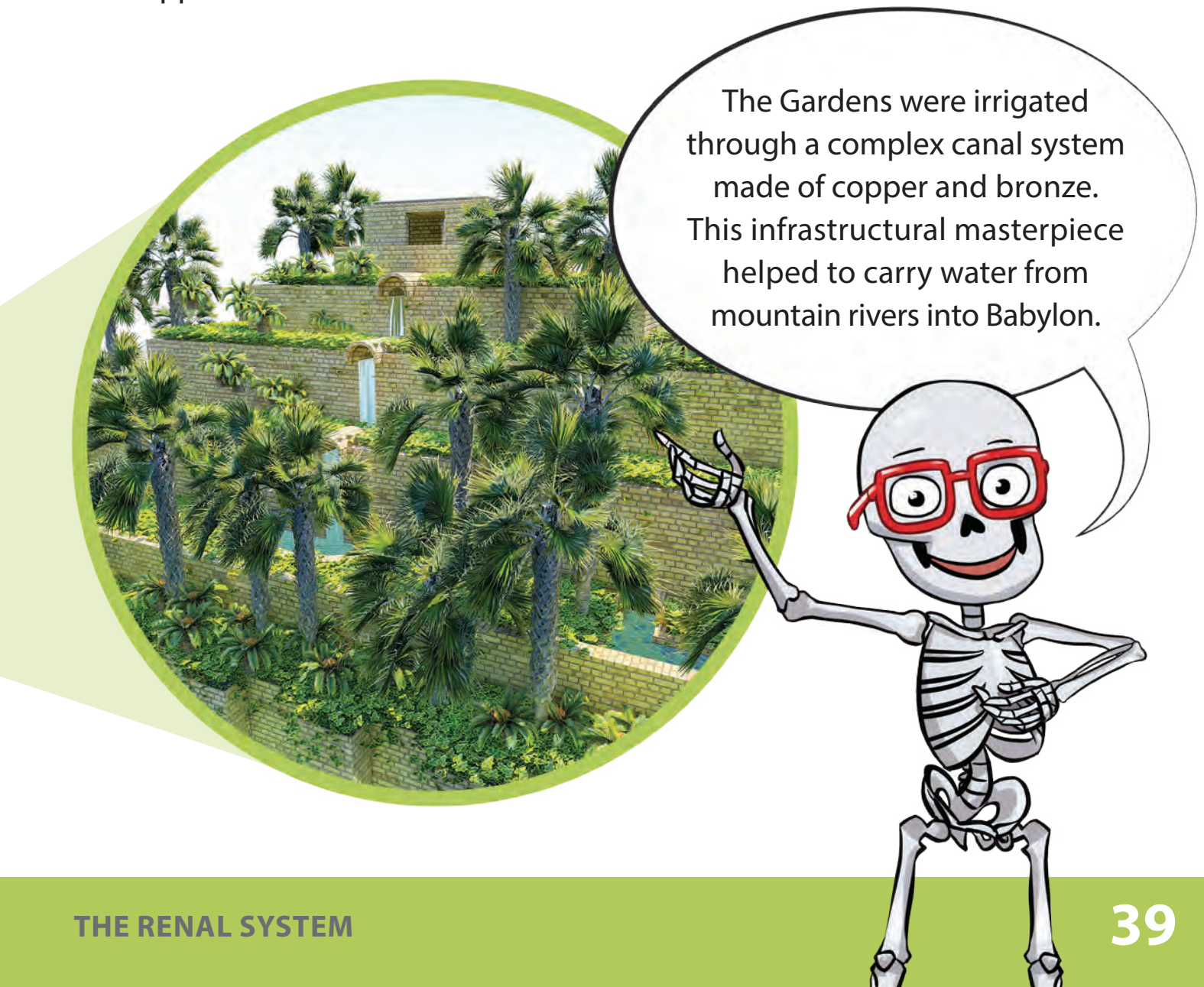
Mystery of the Hanging Gardens of Babylon

Wondering what's up with the **"Hanging" Gardens of Babylon?** If so, you're not alone! Researchers have long tried to unravel the mysteries of this ancient wonder.

Studies of ancient text may be the reason for the mixup. One point of confusion is the geographical location of Babylon itself. Researchers now believe they have pinpointed this seventh wonder of the world to Ninevah — a city located in Northern Assyria. Arabic sources note that this northern Assyrian city was widely known as "Old Babylon," while Didorus Siculus writings describe Babylonian palaces in detail that resemble those that contemporaneously existed in Ninevah.

Another of the Hanging Gardens of Babylon's many mysteries is what the garden actually looked like. Based on the English translation of the word **"hanging"**, one may think of plants or foliage dangling from the ceiling. However, the true Greek translation of the word for hanging is "Kremastos", which means to create an upward, raised slope. By that definition, the dirt piling on the plant root system to create a mound could be what the Ancient Assyrians were actually referring to!

Not lost in translation is the decorative beauty and spectacular utility of the Gardens. Plants, shrubs, and trees provided shade from the sun, and supplied fruit and herbal medicines.



Mystery of the Hanging Gardens of Babylon

The Hanging Gardens of Babylon were created in the image of the Northwestern Assyrian Mountains.

Try making your version of the Hanging Gardens of Babylon using a native plant and the gardening directions on the next page - have fun!

Materials:

- **Newspaper**
- **A small pot, jar, or recycled container** (clean pasta sauce jars work great!)
- **Dirt**
- **Plant seeds or a seedling**

Directions:

1. Lay out a few sheets of newspaper as your work area.

2. Take out your small pot, jar, or container.

3. Measure how much area you will need for your seedling inside the container (skip this step if you are using seeds).

4. Add enough dirt to fill the space between the seedling and bottom of the jar, or fill the pot with dirt completely if you have seeds (leave an inch from the top for watering later on).

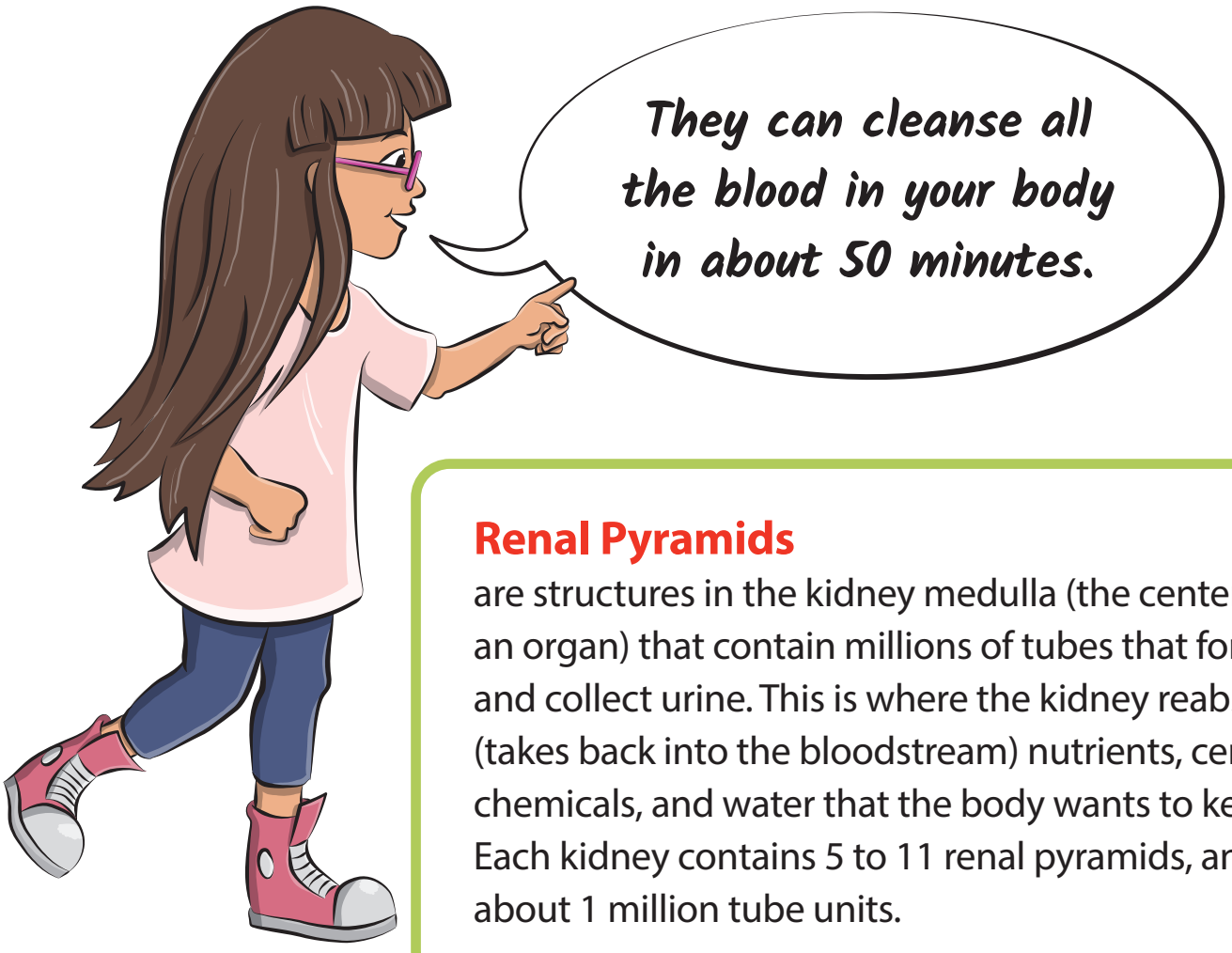
5. Place your seedling into the jar and fill the gaps on the sides with dirt. If you have seeds, you'll want to plant them at a depth two times the height of the seed itself.

