

# Death on Board La Belle: Finding Clues from Old Bones!



**Subject and Grade** Social Studies, Science, 4<sup>th</sup>

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(2008), revised by Jason Terry and Mary Rodriguez  
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**Time duration** One or two 45-minute class periods

**Objective** This lesson introduces students to the different types of scientific inquiries used to analyze human skeletons and learn about life in the past. Students will complete an illustrated online interactive activity based on the actual analysis of the skeleton found on La Salle's shipwreck, La Belle, to determine what the French sailor's life was like.

**TEKS** *Science, 4th Grade*

(1A), ask questions and define problems based on observations or information from text, phenomena, models, or investigations

(1D), use tools, including hand lenses; metric rulers; Celsius thermometers; calculators; laser pointers; mirrors; digital scales; balances; graduated cylinders; beakers; hot plates; meter sticks; magnets; notebooks; timing devices; sieves; materials for building circuits; materials to support observation of habitats of organisms such as terrariums, aquariums, and collecting nets; and

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materials to support digital data collection such as computers, tablets, and cameras, to observe, measure, test, and analyze information

(1E), collect observations and measurements as evidence

(3A), develop explanations and propose solutions supported by data and models

### ***Social Studies, 4th Grade***

(2B), identify the accomplishments and explain the impact of significant explorers, including Cabeza de Vaca; Francisco Coronado; and René Robert Cavelier, Sieur de la Salle, on the settlement of Texas

(19A), differentiate between, locate, and use valid primary and secondary sources such as technology; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about Texas

(19B), analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions

(19C), organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps

### **Materials**

1. Skeletal Report Form: Student Handout
2. Skeletal Report Form: Teacher Guide and Answer Key
3. Skeleton Chart: Student Handout
4. Skeleton Chart: Teacher Guide

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5. TBH *Clues from the Bones* kids' activity:

[www.texasbeyondhistory.net/belle/images/clues-from-the-bones.html](http://www.texasbeyondhistory.net/belle/images/clues-from-the-bones.html)

**Activities  
and  
procedures**

**Step 1:** Introduce the La Belle shipwreck as one of La Salle's ships that was wrecked off the coast of Texas in 1686. The French explorer La Salle had been trying to locate the mouth of the Mississippi in order to establish a French colony there. His ship hit a sandbar during a storm, and later sank in Matagorda Bay midway between present-day Galveston and Corpus Christi, Texas. At least one sailor went down with the ship. About 300 years later, archeologists excavated the shipwreck, including the skeleton of the sailor. Explain that by using different types of scientific inquiry to analyze skeletons and other evidence, a great deal can be learned about life in the past, including a person's age, physical appearance, and health. Students will do an online activity based on the analysis of the skeleton to determine what this sailor's life was like.

**Step 2:** Distribute a copy of the 'Skeletal Report Form' and the 'Skeleton Chart' student handouts to each student. Have students go through the Internet activity: "Death on Board La Belle! Finding Clues from the Bones" at

[www.texasbeyondhistory.net/belle/images/clues-from-the-bones.html](http://www.texasbeyondhistory.net/belle/images/clues-from-the-bones.html)

**Step 3:** Students will fill out the forms based on what they learned in the activity.

**Step 4:** Have students discuss their findings with the class, and share their answers to the "thought" questions

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on the student handout. The Skeleton Chart-Teacher's Guide (included) from the activity may be used as an overhead projector prompt.

**Student Product:** Completed Skeletal Report Form and Skeleton Chart student handouts.

**Extension Activities**

Have students view the Texas Beyond History web pages on La Belle:

<http://www.texasbeyondhistory.net/belle/index.html>

and

<http://www.texasbeyondhistory.net/stlouis/index.html>

to learn more about La Salle, the shipwreck, and his temporary colony at Fort St. Louis near Victoria, Texas.

**Assessment**

Students will correctly complete the answers to the handout questions and discuss their findings with class.

## Skeletal Report Form for Students

1. Look at the skeleton diagram. The sailor's broken nose would have been found on his

- a. femur
- b. humerus
- c. cranium
- d. mandible

2. Based on evidence from the skeleton's hips, vertebrae, and tarsus, our sailor probably walked

- a. bow-legged
- b. swaggering, like a pirate
- c. with a limp
- d. with an elegant stride

3. Judging from the jawbones (mandible, maxilla), and teeth (dentition), the sailor

- a. may have used his canine teeth as a tool
- b. had lost several teeth from cavities and gum disease
- c. was an adult
- d. all of the above

4. Why did the researchers hope to get a sample of the sailor's DNA?

- a. to compare with that of living members of the Barange family in France and prove that his name was C. Barange
- b. to establish if it was male or female
- c. to see whether he had a single or double helix
- d. answers "a" and "b"

5. Look at the skeleton diagram. What bones are connected to the pelvis (pelvic girdle)?

- a. metatarsals
- b. vertebrae (spinal column)
- c. phalanges
- d. tibia

6. We know the skeleton was that of a man based on

- a. the narrow width of his pelvis and overall robustness
- b. the size of his head
- c. the name on the ID card in his wallet
- d. the shape of his feet

