

KNOW YOURSELF

7

# The Muscular System

Fleur-de-Wheee!



**The year is 1859 and the city is Paris, France.**

See the Cirque Napoleon, the powerful acrobats, and the brawny strong men while you take in some fun facts about the muscular system.

# Hello Adventurer!

## Welcome to Adventure 7 - The Muscular System.

In this workbook, you will learn about Paris, France and your body's Muscular 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!**



**Let's get moving!**

## LEARN ABOUT

### The Muscular System

It takes over six hundred muscles working together to keep things moving.

ADMIT • ONE

## VISIT

### Paris, France in 1859

In a time of political upset, the arts find new ways to amaze and inspire.

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## MEET

### Jules Leotard

While many great people lived in this era, one swings high above the rest.

ADMIT • ONE

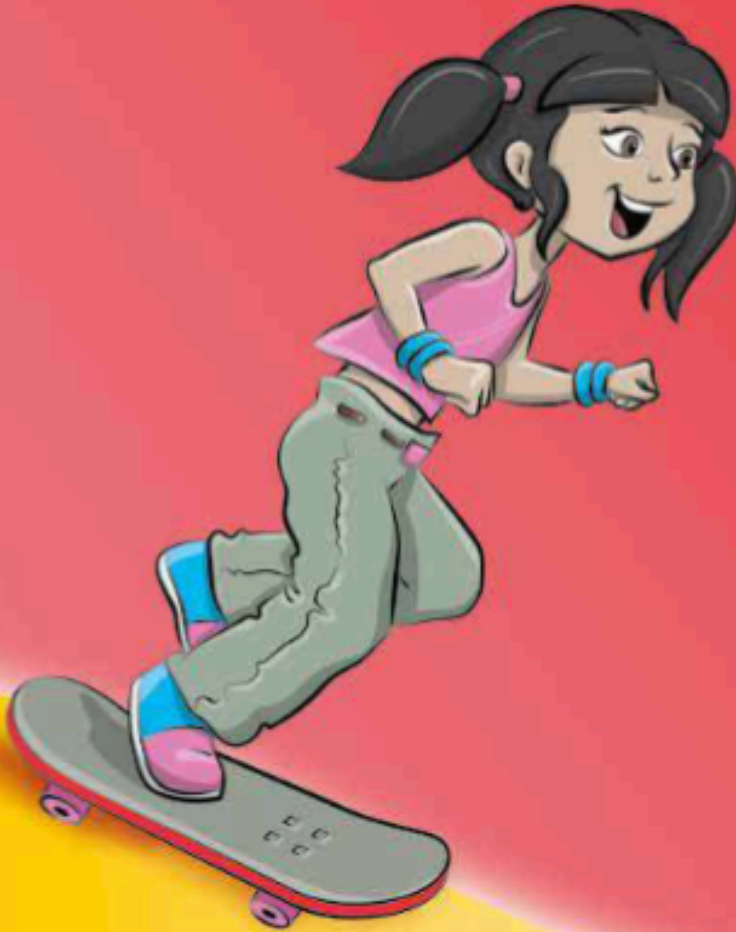


## Bonjour\*

That means "Hello" or "Good Day" in French.

\***Say it like this: "bawn-ZHOOR"**

The strongest syllable is shown in CAPITALS.



**Enter this portal for....**



# **Time Skaters Adventure 7**

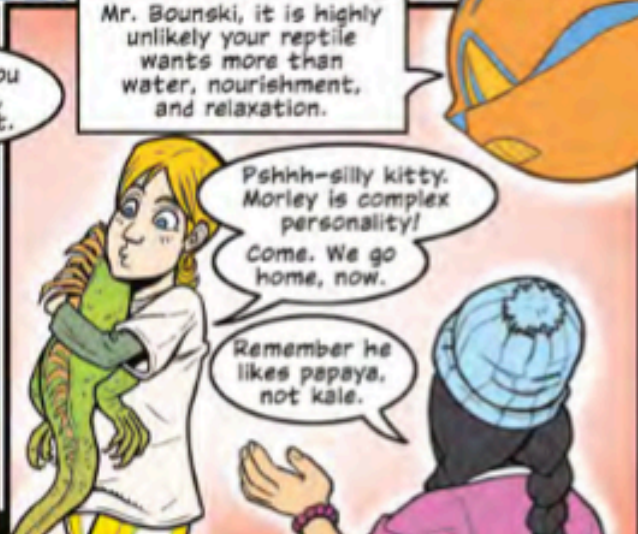
## **Fleur de Wheeee!**

# FLEUR-DE-WHEEEEE!



Morely missed Bounski, yes?

