

# Healthy Bones

## 3<sup>rd</sup> Grade

**\*\*\*Make play dough ahead of time.\*\*\***

### **Nutrition Objectives:**

- Students will learn the main functions of the skeletal system.
- Students will learn the common names of some of the bones in the skeletal system.
- Students will learn that milk, yogurt, and cheese contain calcium and that we need calcium to build strong bones.
- Students will learn they need **3-A-Day** of Dairy (3 servings of foods from the Milk Group of MyPyramid every day).

<b>Colorado Content Standards</b>	<b>Application of Standard</b>
<p><b>Science Standard 3:</b> Life Science: Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.</p> <p>Students will:</p> <ul style="list-style-type: none"> <li>▪ describe human body systems (for example, skeletal);</li> <li>▪ describe the basic food requirements for humans as summarized in the nutrition pyramid.</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>▪ learn the main functions of the skeletal system;</li> <li>▪ describe how calcium is important for our bodies and that we get calcium by eating foods from the Milk Group.</li> </ul>
<p><b>Science Standard 6:</b> Students understand that science involves a particular way of knowing and understanding common connections among scientific disciplines.</p>	

<p>Students will:</p> <ul style="list-style-type: none"> <li>▪ compare a model with what it represents.</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>▪ construct a model of a skeleton out of play dough and understand what it represents.</li> </ul>
<p><b>Literacy Standard 1:</b> Students read and understand a variety of materials.</p> <p>Students will:</p> <ul style="list-style-type: none"> <li>▪ use a full range of strategies to comprehend materials such as directions,</li> <li>▪ non-fiction materials, rhymes, poems, and stories.</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>▪ read a text about the human skeletal system using shared reading and understand the main functions of the system.</li> </ul>
<p><b>Literacy Standard 4:</b> Students apply thinking skills to their reading, writing, speaking, listening and viewing.</p> <p>Students will:</p> <ul style="list-style-type: none"> <li>▪ use reading and listening to define and solve problems.</li> <li>▪ use listening skills to understand directions.</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>▪ use reading and reviewing skills to answer questions in the activity sheets.</li> <li>▪ listen to directions on how to make a model of a skeleton using play dough.</li> </ul>

### WHAT TEACHERS NEED TO KNOW

For additional background information for the lesson, refer to the *Calcium and Bone Health* document.

## MATERIALS, INGREDIENTS and TEACHER PREPARATION

Equipment and Ingredients	Teacher Preparation	Food Preparation
<ul style="list-style-type: none"> <li>▪ oil</li> <li>▪ 6 cups flour</li> <li>▪ 2 cups salt</li> <li>▪ 8"x11" cardboard trays*</li> <li>▪ mixing bowl</li> <li>▪ mixing spoon</li> <li>▪ measuring spoons</li> <li>▪ measuring cups</li> <li>▪ black construction paper*</li> <li>▪ glue*</li> <li>▪ skeleton poster</li> <li>▪ 2-3 examples of x-rays</li> <li>▪ napkins*</li>   <li>▪ spoon free yogurt*</li> </ul>	<ul style="list-style-type: none"> <li>▪ Make 2 batches of play dough ahead of time.</li> <li>▪ Make copies of bones fact sheet (each student), skeleton activity sheet (each student), and crossword puzzle (each student).</li> <li>▪ <b>Tip:</b> Bones fact sheet can be used on overhead so it does not have to be copied for each student.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Have spoon free yogurt and napkins ready to pass out to students.</li> </ul>

\*one per student

### SET-UP

**\*\*\*Make play dough ahead of time\*\*\***

**Work area:**

- Students will work at their desks individually.
- Have nutrition table ready for lesson materials and ingredients.

### **Play dough Recipe                    (makes enough for 15 students)**

Ingredients:

- 3 cups flour
- 1 cup salt
- 1 1/4 cups water
- 3 tablespoons oil

Directions:

1. Put flour and salt in a mixing bowl.
2. Add water and oil, then mix.
3. Once the mixture is starting to pull together, it is easier to use hands to mix instead of the mixing spoon.

4. Check consistency. The play dough should feel smooth and soft. Add flour or water to adjust. Play dough should not stick to fingers.

**Hint:** It is easier to make two separate batches than to mix together a double batch.

**Tip:** Play dough can be made 2-3 days ahead of time. Make sure to keep it in a plastic bag in the refrigerator.

- Display the skeleton poster and have x-rays ready to show to students.
- Have cardboard trays, 8 ½" x 11" black construction paper, glue, and play dough ready to pass out to students.
- Have one cardboard tray, one piece of construction paper, glue, and skeleton picture ready for demonstration.