6. Follow the directions located on your seed packet or seedling to find out how much sunlight and water your new plant needs to grow big and strong. Enjoy!

Kidneys:

Your Filtration Station

Each kidney has large blood vessels that move blood into and out of it, and a ureter that carries the final waste — urine — out to the urinary bladder. The kidneys also have a lot of small blood vessels traveling through them because they filter wastes out of the blood (while keeping the good stuff like your blood cells). Your kidneys are always busy cleaning your blood.

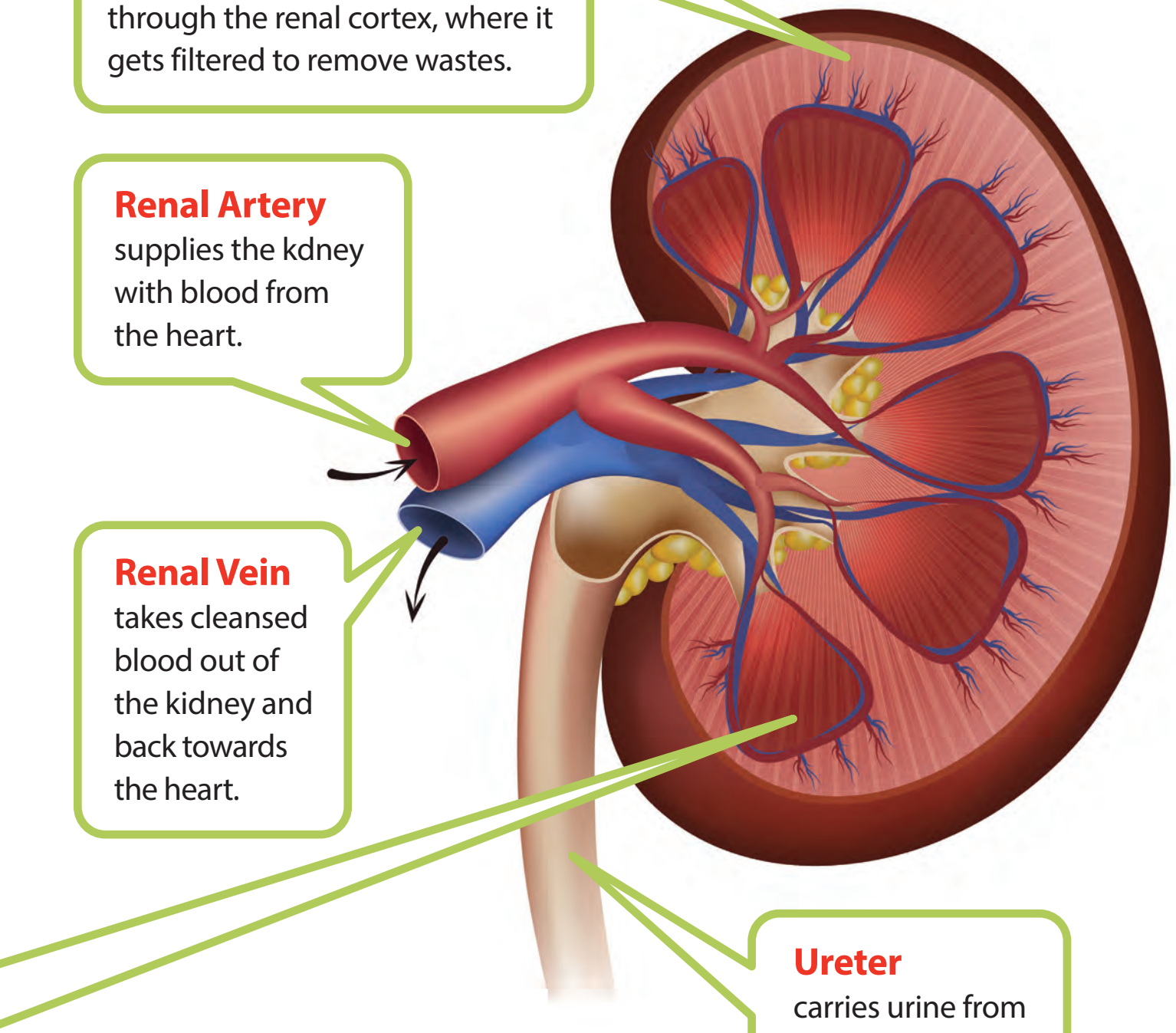


Renal Pyramids
are structures in the kidney medulla (the center of an organ) that contain millions of tubes that form and collect urine. This is where the kidney reabsorbs (takes back into the bloodstream) nutrients, certain chemicals, and water that the body wants to keep. Each kidney contains 5 to 11 renal pyramids, and about 1 million tube units.

Renal Cortex
is the outer part of the kidney (cortex means "shell"). Most of the blood entering the kidney travels through the renal cortex, where it gets filtered to remove wastes.

Renal Artery
supplies the kdney with blood from the heart.

Renal Vein
takes cleansed blood out of the kidney and back towards the heart.