If by missing you mean sleeping, then yes? A lot.



Mr. Bounski, it is highly unlikely your reptile wants more than water, nourishment, and relaxation.

Pshhh-silly kitty. Morley is complex personality! Come. We go home, now.

Remember he likes papaya, not kale.



Whoa, whoa, whoa! I thought we were going to talk about the Maker Fair?

It appears Bounski is worn out from your recent adventure.

And I'm worn out from my recent math test...worn out from being AWESOME!

Saving sick dragons, solving sick equations, you've earned a break.

Besides, I think I should like a "cat nap" myself.



Hi guys. Bye guys.

Is that an iguana?

Sketch! So glad you're here!

The Maker Fair is on the approach! Your drawing skills are going to come in handy.



Do you mean my drawing skills...

Or my drawing skills?



Don't worry. I don't need you to conjure any more magic horses or airplanes, or whatever.



Well that's good. I'm kind of on magic-drawing probation, anyway.

Wuh?  
But your power is amazing!



That's the problem, though. A little too amazing.

There's such a thing as too amazing?

The other day, Hank told me something:



It's astounding that you can make your drawings come to life now.

But remember, art comes from *inside* you.

And once it leaves, you can't get it back.



Oh come now, that's not how I sound at all.

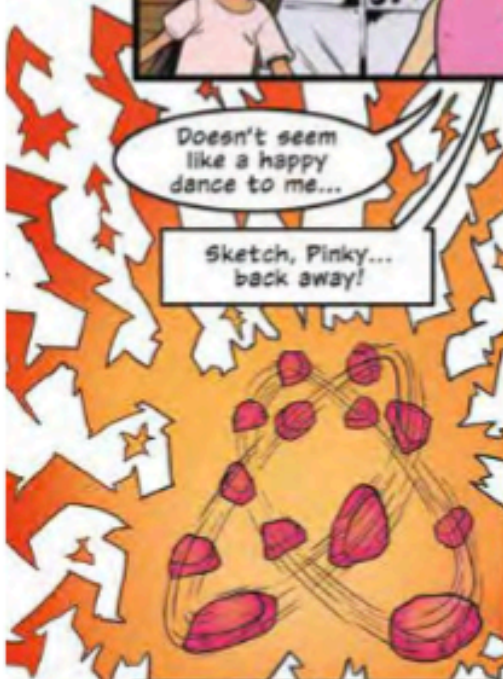
Like I'd ever be so vulgar.

I said "*creativity comes from within you.*"

You sure you want to listen to this guy?



How many times must I explain? I am not a "guy." I am a hyper-adjusted ninja-hunh?





# Learning Calendar

Part **1**  
**Know  
Your  
History**

**Locate** France on the world map using a globe, an atlas, or an online map (<https://knowyourself.com/maps>) or check out Google Earth.

**Read** the comic, **Fleur de Wheeee!** - 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 30 and 31!

**Get to** *Know Your History*.

**Understand** *Know your Degas* and **Make** *an Impression*

**Explore** *Napoléonic Nuance*.

**Create** *Your Company*.

**Decode** *Fancy France*.

**Know** *Your Napoléons*.



Part **2**  
**Know  
Your  
Muscular  
System**

**Keep** current and *Know Your Muscular 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** *Stuffed Mushrooms* and *Petite Beurre*.