## INTRODUCTION WITH STUDENTS

- **“Today we will learn about our bones and how to keep our bones healthy. What do you already know about bones?”**  
Give each student a “Fact Sheet” on bones and read together as a class, stopping as you go to make sure students understand the facts.
- **“Have you had any foods from the Milk Group today? How can you PLAN to include milk group foods in your diet today?”**
  - Show the students the x-rays by holding them up to the light. Have students try to name which bone(s) they are looking at.
  - Give each student the skeleton activity sheet. Go over each bone listed. Use the skeleton poster as a reference as you name the different bones.
  - Have students try to feel the bones in their bodies as they are identified.
  - Students complete the worksheet.
- **Today each of you are going to make your own skeleton model.**

## PROCESS

- Step 1: Show students the cardboard tray, black piece of paper and glue. Demonstrate how to get started. First, write your name on the bottom of the tray. Next, glue the black paper onto the tray. Tell students to watch carefully as they will need to do the same thing.
- Step 2: Take about ¼ cup of play dough and roll it into a ball. Tell the students that you are going to start with the skull. Pinch off a small piece of play dough from the ball and shape the skull. Make it small, the same size as the skull on the picture of the skeleton. Show the students how to use a

pencil to make eye sockets, nose and mouth. Now glue the skull on the black piece of paper. After doing this, circle the word "skull" on the picture of the skeleton. **Important:** Tell students that they need to circle the names of all the bones that they make on their skeletons. Have them use their skeleton picture to do so.

Step 3: Encourage students to make as many different bones as possible. The shoulder bones, ribs and hipbones are often left out. Demonstrate on your model how to include these bones. **Note:** Encourage students to observe the picture of the skeleton. Show them what a skeleton would look like without a neck or shoulder bone. Also remind students that the leg and arm bones are not one long bone but have joints between them. As students finish, make sure they have circled the names of all the bones on their skeleton.

Step 4: Pass out the cardboard trays, glue, and black paper. Have students begin by gluing the paper and writing their names. Give each student about  $\frac{1}{4}$  cup of play dough and have them start making their model skeletons.

**Tip:** Gluing each bone to the paper really helps the models last. After the play dough dries it falls off the paper if it isn't glued on.

**Tip:**  $\frac{1}{2}$  cup glue mixed with  $\frac{1}{2}$  cup water makes a glaze with which students can paint their skeletons. This will allow for hanging skeleton models and also gives the models a nice shiny finish.

Step 5: If student finish early, give them the *What About Bones?* crossword puzzle.

Step 6: Have small groups wash their hands with soap and warm water.

Step 7: Pass out the spoon free yogurt and napkins. Remind students to get their **3-A-Day** of Dairy and get plenty of exercise for their healthy bones.

### SUMMARY/REVIEW WITH STUDENTS

- Bones shape us, protect us, and help us move.
- Exercise and calcium rich foods make bones strong.
- What is in milk, yogurt, and cheese that help our bones grow and become stronger? (Calcium)
- Who can drink milk in the lunchroom or after school today?
- How will you get your **3-A-Day** of Dairy today?