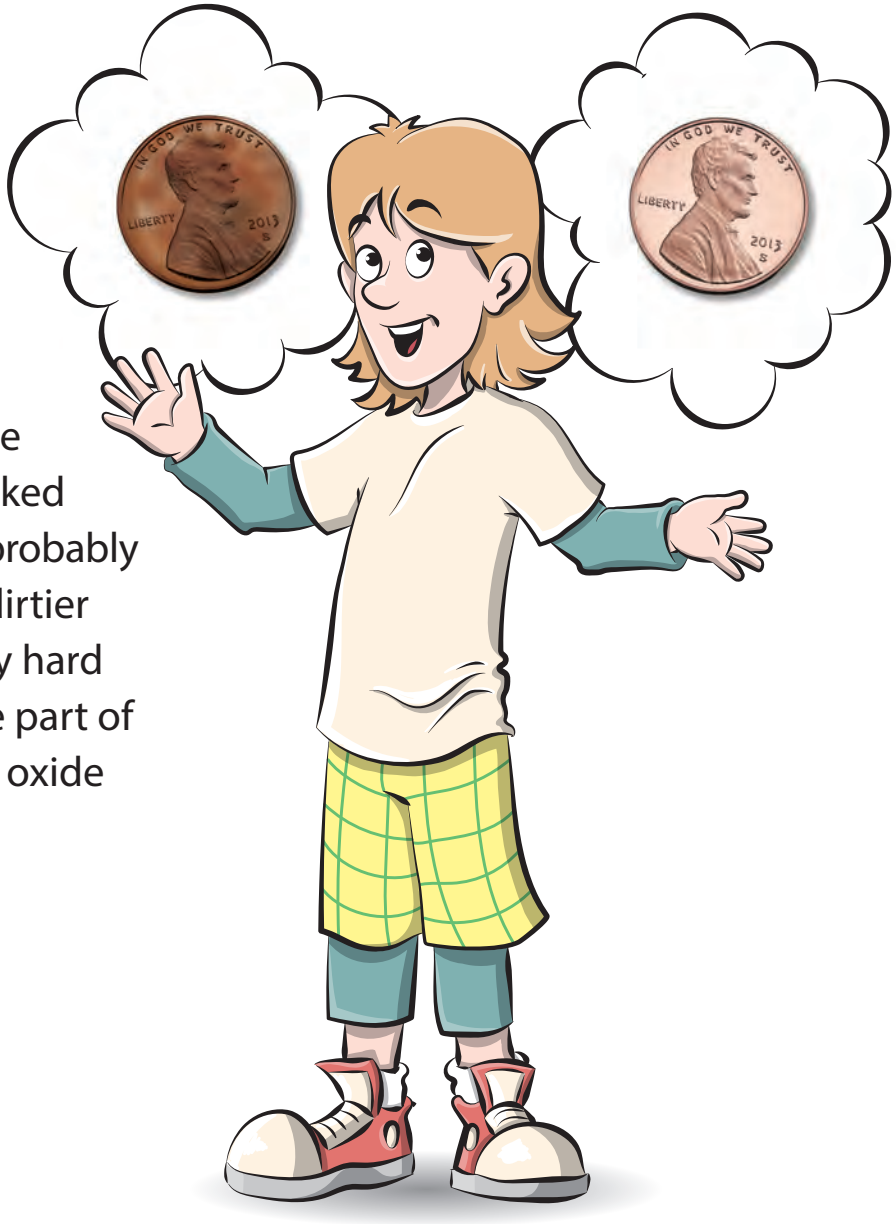


Ureter
carries urine from the kidney to the urinary bladder.

In Need of Nephrons

Your nephrons are the cleaning and filtration units in your blood. With the aid of millions of them, the things your body needs are reabsorbed and the things it does not need are kicked out into your bladder to get expelled.

You might not think of blood as something that can get "cleaned," but without your kidneys, you'd get very sick very quickly (it's a good thing you have two in case something goes wrong)!



Just as blood circulates through your body, currency (money) circulates through the economy. If you have ever looked at a pile of pennies, you have probably noticed that some are much dirtier than others. It would be pretty hard to wash them with soap, since part of what ages them is the copper oxide that builds up on the surface. With a bit of vinegar you can make them look as shiny as when they were new!

Materials:

- **Some dirty or dull pennies**
- **A cup or small bowl**
- **Paper towels**
- **Water**
- **Vinegar**

Directions:

1. Put the dirty pennies in your bowl

2. Pour just enough vinegar to cover the pennies

3. Wait for at least 10 minutes.

4. Take the pennies out and rinse them off with water, then rub them with the paper towel until they are dried off.

5. Great job - you've just acted as a kidney for your coins!

Tahini Hummus

The name "hummus" comes from the Arabic word for chickpeas, which were a staple food of ancient Assyria. Chickpeas have a high concentration of iron, a mineral that your body needs to make red blood cells.

A good meal could consist of lentils, boiled millet, barley prepared as we prepare rice, and possibly maize. Common vegetables and fruit used by the Assyrians were pumpkins, cucumbers, and melons. Fish was a popular source of protein, and was readily available in the rivers flowing through Assyria.

Prep time:
10 minutes

Ingredients:

- 1 can (15 ounces) of chickpeas (garbanzo beans), drained
- 1⁄4 cup tahini (sesame paste)
- 1 clove of garlic, smashed
- 1 lemon, juiced
- 1⁄4 teaspooon salt
- 1⁄2 cup olive oil

KNOW YOURSELF

5 The Digestive System

Hard to Stomach

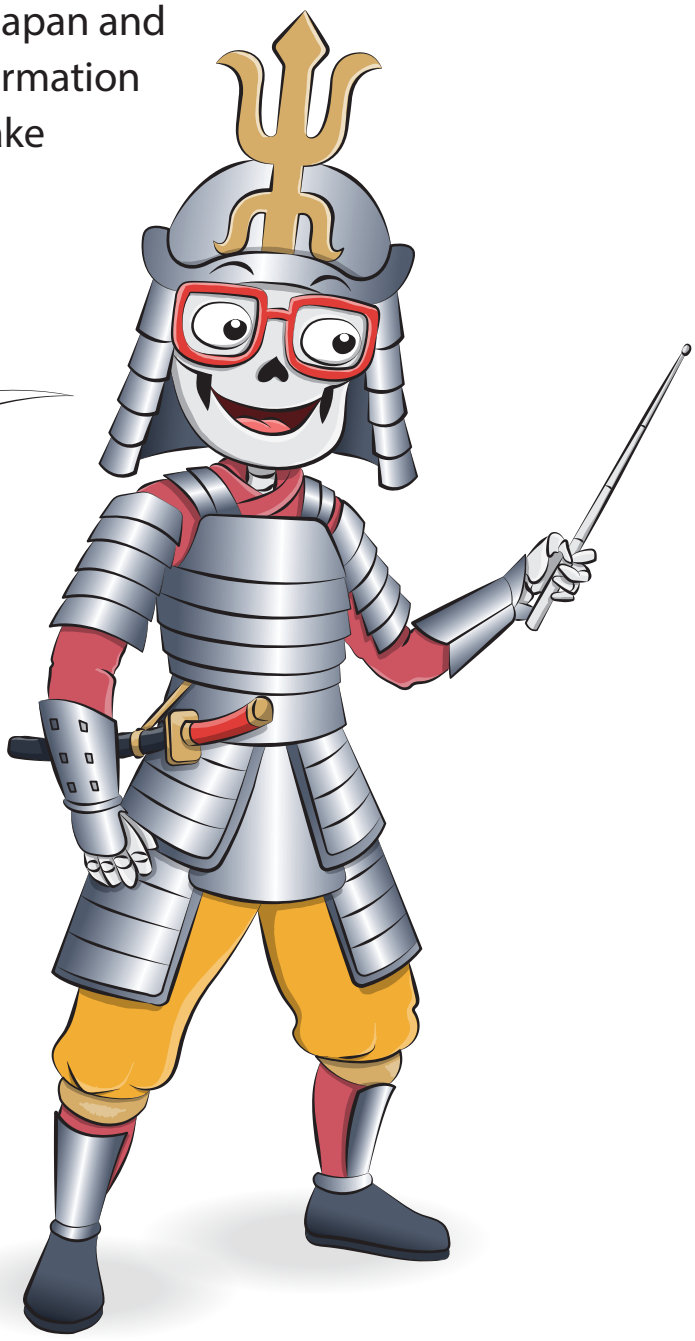
The way to many a person's heart is through their stomach. Master the ways of your digestive system while you visit **ancient Japan, the year is 1611**.

Hello Adventurer!

Welcome to Adventure 5 - The Digestive System.

In this workbook, you will learn about Ancient Japan and your body's Digestive System. There will be information to read, activities to complete, and quizzes to take when you are ready to challenge yourself!
Take your time along the way - spend as much or as little time as you like on each activity.

Good luck, and have fun!



Get ready to digest some knowledge!