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

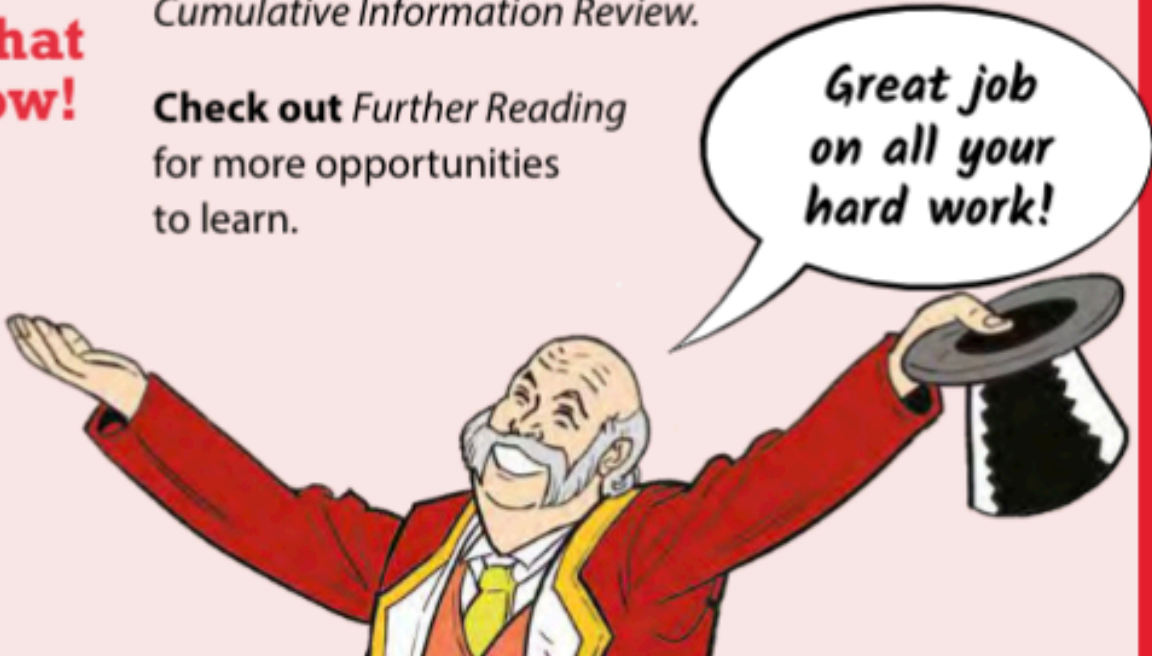
Part **4**

## **Show What You Know!**



**Take** the *Adventure 3 Cumulative Information Review*.

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

A cartoon illustration of a smiling chef with a white beard, wearing a red jacket and a yellow tie. He has his arms raised in celebration, holding a black top hat in his left hand. A speech bubble above him contains the text "Great job on all your hard work!".

**Great job  
on all your  
hard work!**

# Know Your History

## Paris, France

### Jules Leotard

If you've ever seen a ballet performance or gymnastics, you might know the one-piece garment performers wear is called a leotard. But did you know the person it's named after, Jules Leotard, was also the first high-flying trapeze artist?

Jules was born in France in 1842 and he studied law in school. However, as a teen he was most interested in developing a trapeze act over the family's swimming pool. As he began to share his talent with the public, the need for performance-wear became clear.

The leotard was designed to minimize wind resistance and allow flexibility. Both the outfit and his trapeze art inspired the song "Daring Young Man."



# Napoléonic Nuance

**Napoléon III** was first put into a position of power when he was elected President of France in 1848. He didn't like being president very much; however, his uncle had been Napoléon I, the famous Emperor of France, and as soon as he got the chance, Napoléon III followed in his uncle's footsteps and declared himself Emperor. This meant he could make decisions about what would happen without having to consult others, and they had to obey. Another word for this kind of government is 'authoritarianism.'



Napoléon believed that if he was in charge, he could make decisions to make everyone's life better - and in some cases this was true. He immediately launched projects to increase the number of railroads in France and to improve the city of Paris with new water and sanitation projects. Because he was the Emperor, things could get done very quickly. However, this also meant that people who opposed his decisions were often ignored. For example, the infrastructure work in Paris involved a lot of buildings getting torn down, and if you lived in them, you didn't have a way to stop it.

A lot of times something that sounds like a good plan for everyone has issues once you talk about it with others. For example, it might sound great to give everyone free ice cream for breakfast if you