7. We think the sailor died of dehydration (thirst) because

- a. he had no mortal wounds
- b. there was no evidence of fatal diseases
- c. a diary written by one of La Salle's colonists says that the sailors ran out of water and some had died
- d. all of the above

8. There was no usable DNA in bones, teeth, or brain of the skeleton because

- a. it had all dried up
- b. it had become contaminated with marine organisms
- c. it was too old
- d. its genes had gone out of style

9. Look at the diagram of the skeleton. The longest bone in the body is the

- a. humerus
- b. metacarpal
- c. femur
- d. molar

10. Look at the diagram of the skeleton. The fibula is part of
- the leg
  - the hand
  - the spinal column
  - the body element that makes some people tell fibs

**Sum up your data on the skeleton by circling the correct answer below**

**Sex:** male                      female

**Ethnicity:** European                      Native American

**Stature (height):** tall (about 6 feet)                      short (about 5 feet 4 inches)

**Age:** teenager                      in his 20s to late 30s                      old (60s to 70s)

**Health:** feeling good                      in pain (many injuries) but otherwise healthy

### **Dig Deeper**

1. The *La Belle* wrecked just  $\frac{1}{4}$  mile from land. Why do you suppose the sailor didn't swim ashore to find water, instead of dying of thirst?
2. Do you think scientists can say for sure what color eyes the sailor had?
3. While you're alive, are your bones alive, too?
4. If your DNA could prove you were related to any famous person living now or in the past, who would you choose to be related to?
5. Based on all you have learned, what do you think life was like for this sailor while on board *La Belle*?

**Skeletal Report Form: Teachers Guide** (correct answers marked with \*)

1. Look at the skeleton diagram. The sailor's broken nose would have been found on his

- a. femur
- b. humerus
- c. cranium\*
- d. mandible

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- c. with a limp\*
- d. with an elegant stride

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- b. had lost several teeth from cavities and gum disease
- c. was an adult
- d. all of the above\*

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- b. to establish for certain if he was male or female
- c. to see whether he had a single or double helix
- d. answers a and b\*



5. Look at the skeleton diagram. What bones are connected to the pelvis (pelvic girdle)?

- a. metatarsals
- b. vertebrae (spinal column)\*
- c. phalanges
- d. tibia

6. We know the skeleton was that of a man based on

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- b. there was no evidence of fatal diseases
- c. a diary written by one of La Salle's colonists says that the sailors ran out of water and some had died
- d. all of the above\*

8. There was no usable DNA in bones, teeth, or brain of the skeleton because

- a. it had all dried up
- b. it had become contaminated with marine organisms and bacteria\*
- c. it was too old
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**Age:** teenager                      in his 20s to late 30s\*                      old (60s to 70s)

**Health:** feeling good                      in pain (many injuries) but otherwise healthy\*

**Dig Deeper** (*Ask students to write their answers on the back of the page or use as a basis for class discussion and debate.*)

1. The *La Belle* wrecked just  $\frac{1}{4}$  mile from land. Why do you suppose the sailor didn't swim ashore to find water, instead of dying of thirst?

*Answer key points:*

- *18<sup>th</sup>-century European sailors typically could not swim.*
- *They knew there were hostile Karankawa Indians on land who had already killed some of the French group who had gone to shore by boat.*

2. Do you think scientists can say for sure what color eyes the sailor had?

*No, not based on the information they had. If they had found usable DNA, they might have been able to learn more. At least four genes can be studied to help determine eye color. By analyzing these genes scientists can classify someone into one of three eye-color groups: a) dark eyes (black and brown), b.) light eyes (blue and grey), or c.) hazel, with a high percentage of certainty.*

3. While you're alive, are your bones alive, too?

*Yes! Bones are made up of living cells with nerves and blood vessels. Old bones, such as that of our skeleton, are dried up and dead.*

4. If your DNA could prove you were related to any famous person living now or in the past, who would you choose to be related to?

5. Based on all you have learned, what do you think life was like for this sailor while on board *La Belle*?

*Answer key points:*

- *Stress from hard work, heavy lifting*
- *Stress from insecure food and water supply*
- *Stress from hostile Karankawa on shore*
- *Pain from many cavities, lost teeth, and gum infections*
- *Pain from broken nose and injured hips and spinal disk*
- *Fear of what life might be like in New World*
- *Fears of storms, drowning, and pirate attacks*

Name \_\_\_\_\_

### Skeleton Chart: Student Handout

Label the skeleton below by drawing a line from the 10 names to the correct bones on the skeleton. (Remember that the left and right sides of the skeleton are the opposite of yours.)

1. Skull
2. Dentition (teeth)
3. Mandible
4. Humerus (left)
5. Spinal column
6. Pelvic girdle
7. Femur (left)
8. Tibia (right)
9. Fibula (left)
10. Tarsals (right)



Name \_\_\_\_\_

### Skeleton Chart: Teacher Guide

Label the skeleton below by drawing a line from the 10 names to the correct bones on the skeleton. (Remember that the left and right sides of the skeleton are the opposite of yours.)

1. Skull
2. Dentition (teeth)
3. Mandible
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