LEARN ABOUT

The Digestive System

Get the breakdown on how your body turns food into the nutrients it needs

VISIT

Edo Period Japan

While it is a time of peace, dangers lurk from those who wish for conflict

MEET

Tokugawa Ieyasu

one of the Great Unifiers of Japan

ようこそ

(Yokoso)*

That means "Welcome!" in Japanese.

***Say it like this: "yoh-ko-so"**

Note: Syllables in Japanese words are generally spoken with equal stress, and for the same length of time.

Time Skaters Adventure 5: Hard to Stomach


HEY PINKY! HEY...
...HANK?
HE'S IN "SLEEP" MODE.
IT'S A NEW FEATURE.
HARD TO STOMACH
WHAT IS THE CAPITAL OF ECUADOR?
WHAT ARE YOU DOING?
PLAYING TRIVIA WITH SHORTY.
UH... BUT SHORTY ISN'T HERE.
OH YEAH. SHE'S AT HER HOUSE.
BUZZ!
GRRR... SHE'S RIGHT AGAIN...
SHORTY
Quito
PINKY
SHORTY
SHORTY'S HOUSE IS FOUR BLOCKS FROM HERE. HOW CAN SHE TELL WHAT YOU'RE SAYING?
ARE YOU SURE SHE'S NOT MESSING WITH YOU?
BUZZ!
"I'M NOT MESSING WITH ANYONE, NAZ."
OKAY. WHAT'S GOING ON?


Something's wrong.
HUH?
BUZZ!
WEIRD...
BUZZ!
Buttercup's freaked out for no reason!
NO REASON, HUH?
EARTHQUAKE!!!

Learning Calendar

Part 1
Know Your History

Gather the adventure equipment you'll need from around the house - find the checklist on pages 30 and 31!

Locate Japan on the map on page 1.

Read the comic **Time Skaters Adventure 5 - Hard to Stomach**. Find it at the beginning of this Adventure Guide!

Get to *Know Your History*.

Uncover *Know Your Ninjas.*

Make Haste *From Hokku To Haiku*.

Find *Your Fashion Statements*.

Paint *Neat-o Edo Art*.

Fold *Your Words*.

Discover *The Shogun Must Go On!*

Part 2
Know Your Digestive System

Check out *Know Your Digestive System*.

Become a *Digestion Detective*.

Follow *Your Food*

Count *Numbers and Nutrients.*

Do the *Digestive Dash.*

Digest *Your Knowledge.*

Part **3**

Know Your Appetite

Explore *Know Your Appetite.*

See the recipes on the following pages. Make a shopping list, purchase ingredients, and get your kitchen ready!

Make *Pickled Cucumbers* and *Sushi Rolls.*

Share your dishes with your family. Discuss *Thoughts for Young Chefs* around the table.

Part **4**

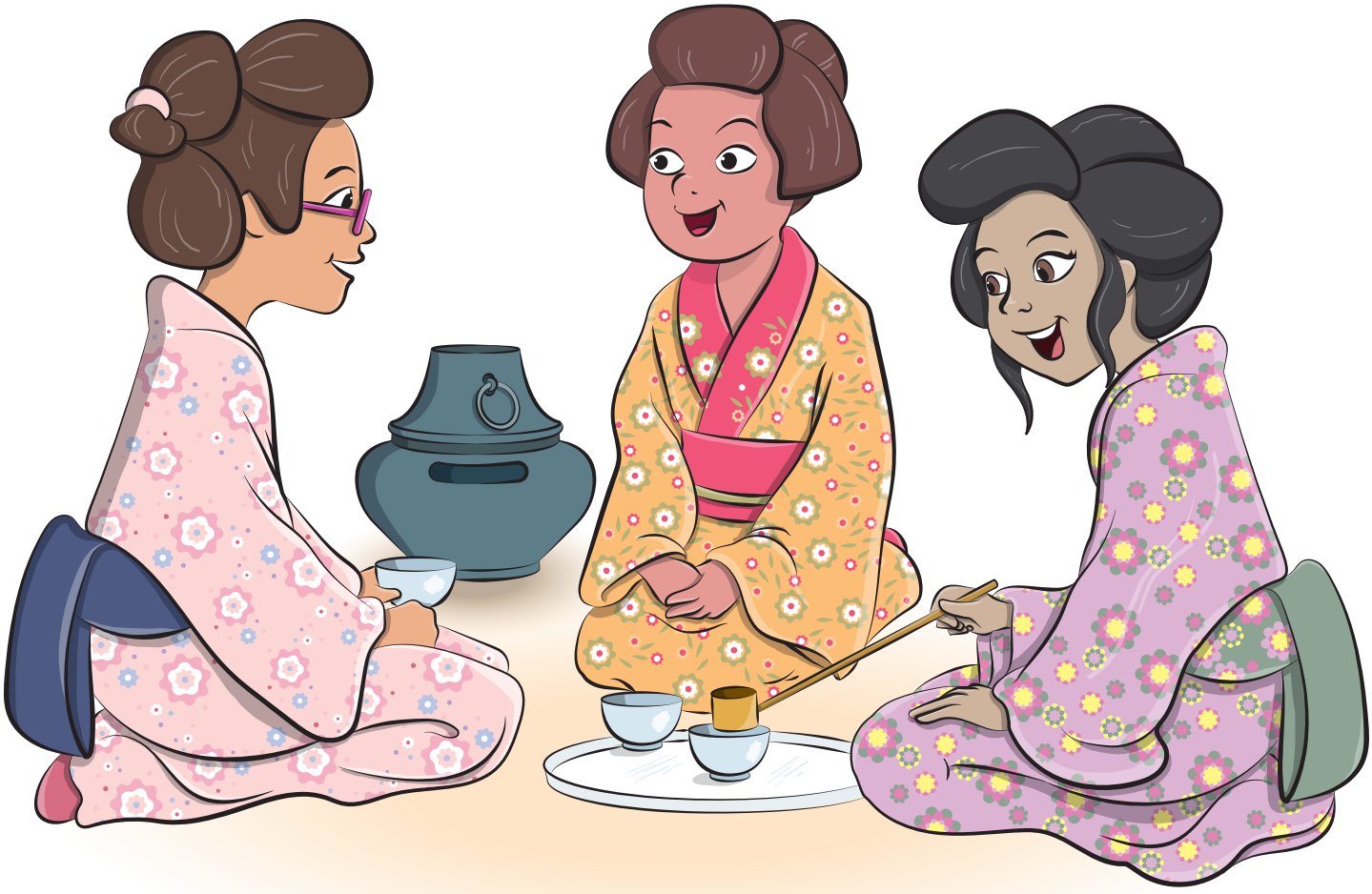
Show What You Know!

Spot *Food for Thought in Feudal Japan.*

Check out *Further Reading* for more opportunities to learn.

Time For Tea

Tea reached Japan from China in the 8th century as a medicinal beverage, but by the Edo period it had become a popular beverage for all people. **Sen no Rikyū** was a renowned tea master who heavily influenced the "**way of tea**." This ceremonial tea emphasized simplicity, directness, and honesty between both the host and their guest. By putting thought into every aspect of the beverage and its sharing, he was able to elevate a simple break for a drink into something deeply meaningful. To this day, tea ceremonies continue to be very common in Japan and act as a way for people to find calmness in our busy world.



While learning the methods of a tea ceremony takes a lot of time, you can apply the same ideas.

Directions:

1. Set up a time with someone you care about to share a drink or food.
2. Make sure that all screens are put away or silenced.
3. To make it special, use a tablecloth you don't normally use.
4. Make food and a tea that you don't have every day. For an extra special touch, put extra work into the presentation of the food.

Dr B.'s Note

By using care and attention, you can make a special experience for everyone involved.

Know Your Digestive System

Gut Reaction

Did you know the digestive process starts before you even bite into your food?