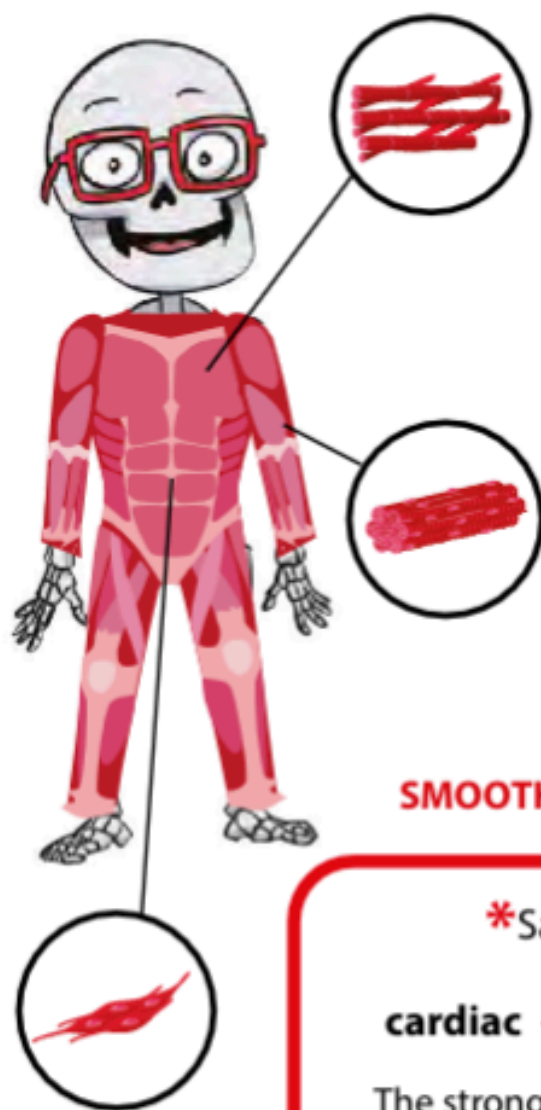
like ice cream, but if you talked to a doctor they might say that's unhealthy. And if you talk to a friend who is lactose intolerant, they would tell you that it'd make them sick! By the end of 1870, the French decided they needed to have a government that listened to more people than just one.

To try and really understand the problem with one person making decisions, make a list of your own Imperial Edicts (proclamations or rules) that you would put in place if everyone had to do whatever you told them. Maybe you don't want to do chores anymore! That sounds fun. Write them down like the chart below. Then try and figure out what the problems might be that you didn't think about. Ask someone for help if you can't think of what's wrong!

<b>Problem</b>	<b>Idea</b>	<b>Benefits</b>	<b>Issues</b>
Hungry	Cookies for Breakfast!	Delicious & Filling	Not enough nutrients & too much sugar

# Know Your Muscular System

Like acrobats in a circus, the muscles in your body have to react fast and always work together. There are more than 600 muscles in your body, and it takes three types of muscle to do the jobs of the muscular system well. Do you remember which ones were used by Coralie, Jules, and Francois? Here are some reminders.



## CARDIAC MUSCLE: Can't beat that!

**Cardiac\*** means "related to the heart." Cardiac muscle contracts to pump and circulate healthy, oxygenated blood, first to the heart itself and then to the rest of your body. It is **heart work** to keep the blood pumping!

## SKELETAL MUSCLE: Roll with it!

Skeletal muscles mostly move the bones of the body. We can instruct our skeletal muscles to do things: jump, swim, throw a ball, scrub our toes, draw a mouse, look to the left or right...any action we want to make happen on purpose. Because most skeletal muscles contract when we want them to, they are called **voluntary** muscles.

## SMOOTH MUSCLE: It's bladder to squeeze than to tease!

\*Say it like this:

**cardiac** - "**KAR-dee-ak**"

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

Smooth muscles are in the walls of internal organs that need to fill up with something important—air in your lungs, or food in your stomach, or urine in your bladder. Smooth

muscles keep your organs working automatically! They control other things you don't think about, too, like blinking your eyes, or some parts of swallowing, so they're called **involuntary** muscles.

## Remember what we call a muscle that we don't control?

Cardiac may be the strongman of muscles—very strong and made to last. What if we were the boss of our cardiac muscle and one day we forgot to tell it to contract? Disaster! But the brain never lets that happen.

Let's test what we remember about muscles:

1. Raise this book up high and bring it back down. Were your muscles working when you did that? What kind of muscles performed those actions?
2. As you read this Adventure Guide, are your lungs filling with air? Are you aware of it? Can you think of other parts of your body that work this way? What kind of involuntary muscle takes care of things you can't control?