## ▪ **What About Bones? (Fact Sheet)**

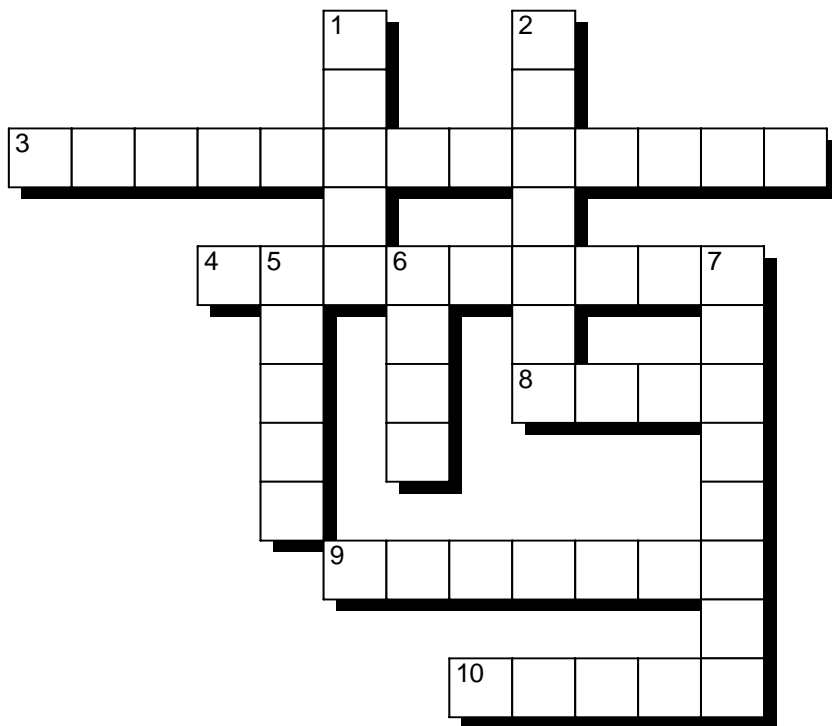
- Grownups have **206** bones and babies have **300** bones.
- As you grow up some of your bones grow together.
- All of your bones together make up your **skeleton**.
- Your skeleton gives your body **shape** and allows you to **move**.
- Some of your bones protect your **organs**. Your **skull** protects your **brain** and your **ribs** protect your **heart** and **lungs**.
- Bones are made of **calcium**. Eating **foods with calcium** helps your bones grow strong.
- **Milk, yogurt, and cheese** are good sources of calcium.
- Get your **3-A-Day** of Dairy by eating 3 servings of milk, cheese or yogurt every day.
- **Exercise** also helps keep your bones healthy and strong!

## **Tocante los Huesos (Hoja de Datos)**

- Los adultos tienen **206** huesos y los bebés tienen **300**.
- Al crecer algunos de los huesos se unen (se forman un hueso).
- Todos los huesos juntos forman el esqueleto.
- Su esqueleto le da **forma** a su cuerpo y le deje **mover**
- Algunos de sus huesos protegen a sus órganos. Su cráneo protege su cerebro y sus costillas protegen a su corazón y sus pulmones.
- Los huesos son hechos de calcio. Comiendo comidas que son buenas fuentes de calcio le ayuda a su cuerpo formar huesos fuertes.
- **Leche, yogurt y queso** son buenas fuentes de calcio.
- **Coma 3 porciones al día** del grupo de productos lácteos (grupo de leche, yogurt y queso) cada día para tener huesos fuertes
- **¡El ejercicio** también ayuda a mantener la fuerza y salud de sus huesos!