You might have noticed that when you see or smell something delicious, your mouth starts "watering." That's **saliva**,* already preparing your mouth for **mastication*** (otherwise known as chewing). Your brain anticipates that you'll be eating soon, so it gets the digestion process started.

Your body actually uses two types of digestion: **Mechanical** and **Chemical** Digestion.

Mechanical digestion is when you break down food into smaller pieces, mainly by chewing. Such as when you bite off a piece of sushi.

Chemical digestion, also starts with your mouth, but happens with the substances of your body further break down those foods for your body, mainly by the stomach.

*Say them like this:

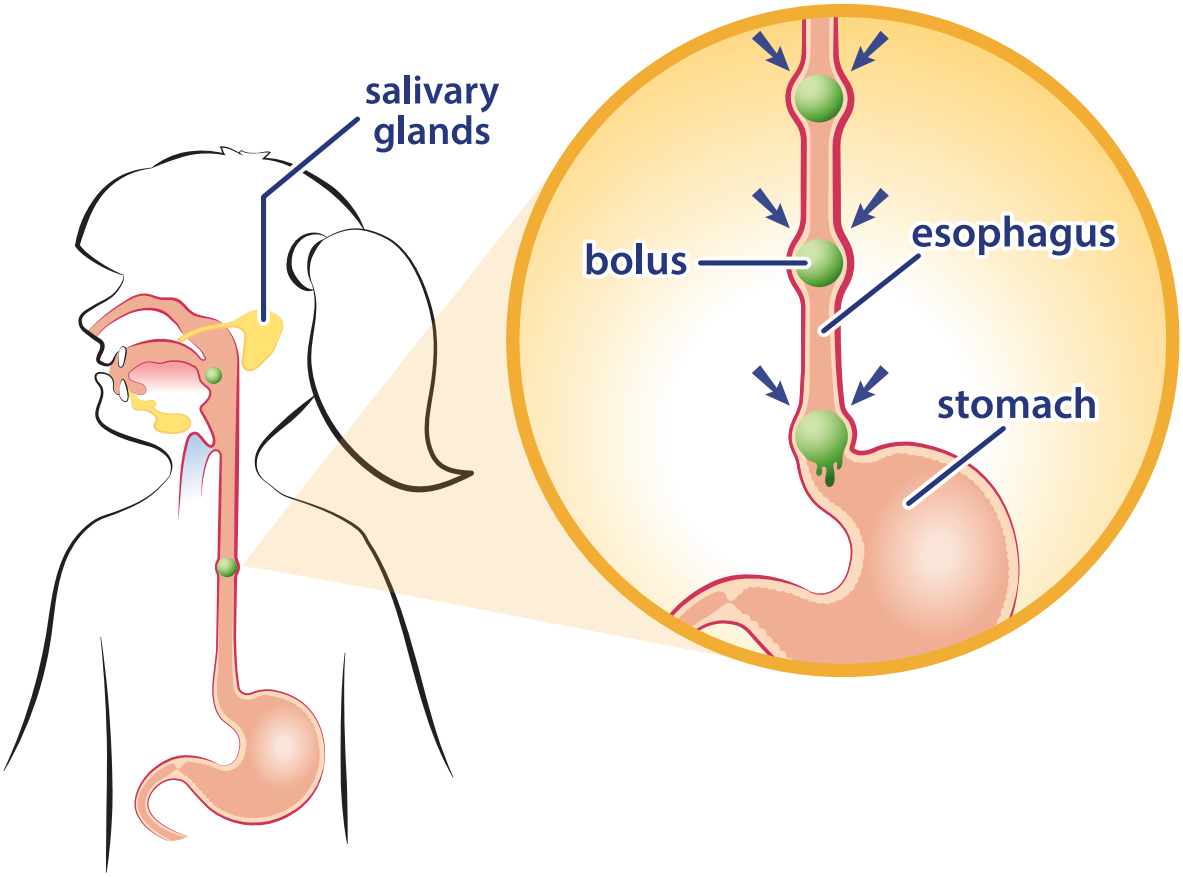
saliva - "**suh-LIVE-uh**"

mastication - "**mas-tih-KAY-shun**"

The strongest syllable is always shown in **CAPITALS** and **red**.

As your teeth crush and grind this food, enzymes in your saliva begin breaking down the starches into sugar. Your teeth and saliva work together to create a small group of chewed food into a **bolus**.*

After you swallow the bolus, it passes through your esophagus, which has muscles that squeeze food down into your stomach through a series of contractions called **peristalsis**.*



*Say them like this:

bolus - "**BOW-luhs**"

peristalsis - "**pear-ih-STALL-sis**"

The strongest syllable is always shown in **CAPITALS** and **red**.

Follow Your Food

Now that you have a pretty decent idea of what your digestive system looks like, let's further explore how food moves through the body.

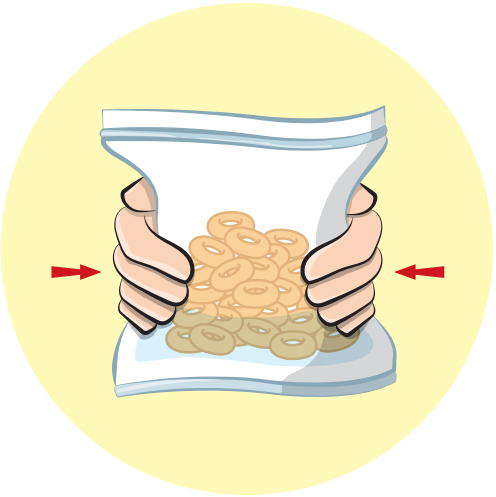
Materials:

- **1 small resealable plastic sandwich bag**
- **Cereal**
- **Water**
- **Soda**
- **1 nylon stocking**
- **Scissors**

Directions:

1. Seal a small handful of cereal in the plastic sandwich bag, along with a spoonful of water. The water acts like saliva, which contains an enzyme called **amylase*** that helps break up carbohydrates.

   The action of this enzyme is called ***chemical digestion***.



2. Mash up the mixture by gently squeezing the bag. This is similar to what occurs when you chew up food with your mouth and teeth.

   This physical breakdown of food is called ***mechanical digestion***.

*Say it like this:

amylase - "**AM-ill-ayz**"

The strongest syllable is always shown in **CAPITALS** and **red**.

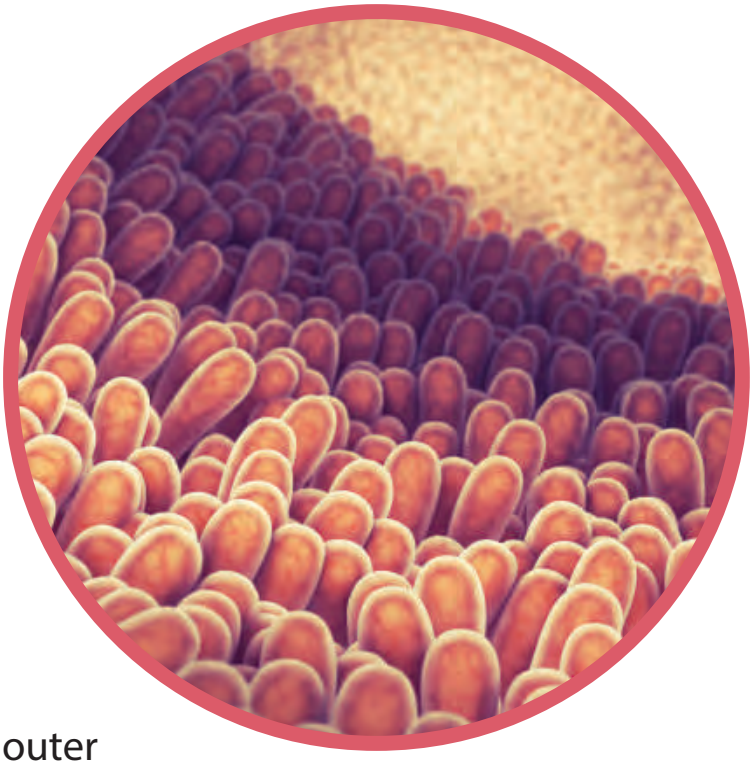
A Fuzzy Situation

What does the inside of your small intestine look like?