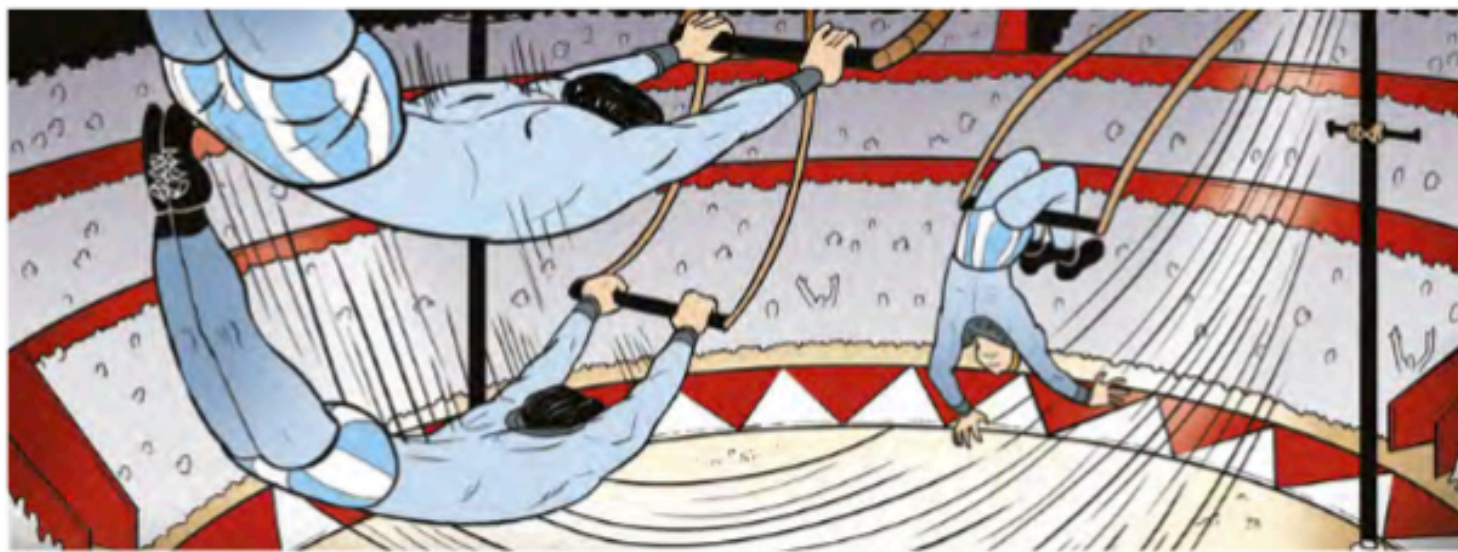
3. I'm happy to say that your heart is beating as you read these words—and working very well! What kind of muscle keeps your heart pumping blood in and out? Is this voluntary muscle or involuntary muscle?



Did you know you can shrink in height  $\frac{1}{2}$  inch every 10 years after you turn 40? A lack of muscle use is one of the contributing factors.



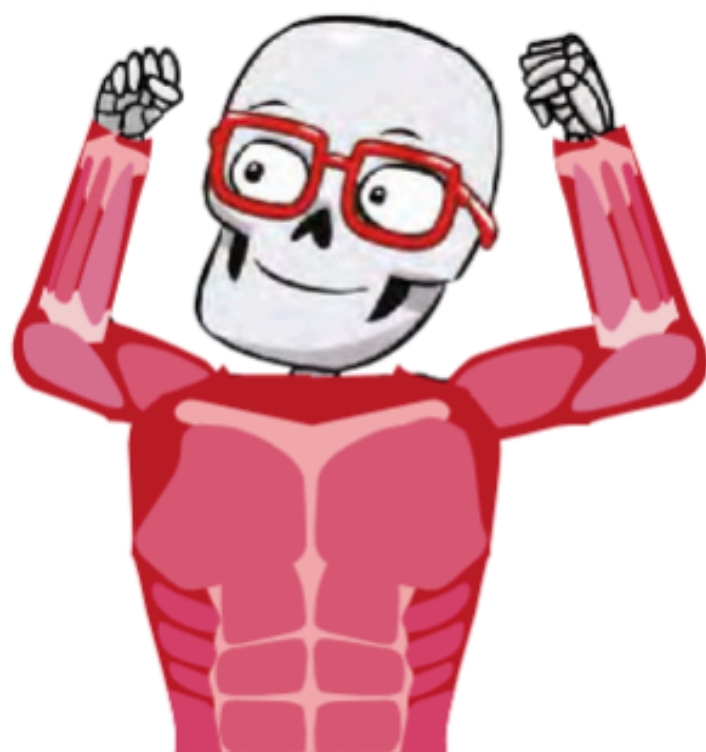
# Feel the Burn



When your muscles cannot break down glucose into energy fast enough, they convert it to lactic acid. This causes the “burning” feeling, which is actually a good thing! It means you’ve challenged your muscles and you’ve worked so hard, you used your energy up. As you get stronger, or if you’ve fueled well, you might take longer to feel that “burn.”

