

Unit Level Materials

A Juicy Problem



Gareth Stevens / Gregg Andersen

Thanks to the orange bill, the orange is now officially Florida's state fruit.

Oregon has the pear. Georgia has the peach. West Virginia has the Golden Delicious apple. Now, thanks to Janet Shapiro's fourth grade class, Florida finally has its own official state fruit—the orange.

Shapiro's class took on the task of persuading state lawmakers to name the orange Florida's state fruit. The class saw the fruits of their labor in spring 2005. That's when Gov. Jeb Bush signed the orange bill into law.

For Shapiro's students, the act of naming the orange Florida's official fruit was obvious. Florida loves its oranges. The state has orange trees, orange juice, and even the **Orange Bowl** (a college football game).

"We were completely surprised that the orange wasn't the state fruit of Florida," Shapiro, a teacher at Southside Elementary School in Sarasota, Florida, told *Senior Edition*.

Reading Passage

Shapiro's social studies class wrote letters to Florida state Rep. Donna Clarke. Clarke, who thought the idea was sweet, introduced the students' idea as a **proposed**¹ law.

That was only the first step. Shapiro's class got an up-close look at how the **legislative**² process works. They had to persuade other lawmakers to support the proposal.

To that end, students conducted a campaign to collect 800 signatures on a **petition**³. They even wrote a song about the fruit. "Vote Orange!" they sang. Shapiro says waiting was the hardest part. The bill had to go through many legislative committees. But in the end, it was worth all the trouble.

"We made history," Kia Gentile, 11, told *Senior Edition*. "It was awesome."

¹ **proposed:** put forward for consideration

² **legislative:** lawmaking

³ **petition:** an official written request

Question Sheet

Name: _____

Date: _____

“A Juicy Problem” Questions

- ___ 1. The title uses the word “juicy” figuratively to mean
- a. cold and wonderful.
 - b. tasty and delightful.
 - c. powerful and absorbing.
 - d. fruity and sticky.
- ___ 2. The fourth grade class probably found it surprising that the orange was not already the Florida state fruit because
- a. the famous football game in Florida is called the Orange Bowl.
 - b. Florida grows so many oranges.
 - c. ads often feature “Florida orange juice.”
 - d. all of the above.
- ___ 3. The pun “the fruits of their labor” refers *both* to oranges and to
- a. results.
 - b. troubles.
 - c. efforts.
 - d. aims.
- ___ 4. “To that end” means
- a. toward the furthest place.
 - b. to achieve that result.
 - c. don’t go the other way.
 - d. none of the above.
- ___ 5. How do we know it takes more than one person to make a law?

Question Sheet

Name: _____

Date: _____

“A Juicy Problem” Answer Sheet

- FL 1. The title uses the word “juicy” figuratively to mean
- cold and wonderful.
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- C/E 2. The fourth grade class probably found it surprising that the orange was not already the Florida state fruit because
- the famous football game in Florida is called the Orange Bowl.
 - Florida grows so many oranges.
 - ads often feature “Florida orange juice.”
 - all of the above.**
- FL 3. The pun “the fruits of their labor” refers *both* to oranges and to
- results.**
 - troubles.
 - efforts.
 - aims.
- FL 4. “To that end” means
- toward the furthest place.
 - to achieve that result.**
 - don’t go the other way.
 - none of the above.
- DC 5. How do we know it takes more than one person to make a law?

Answers will vary but should mention petitioning, committees, state representative to introduce legislation, governor to sign.

Suggested Additional Vocabulary: persuade, bill, awesome

A Real-Life Bat Man

Joseph D'Angeli lives with vampires—vampire bats, that is. He feeds bats and studies their habits. D'Angeli is a **chiroptologist** (kigh-rop-TAH-luh-jist), or a scientist who studies bats.



Carey Kirkella for *Weekly Reader*

This man is not a superhero, but he knows a lot about bats.

The weekend before Halloween, D'Angeli is bringing his bats to the Chiller Theatre's Toy, Model, and Film Expo in Secaucus, New Jersey. It's the country's largest horror and science-fiction convention.

"The convention gives me a chance to talk to true bat lovers and to people who haven't experienced bats up close," D'Angeli told *WR News*. "Where else can you see a bat with a 3- to 4-foot wingspan in front of your face?"

Bats often get a bad **reputation**. A reputation refers to the way people think of something. But D'Angeli says there is a lot to like about the **nocturnal** (active at night) animals. Bats, for example, help the environment. "Many valuable bat species eat crop-damaging insects," he says.

D'Angeli has been studying bats since he was a teenager. What's his advice for students interested in studying the winged creatures? "Get some rest. You're going to be up late if you want to study bats."

Bat Fun Facts

- There are more than 900 known species of bats.
- A brown bat can eat as many as 1,000 mosquitoes in an hour.
- Contrary to popular belief, bats are not blind. To navigate in the dark, some bats use **echolocation**. That is a process in which sound waves bounce off objects and return to the bats' ears.

Question Sheet

Name: _____

Date: _____

“A Real-Life Bat Man” Questions

_____ 1. What did the author mean by saying that D'Angeli lives with vampires?
a. He lives with monsters.
b. He collects Dracula posters.
c. He studies bats.
d. He watches a lot of vampire movies.

_____ 2. D'Angeli says, “Where else can you see a bat...in front of your face?”
The phrase, “in front of your face,” means
a. in real life.
b. close to your nose.
c. near your forehead.
d. not behind you.

_____ 3. What does the author mean by, “bats often get a bad reputation”?
a. People everywhere love bats.
b. Bats make great pets.
c. Bats get sick easily.
d. People think bad things about bats.