Take a look inside of this fuzzy situation using a sock and a few home-inventory materials. The fuzzy sock represent the villi and microvilli that help to transport nutrients from the small intestines and into the rest of your body.

Materials:

- **A fuzzy sock** (that you don't need. Check your lost sock collection!)
- **Scissors**
- **Square-inch grid paper**
- **A pencil or pen**



Directions:

1. Turn your fuzzy sock inside out. The outer part of the sock represents the smooth texture of the small intestine. Look inside the opening. The "fuzzies" represent the small, finger-like folds called **villi***, and smaller hair-like projections called **microvilli***, that line the inside of the small intestine. Cut the sock open lengthwise and lay it down on top of a piece of square-inch grid paper. Trace around the material using a pencil or pen and count the total number of square inches it covers. For partial square inches, imagine putting them together to make a whole square inch for an approximate area measure.

*Say them like this:

villi - **"VIH-lie"**

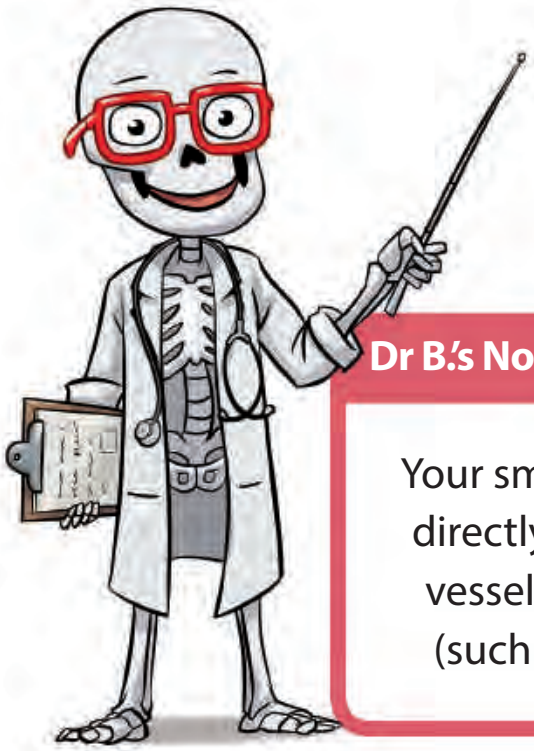
microvilli - **"MY-crow-VIH-lie"**

The strongest syllable is always shown in **CAPITALS** and **red**.

2. The villi and microvilli increase the surface area of the interior of the small intestine to almost the size of half of a basketball court! This helps to absorb a large amount of nutrients in a short amount of time (about 3 to 6 hours).

That's 338,400 square inches!

How many fuzzy socks would you have to cut open and lay down to cover half a basketball court? Divide 338,400 by your sock area to find out.



3. Now imagine that number of socks with villi and microvilli working to absorb nutrients from the food you eat!

Dr B.'s Note

Your small intestine sends nearly everything it absorbs directly to the liver through a special system of blood vessels, allowing the liver cells to break down toxins (such as poisons put in your rice by your enemies!).

Know Your Appetite

Experience Japanese Foods

Japan's food culture is rice-centered, and this starchy base is generally combined with pork, tofu, or seafood. Legend has it that sushi was created when an elderly woman began hiding her pots of rice in birds' nests to protect them from thieves. After a time, she collected her pots and discovered that the rice, because it had been left out for so long, had begun to ferment.

Fermentation is a natural process that helps to preserve food. The woman also discovered that fish scraps from the birds' meals had mixed into the rice. Not only was the mixture tasty, but the fermented rice also served to preserve the fish. With that, a new way of extending the shelf life of seafood was born!

Pinky's Hint:

Read through the entire recipe before beginning to prepare food. This way, you'll know what equipment and ingredients are needed, and you'll be familiar with the steps involved.

Whenever you see the chef's hat icon, it means **you'll need an adult's help**.

いただきます

(Itadakimasu)*

That means **"Thanks for the food!"** in Japanese.

***Say it like this:**

"ee-tah-dah-key-mahs"

Note: Syllables in Japanese words are generally spoken with equal stress, and for the same length of time.

Recipes and food knowledge provided by Chef Polly Legendre of La Gourmande Catering.

KNOW YOURSELF

6 The Immune System

The Blights of Camelot

Get Ready to Visit Arthurian England

HEAR YE, HEAR YE, in this adventure, you'll arrive in fictional sixth-century England and the legendary lands of Camelot. Unearth the particulars about the immune system.

Hello Adventurer!

Welcome to Adventure 6 - The Immune System.

During this adventure, you will explore Arthurian England and your body's immune system. There will be information to read and activities to complete to help you learn, and quizzes when you are ready to challenge yourself! Take your time along the way - spend as much or as little time as you like on each activity, and do not forget to use the additional resources to learn more about the topics you are interested in.

My name is Dr. Bonyfide. I'm lost in the space-time continuum! Help my friends search for me, and learn about history and science along the way.

Wilcume!*

That means "Welcome!" in Old English.

***Say it like this: "wil-coom."**

*Syllables in bold are the strongest.

Enter
this portal

for
Time Skaters Adventure 6...


YOU'RE RIGHT. THE HOT PINK ON BLACK LOOKS BEST.
I MEAN, THE LIME GREEN WOULD BE CUTE, BUT PINK FOR PINKY, AMIRIGHT?
WUH?
THE BLIGHTS OF THE ROUNDTABLE
NAZ! GET OUT OF MY HEAD!
SORRY, I CAN'T HELP IT! IT'S NOT LIKE THESE POWERS COME WITH AN INSTRUCTION MANUAL.
GREETINGS, COMRADES.
OOOO...A LIZARD?! WHAT KIND?
WHA...?
THIS IS NO ORDINARY LIZARD. IS BOUNSKI'S PET IGUANA, MORELY!
AND HE IS SLEEPING AT MOMENT... SO TRY AND KEEP DOWN IT.
AWWW....HE'S KIND OF CUTE. LIKE A BABY DRAGON.
YOU WOULD LIKE TO HOLD HIM?
TOTALLY.
THE AMBER SURE IS LIVELY TODAY.
RATT
RATT
RATTLI


EVERYTHING OKAY, MORELY?
HE'S JUST HUNGRY.
AND BY THE WAY, HE WANTS PAPAYA THIS TIME. HE'S SICK OF KALE.
OKAY, BOUNSKI IS SCARED NOW.
NOM NOM NOM
WHAT MANNER OF BEAST IS THIS?
IS NO MERE BEAST, HANK. IS INTELLIGENT PET IGUANA, MORELY.
I BRING HIM HERE TODAY TO MEET BOUNSKI'S FRIENDS.
WELL, I SUGGEST YOU CONTAIN HIM WHILE IN THE LABORATORY.
IGUANAS ARE EXCITABLE CREATURES.
MUNCH! MUNCH! MUNCH!
THIS CONTAINER SHOULD WORK FOR THE TIME BEING.
FANTASTIC!
NOW IT'S TIME TO GET TO WORK.
OVER THE LAST FEW DAYS, MY STUDIES HAVE LED ME TO A NEW CONCLUSION.