# What About Bones?

Name: \_\_\_\_\_ Date: \_\_\_\_\_



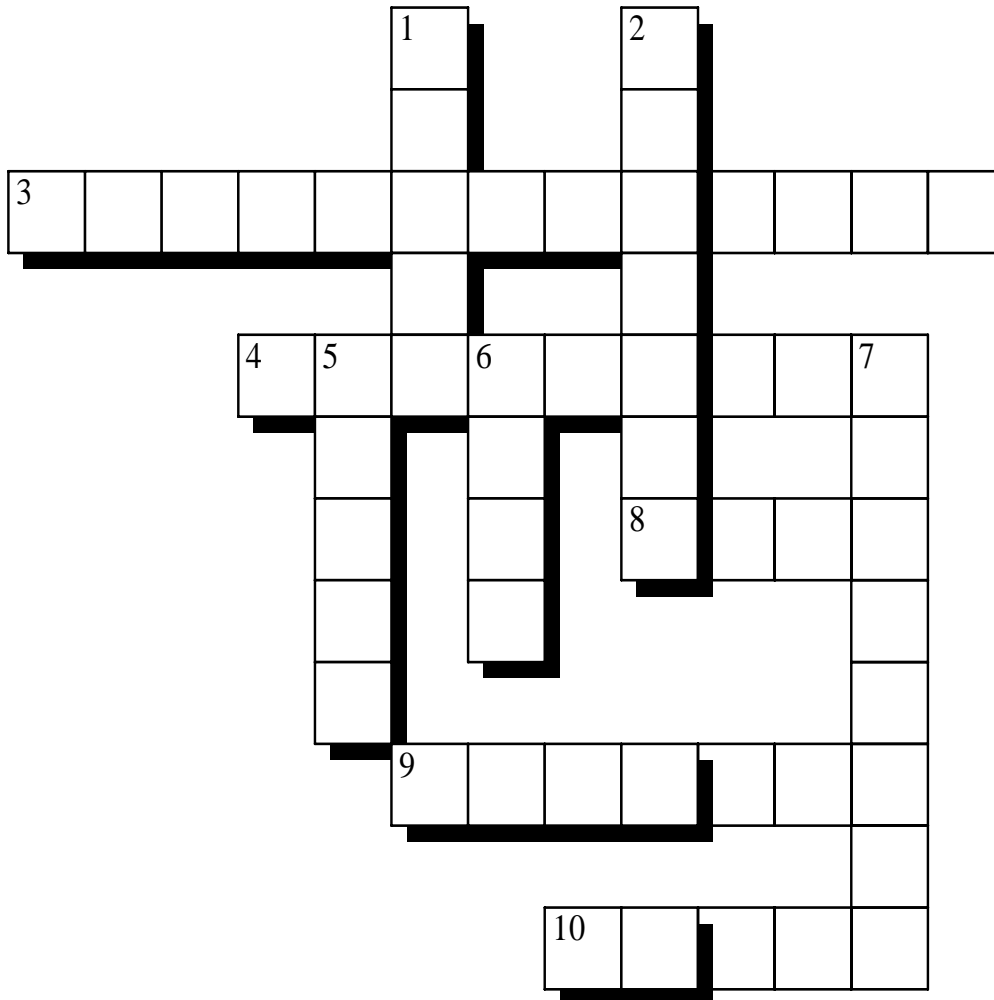
## DOWN

1. Your skeleton gives you \_\_\_\_\_.
2. Your bones are made out of \_\_\_\_\_.
5. Your brain fits inside this.
6. Which bones protect your heart and lungs?
7. All of your bones together make up your \_\_\_\_\_.

## ACROSS

3. Your ribs protect your \_\_\_\_\_ and \_\_\_\_\_.
4. How much milk do you need every day?
8. You could not do this without your bones.
9. Your bones \_\_\_\_\_ your \_\_\_\_\_ organs.
10. The skull protects the \_\_\_\_\_.

**Brain**      **Calcium**      **Heart and Lungs**      **Move**      **Protect**  
**Ribs**      **Skeleton**      **Skull**      **Shape**      **3 Servings**



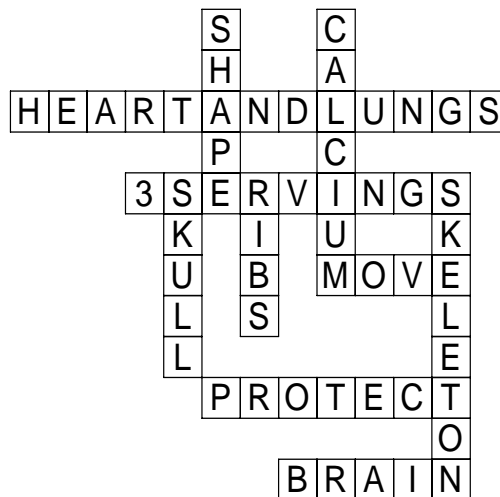
**ACROSS**

- 3 Your ribs protect your \_\_\_\_\_ and \_\_\_\_\_.
- 4 How much milk do you need every day?
- 8 you could not do this without your bones.
- 9 your bones \_\_\_\_\_ your organs.
- 10 the skull protects the \_\_\_\_\_.