## Materials:

- Comfortable clothing
- Two small free weights, water bottles or resistance bands





In each of the following exercises, think about both the **agonist**\* (e.g., the biceps in the biceps curl) as well as the **antagonist**\* (the triceps), and notice how they work together. Which one “burns” first?

**Agonist:** Primary mover

**Antagonist:** Secondary mover

\*Say it like this:

**agonist** - “**AG**-uh-nist”

**antagonist** - “an-**TAG**-uh-nist”

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

While it's okay to feel a little out of breath when exercising, make sure to stop and rest if you feel dizzy, faint, overheated, or have trouble breathing. Make sure to drink plenty of water before exercising, and don't be afraid to take breaks to take care of yourself!

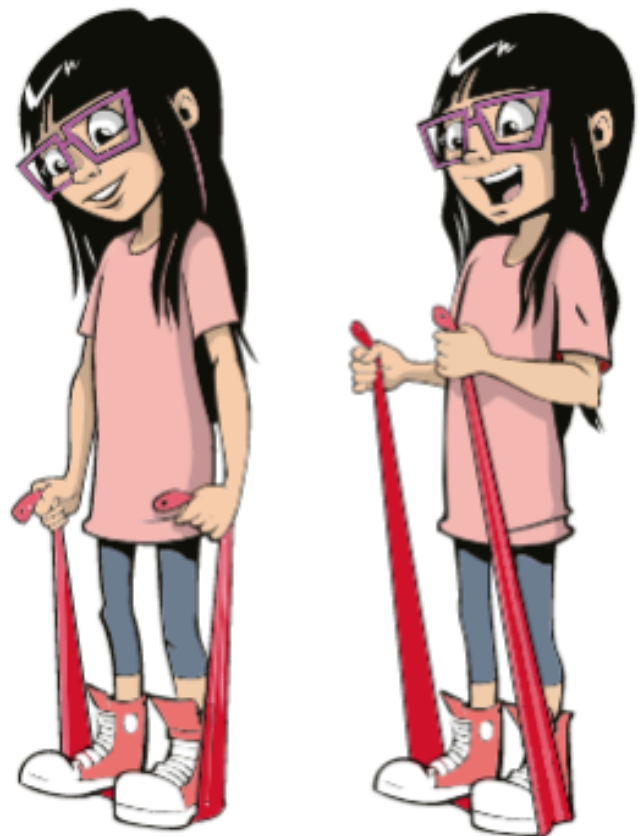


# Feel The Burn

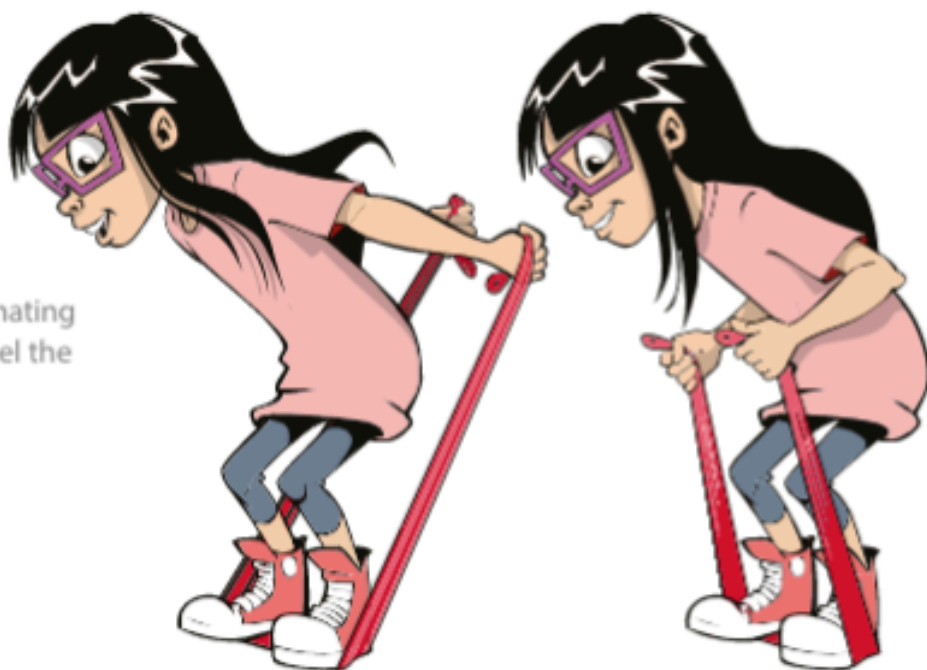
## Directions:

### Bicep Curls

1. Stand with your feet hip width apart. Holding the ends of the resistance band firmly in your hands, place the band beneath your feet, right under the arches.
2. With bands firmly grasped, take a moment to adjust your spine: stand tall and centered, rather than leaning forward or back.
3. Hold your arms at your sides, palms facing in.
4. Pin your elbows at the bottom of your ribs and form 90 degree angles with your forearms and biceps.
5. Slowly pull up on the band, bending your hands toward your shoulders, counting slowly, 1–2–3. Then, release your arms down, counting, 3–2–1. Continue to maintain a neutral spine, not swaying forward or back.
6. Repeat until you begin to “feel the burn” and see if you can do two to four more. Is it challenging? If not, increase the resistance by standing with your feet wider apart or holding farther down the band.



For an added challenge, try coordinating a squat with your kickback, and “feel the burn” in your quadriceps too!



## Triceps Kickbacks

1. Remain standing with your feet hip width apart and the resistance band in your hands.
2. Move your hands to your hips, elbows pointing behind you. Adjust the band for resistance.
3. Sit back as if you are preparing to hop forward, keeping your chest high and hips behind you. Adjust the bands again.
4. Keeping your elbows high and pointed behind you, extend your lower arms, counting slowly, 1–2–3, so your hands move away from your hips. Your arms should be fully extended (not bent) behind you by the count of 3.
5. Return your hands to your hips, still keeping your elbows pointed high behind you, counting down, 3–2–1.
6. Repeat until you begin to “feel the burn” and try to do two to four more.