Know Your Old English

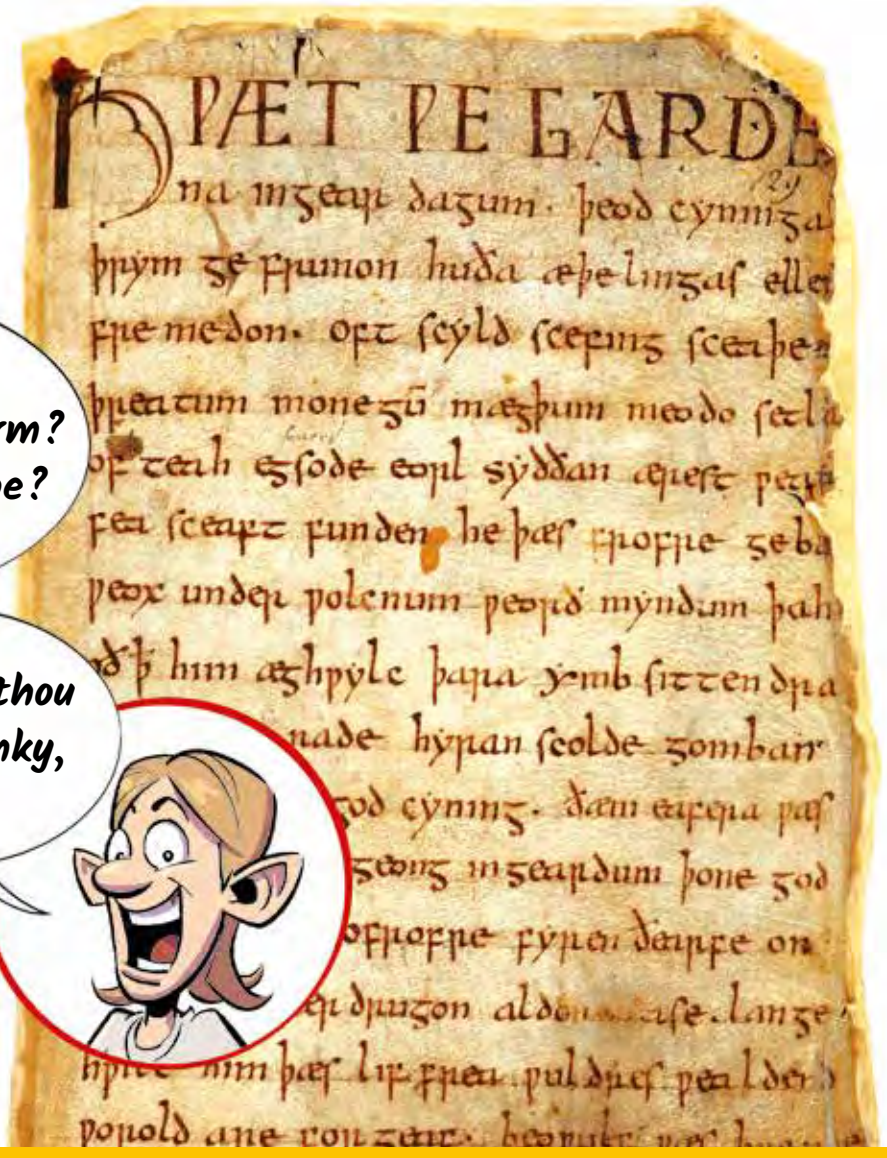
Did you notice the word "wyrm" in Time Skaters 6? That's Old English for dragon. Or, how about when Merlin said "friesende!" that means "freeze!"

Here are a few other fun words, Old English style:

Durst - to be daring or bold enough to enact something

Whither - to where

Imagine Pinky and Bounski practicing Old English...



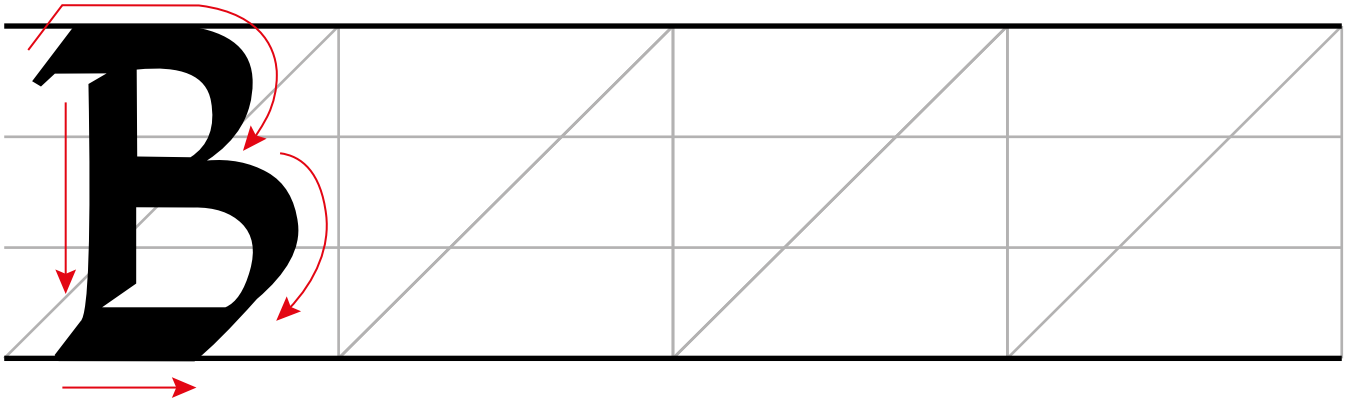
A page from the original Beowulf

If this Adventure Guide existed in the Middle Ages, only monks and the most highly educated people would be able to read it. We couldn't read it either, because the Anglo-Saxons used a language we call Old English. Old English, also called Anglo-Saxon, is the language spoken by the English inhabitants of Britain from about 500 to 1100 CE Much of Old English doesn't even look like English at all.

Beowulf is a very famous poem written in Old English. The opening line, shown below, means "over the whale's road." What kind of road could that be?

Not only was literacy a privilege, but since the printing press hadn't been invented yet, books had to be copied by hand! Only a few people knew how to write, and the process of copying a text took a long time. On the plus side, writing by hand allowed people to develop beautiful styles of text.

Now you can practice writing this Old English letter:



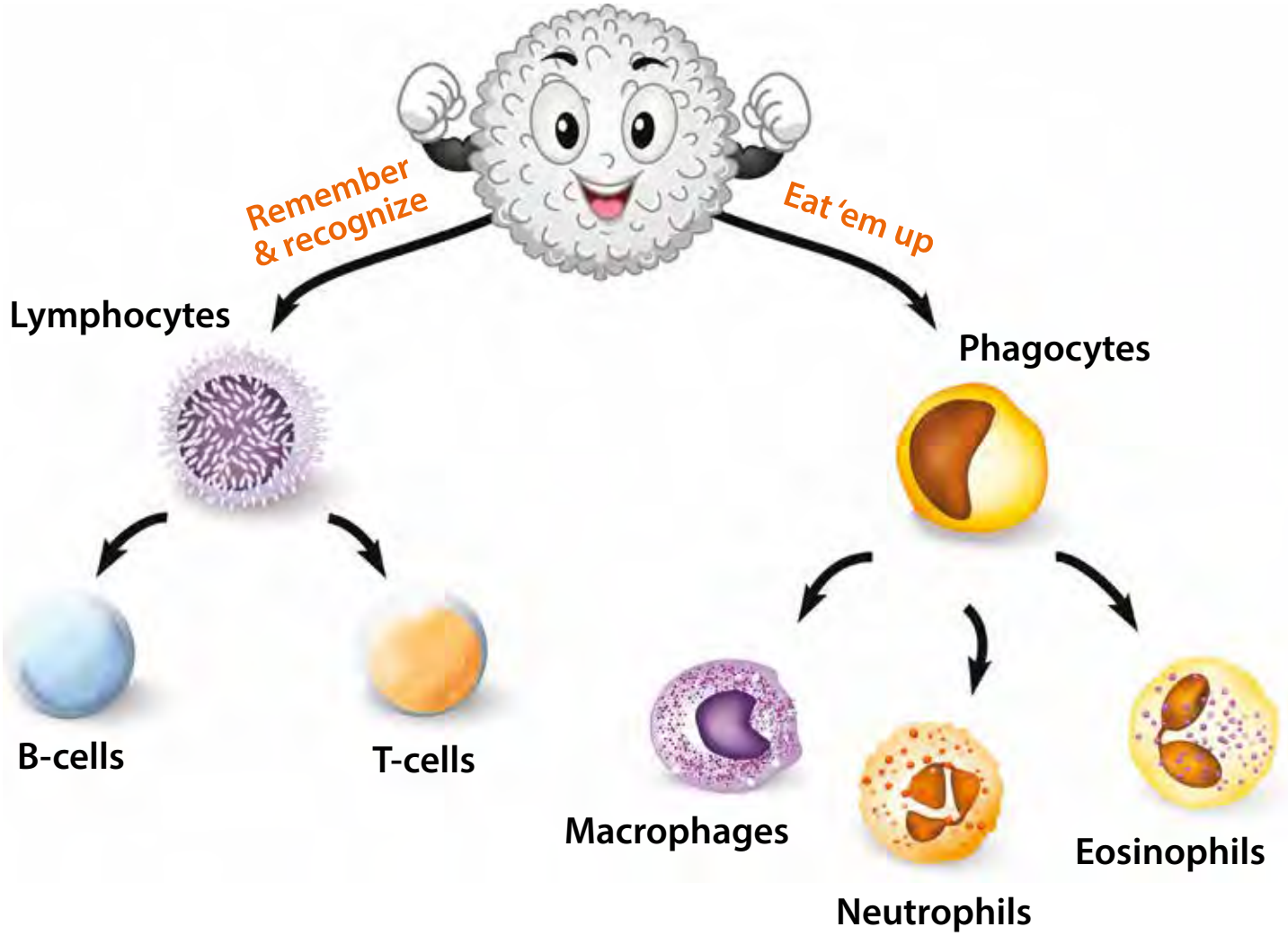
Know Your Immune System

Like an invisible shield, the immune system protects you from germs and illness. It's made of cells, tissues, and organs that work together to keep you healthy. You might think of things like swelling or fever as signs of infection, but they are actually signs your immune system is working. When bacteria or viruses penetrate your skin through a cut or opening and start multiplying inside your body, different types of white blood cells rally to your body's defense.

When your immune system finds germs or any substances that aren't part of your body, white blood cells coordinate to attack the invaders and also remember how to react to a specific invader in the future.

White blood cells, also known as **leukocytes***, start out in your bone marrow, growing from stem cells, and can also be found in your blood and lymph. There are different kinds of leukocytes, each with a different job in the immune army.

White Blood Cells (Leukocytes)



There are two types of leukocytes: lymphocytes and phagocytes. Lymphocytes "remember and recognize" while phagocytes "eat up" invaders.

There are different types of phagocytes like **macrophages*** and **neutrophils***. The neutrophils move around your blood, look for antigens, and create a liquid known as pus to help eat up bacteria in a wound. They're the biggest group of all the white blood cells.

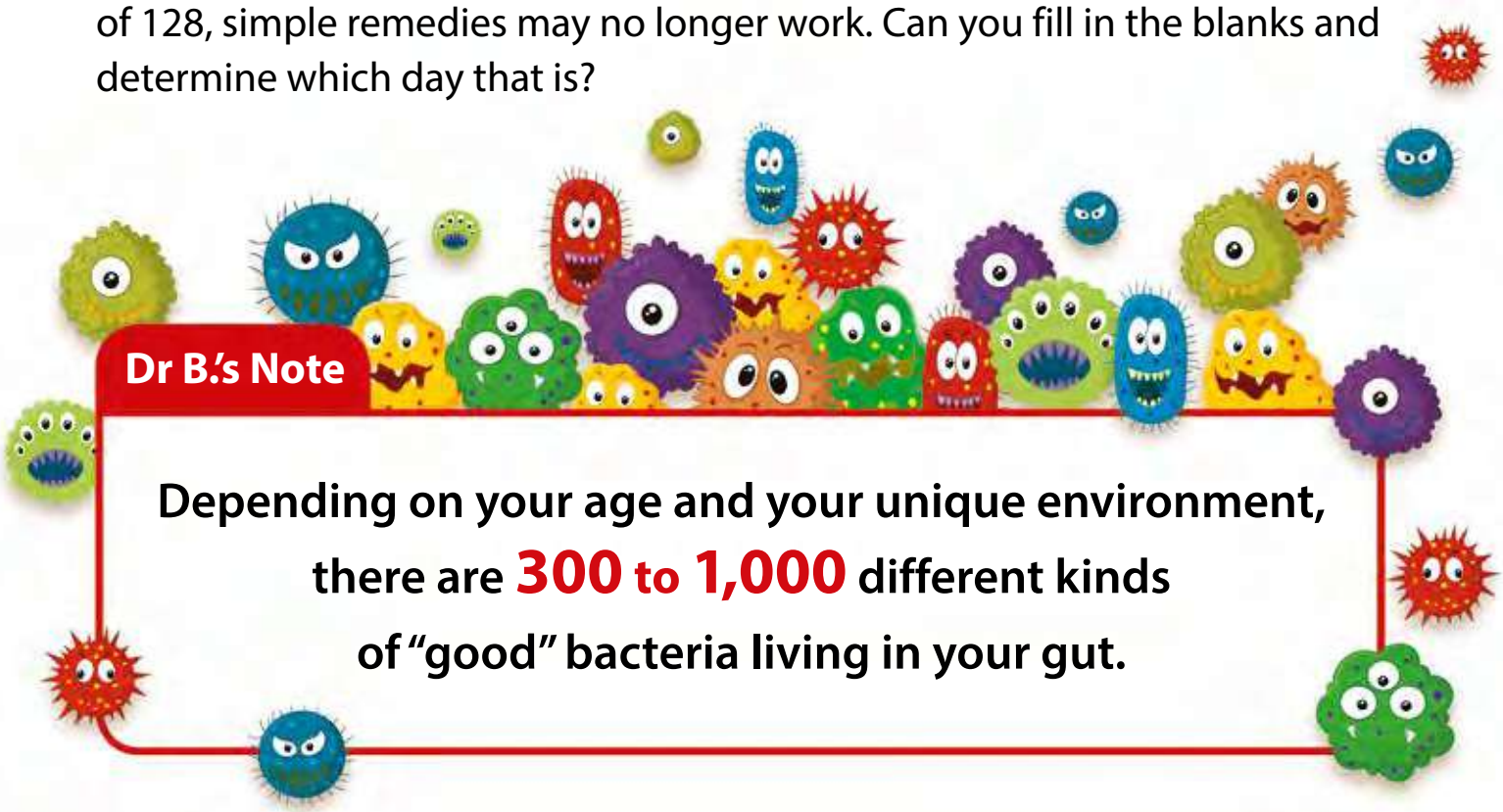
Which is bigger?

Two germs growing exponentially like this, 2^5, or multiplying like this, 2×5?

One of the reasons germs and bacteria, in particular, can be so alarming is because they multiply like crazy! Unlike regular multiplication by just one number, this kind of growth is way more powerful.

We can represent the results using exponents, often called "powers," and, in this case, the base number 2. Your lymphocytes and phagocytes know all about bacteria's so-called "powers." They work together to fight invading germs before exponential growth really takes over, your temperature rises, and you have to call in a supporting cast of doctors and medicine.

Here's an example of bacteria gone wild! Once it's reached a total number of 128, simple remedies may no longer work. Can you fill in the blanks and determine which day that is?



Dr B.'s Note

Depending on your age and your unique environment, there are 300 to 1,000 different kinds of "good" bacteria living in your gut.

Baked Apples with Oats

Serves 4

Total time:
45 minutes

Ingredients:

- 4 apples
- 1 cup quick rolled oats
- 1/3 cup brown sugar
- 1/3 cup butter
- 1 tsp ground cinnamon

CREATED WITH LOVE

BY THE

KNOW YOURSELF TEAM