**DOWN**

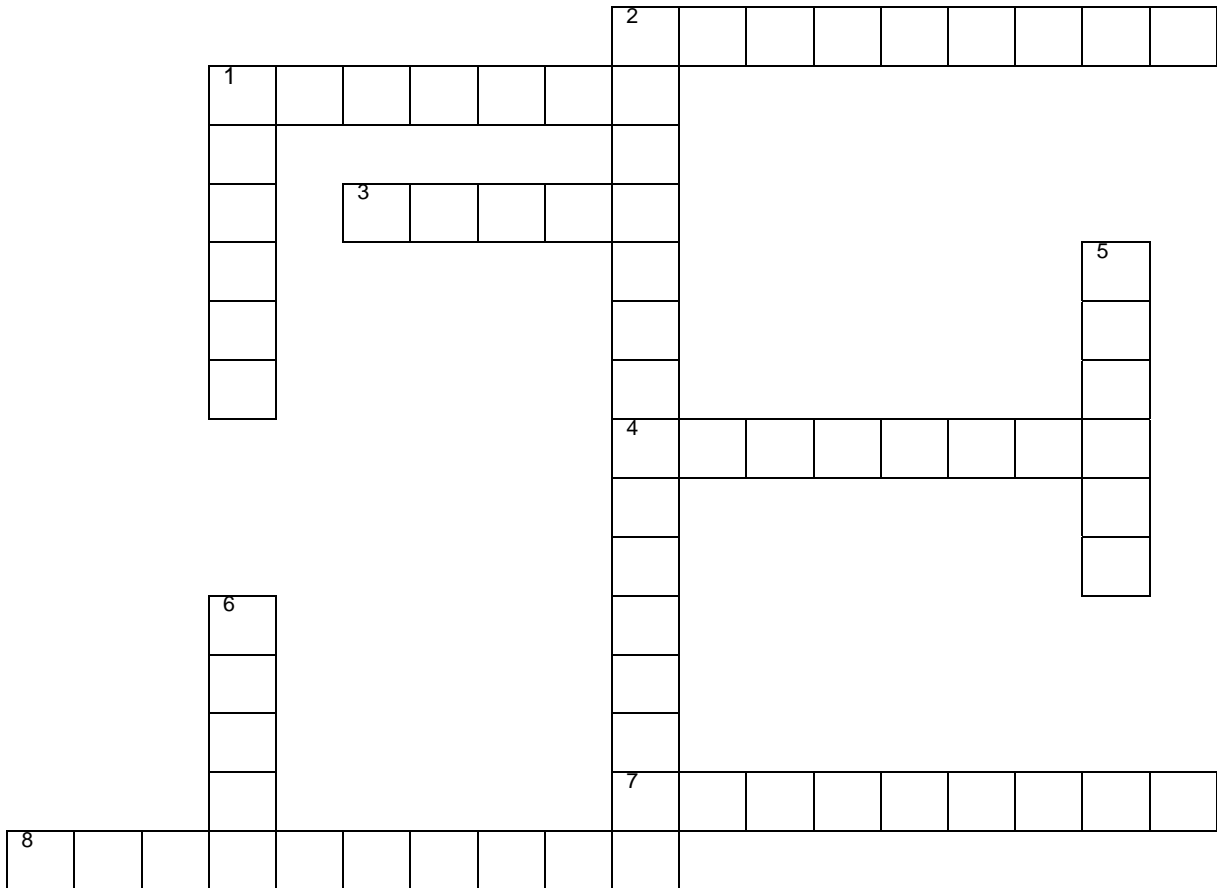
- 1 Your skeleton gives you \_\_\_\_\_.
- 2 your bones are made out of \_\_\_\_\_.
- 5 your brain fits inside this.
- 6 which bones protect your heart and lungs?
- 7 All of your bones together make up \_\_\_\_\_.

your \_\_\_\_\_.