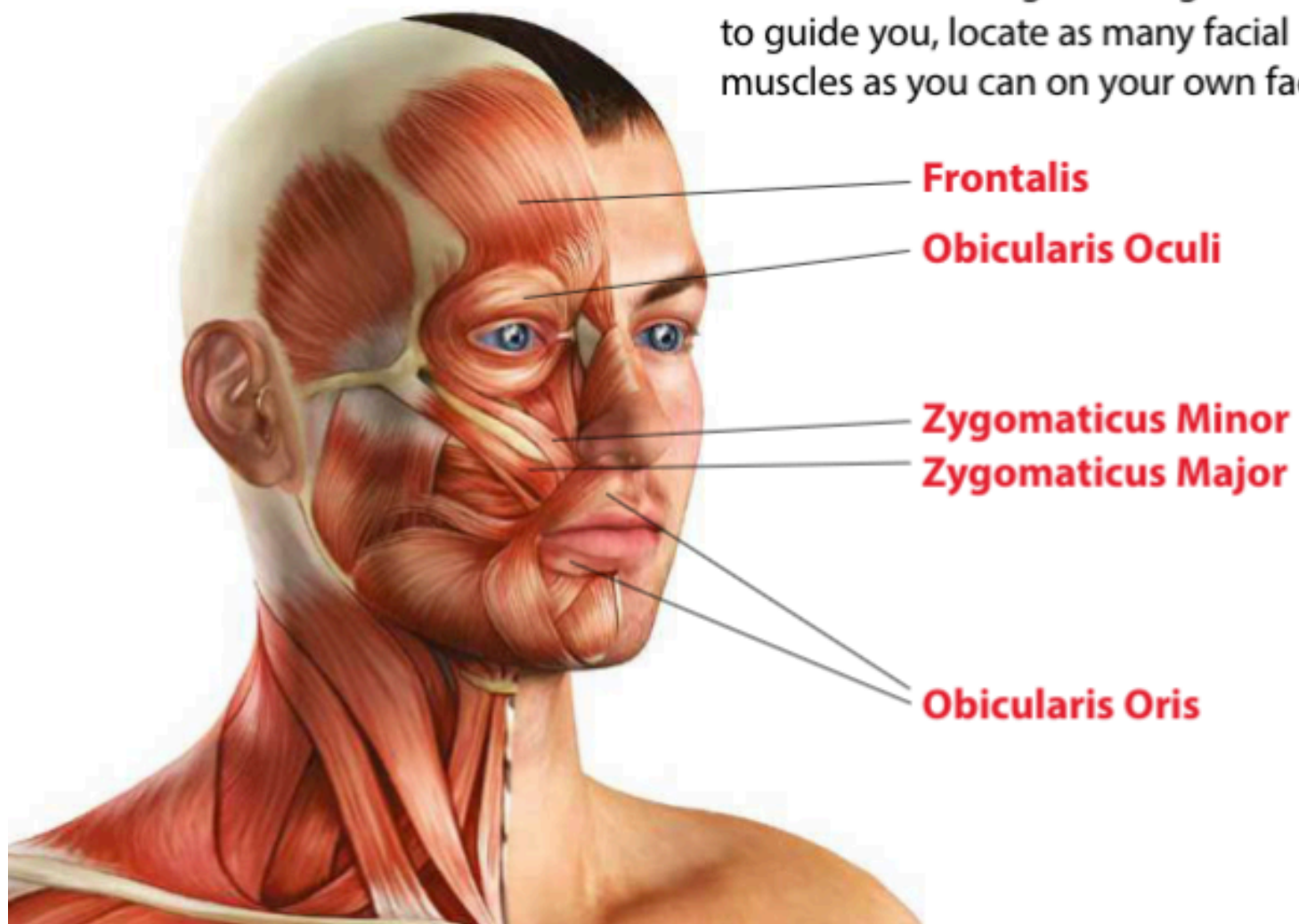
# Know Your Facial Muscles

## Clowning Around

Most people don't think of their face as a muscular part of their body, yet there are 40 muscles in your face that help you express your feelings: happiness, sadness, anger, or surprise. Facial muscles don't all attach directly to bone, like the muscles in the rest of your body. Many of them attach under the skin. This allows you to contract your facial muscles just a little and make different expressions. For example, you can raise your eyebrows to look surprised or wrinkle your nose to show disgust.

Circus clowns are masters of expression. The makeup they wear isn't meant to hide their faces, but to magnify them.

1. Find a mirror. Using the image below to guide you, locate as many facial muscles as you can on your own face.





- 2.** Choose a basic expression—happy or sad—and create your own clown face. Remember to use makeup to emphasize your facial movements. Create a funny hairdo, find a flower, and complete a look unique to you.



- 3.** Now try making different expressions—sad, happy, surprised, scared, thoughtful, and so on. Which muscles move for each expression? Do very different expressions use any of the same muscles?

It takes 17 muscles in the face to smile and 43 of them to frown. Save energy and smile!



# Stuffed Mushrooms

One day, around 1650, a melon grower near Paris discovered mushrooms growing on fertilizer (horse manure). The mushrooms were so delicious that he decided to grow this new exotic delicacy and introduce it in fashionable Parisian restaurants.

Later on, a French gardener, Monsieur Chambry, discovered that the caves around Paris had just the right cool and moist environment to grow the white button mushrooms known as Champignons de Paris (Paris mushrooms).

You have to be an expert to choose wild mushrooms. Put them on your next grocery list instead!



**Prep time:**  
**10-15 minutes**



**Cooking time:**  
**25 minutes**

**Serves 4-6 as appetizers  
or snacks**





## Ingredients:

- 25–30 white button mushrooms, stemmed
- $\frac{2}{3}$  cup bread crumbs
- $\frac{1}{2}$  cup grated parmesan cheese
- 2 cloves of garlic, peeled and finely chopped
- 3 tbsp chopped parsley
- $\frac{1}{3}$  cup olive oil



### Show off your cooking skills!

Have your grown up take a photo,  
and share on social media using the hashtag:

**#KnowYourAdventure**



KnowYourselfOAK



KnowYourselfOAK

# Stuffed Mushrooms

Mushrooms are très populaire in France. In fact, the word mushroom comes from a French word for fungi, which is **mousserons**.\*

## Preparation:

1. Combine the bread crumbs, parmesan, garlic, and parsley.
2. Add 2 tbsp of the olive oil to make the mixture stick together, and season with a pinch of salt and a pinch of pepper to taste.
3. Coat the bottom of a baking sheet with about 1 tbsp of olive oil, and preheat the oven to 400°F.
4. Use a small spoon to fill each of the mushroom caps with the breadcrumb mixture, while placing them, filling side up, in rows, on the baking sheet.
5. Drizzle the remaining olive oil over the mushrooms, and bake until they are bubbling hot and golden brown (about 20 to 25 minutes). 🍄



\*Say it like this: "**moose-rawn**."

Syllables in **red** are strongest.



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BY THE  
KNOW YOURSELF TEAM**



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