# ¿Qué Sabe De Los Huesos?

Nombre: \_\_\_\_\_ Fecha: \_\_\_\_\_



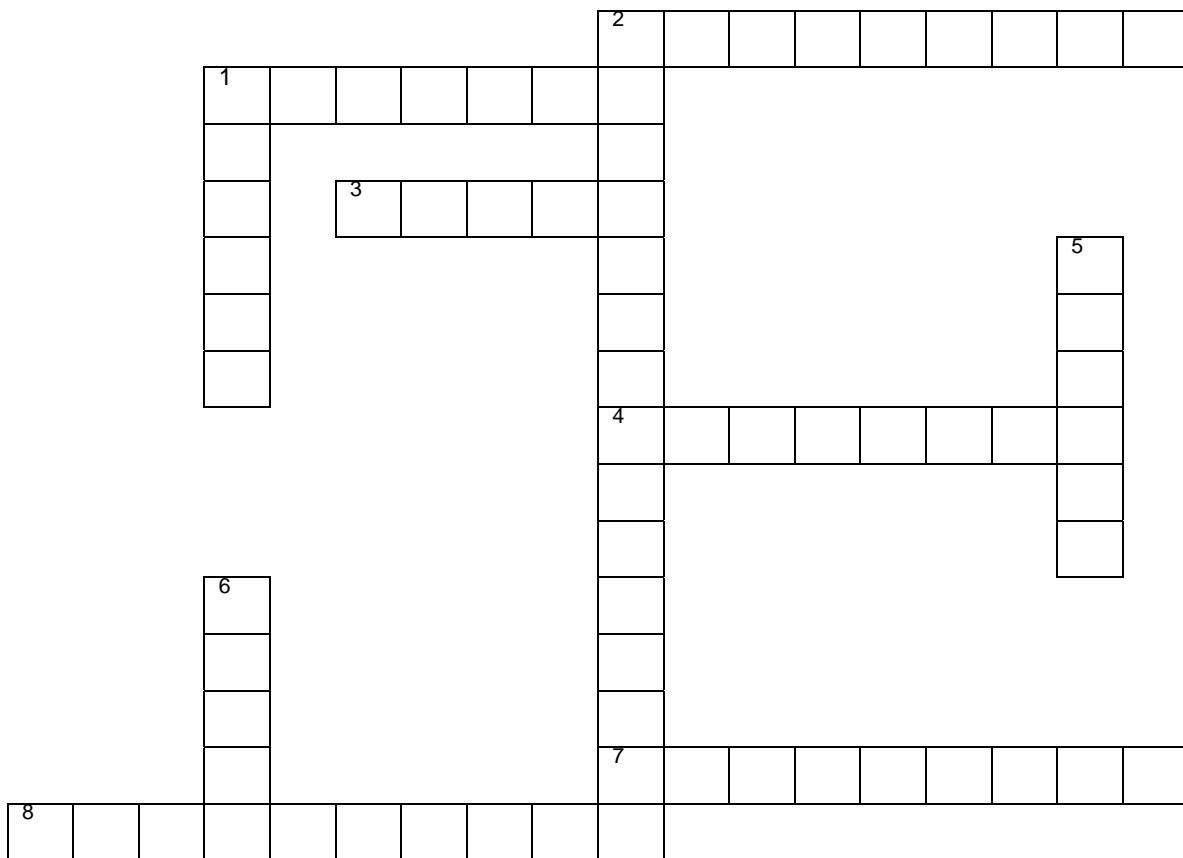
## Vertical

1. Sus huesos son hechos de \_\_\_\_\_
2. Sus costillas protejan a su \_\_\_\_\_ y a sus \_\_\_\_\_
5. Su cerebro queda adentro su...
6. No se puede hacer esto \_\_\_\_\_ sin sus huesos.

## Horizontal

1. El cráneo proteja al \_\_\_\_\_.
2. ¿Cuáles huesos protejan a su corazón y a sus pulmones?
3. Su esqueleto le da \_\_\_\_\_.
4. Sus huesos \_\_\_\_\_ a sus órganos.
7. Todos sus huesos juntos forman a su \_\_\_\_\_
8. ¿Cuántas porciones de leche debe tomar cada día?

**Cerebro    Calcio    Corazón/Pulmones    Mover    Protejan**  
**Costillas    Esqueleto    Cráneo    Forma    3 Porciones**

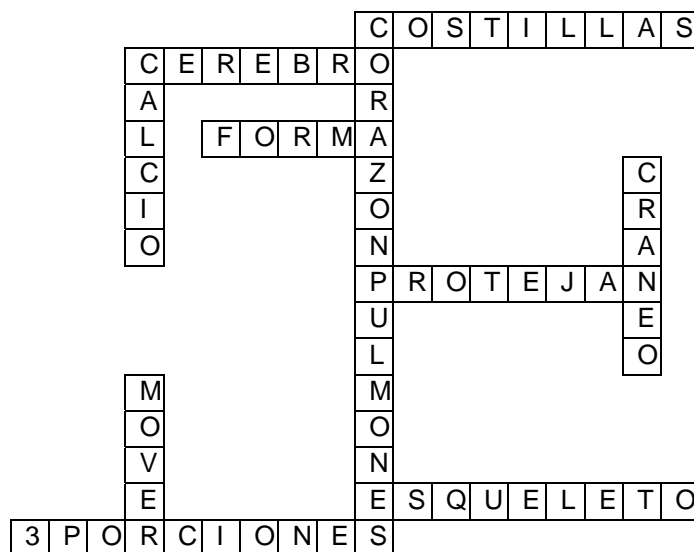


**HORIZONTAL**

1. El cráneo protege al \_\_\_\_\_.
2. ¿Cuáles huesos protejan a su corazón y a sus pulmones?
3. Su esqueleto le da \_\_\_\_\_.
4. Sus huesos \_\_\_\_\_ a sus órganos.
7. Todos sus huesos juntos forman a su \_\_\_\_\_.
8. ¿Cuántas porciones de leche debe tomar cada día?

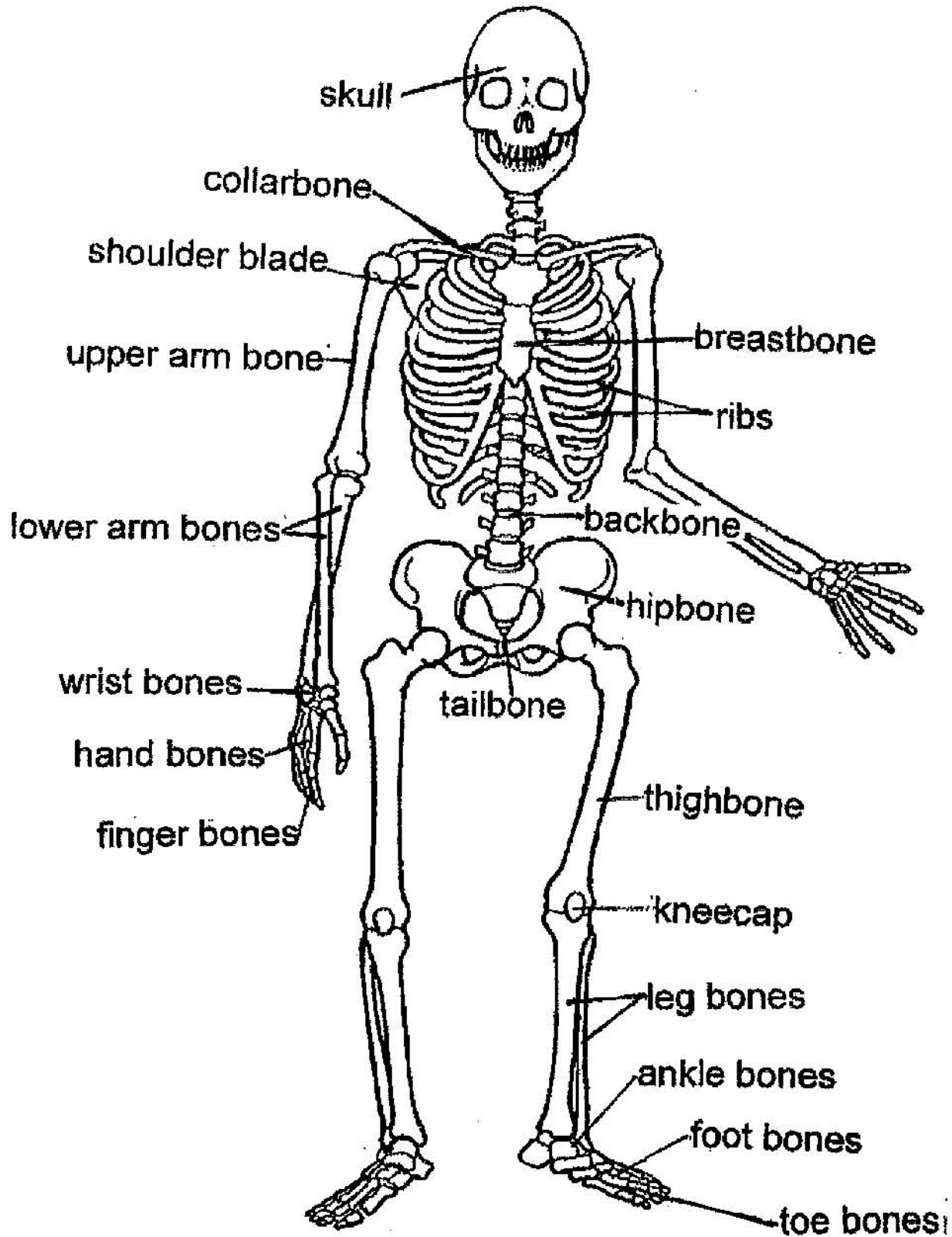
**VERTICAL**

1. Sus huesos son hechos de \_\_\_\_\_.
2. Sus costillas protejan a su \_\_\_\_\_ y a sus \_\_\_\_\_.
5. Su cerebro queda adentro su...
6. No se puede hacer esto \_\_\_\_\_ sin sus huesos.



# The Skeletal System

Name: \_\_\_\_\_ Date: \_\_\_\_\_



**Drink three glasses of milk every day  
for your healthy skeleton!**

# El Esqueleto: Hoja de Respuestas (Unicamente maestros)

Nombre: \_\_\_\_\_ Fecha: \_\_\_\_\_