_____ 4. Echolocation means
a. a very loud echo sound, like in a canyon.
b. finding unusual echo sounds in a cave.
c. finding your way by using sounds and their echo.
d. a person that studies bats.

_____ 5. What are three things that you learned about bats in this passage?

Name: _____

Date: _____

“A Real-Life Bat Man” Answer Sheet

- FL 1. What did the author mean by saying that D'Angeli lives with vampires?
a. He lives with monsters.
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a. a very loud echo sound, like in a canyon.
b. finding unusual echo sounds in a cave.
c. finding your way by using sounds and their echo.
d. a person that studies bats.
- EI 5. What are three things that you learned about bats in this passage?

Answers may vary, but should include three facts from the text.

Suggested Additional Vocabulary:

wingspan, crop-damaging, species, echolocation

Bones On the Go!

Let's get down to the bare bones: You need your skeleton. The **skeletal system**, or framework of bones, doesn't just hold you up. It gives your body its shape, protects your organs, and works with your muscles to help you move.

At birth, you had more than 300 bones, which fused together as you grew. By the time your body is finished growing, you'll have about 206 bones. Researchers at Wright State University School of Medicine in Ohio have discovered that kids who exercise have stronger bones as adults.

Your body has plate-like bones that cannot move, such as those that make up the **cranium**. The cranium protects your brain.

The **stirrup bone**, also called the stapes, is in the ear. It is the smallest bone in the human body.

Your body is made up of many movable bones, such as the **humerus**, which is located in the upper arm.

Your **ribs** provide a protective casing for important organs, such as your heart and lungs.

The spine is made up of 33 bones called the **vertebrae**.

The thighbone is called the **femur**. It's the longest and strongest bone in your body.

How else can you bone up? Make sure your body gets enough **calcium**. That bone-building mineral is found in foods and drinks such as yogurt, leafy greens, and milk.

Did You Know?

More than half the bones in the human body are in the hands and feet. Each hand has 27 bones. Each foot has 26 bones.

Question Sheet

Name: _____

Date: _____

“Bones on the Go!” Questions

- ___ 1. The author begins the passage saying, “Let’s get down to the bare bones.” The figurative meaning of “bare bones” is: “the most basic parts of something, without any detail.” The author started an article about the skeletal system with this figurative use of “bare bones” to emphasize that
- the skeleton is made up of bones.
 - a person’s skeleton is basic to the structure of his/her body.
 - the skeleton lacks details such as muscles, tendons, ligaments.
 - all of the above.
- ___ 2. To say “the ribs provide a protective casing,” means the ribs
- protect the heart, lungs, and other organs.
 - can easily be broken.
 - are not bones.
 - cannot be penetrated.
- ___ 3. Which of the following functions does the skeleton not do?
- give the body its shape.
 - protect the organs inside.
 - tell the nerves when to feel pain.
 - combine with muscles to enable movement.
- ___ 4. A figurative use of “bone up” means to study something. The literal meaning of “bone up” as used in the article is to
- make your backbone longer.
 - become taller by lengthening your thighbone.
 - increase the number of bones you have.
 - strengthen the bones in your body.
- ___ 5. Why do you think hands and feet have so many bones, while legs and arms have fewer?

“Bones on the Go!” Answer Sheet

- FL 1. The author begins the passage saying, “Let’s get down to the bare bones.” The figurative meaning of “bare bones” is: “the most basic parts of something, without any detail.” Why would the author start an article about the skeletal system with this figurative use of “bare bones”?
- the skeleton is made up of bones.
 - a person’s skeleton is basic to the structure of his/her body.
 - the skeleton lacks details such as muscles, tendons, ligaments.
 - all of the above.**
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- make your backbone longer.
 - become taller by lengthening your thighbone.
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- DC 5. Why do you think hands and feet have so many bones, while legs and arms have fewer?

Answers will vary but might include that hands and feet need to make complex little movements in many directions, while arms and legs need to be strong.

Suggested Additional Vocabulary: fuse, framework, organs

Cloned Canine



Getty Images

Snuppy is the first cloned dog.

Snuppy may be the cutest Afghan puppy you'll ever see. He has big, brown eyes and a shiny, brown-and-black coat—with just a hint of white—that bounces when he prances about.

But there's something special about Snuppy. He's a **clone**, a genetic copy, of a 3-year-old male Afghan hound.

Although scientists have already cloned a barnyard of animals—sheep, horses, pigs, rats, cows, and even a cat—it is the first time researchers have cloned a dog.

Difficult Procedure

To create Snuppy, South Korean scientists first took several cells from the ear of the 3-year-old Afghan. Scientists then removed the **DNA** (deoxyribonucleic acid) from those cells. DNA holds the genetic information that determines an animal's inherited characteristics, such as eye and hair color. The scientists then transferred the Afghan's DNA to eggs taken from another dog.

With that accomplished, researchers used electricity to stimulate the egg. Once the egg was zapped, it started dividing. Eventually, the egg developed into an **embryo** (a fertilized egg). Scientists implanted the embryo in a **surrogate**, or stand-in, mother. Snuppy's surrogate was a yellow Labrador retriever.

As it turned out, dog cloning is tougher than a **rawhide**¹ bone. Researchers spent three years working 24 hours a day, seven days a week, to clone Snuppy. Scientists named the pooch for "Seoul National University puppy."

Why is cloning a dog so difficult? Scientists say the reproduction systems of dogs are more complicated than those of sheep, cats, and mice, all of which are easier to clone.

¹ **rawhide**: untanned cattle skin

Reading Passage

Scientists went through 1,095 eggs from 123 dogs. Three pregnancies resulted from the experiments. In the end, only one pup was born—Snuppy.

Why did the South Koreans clone a dog? Scientist Hwang Woo Suk says cloning genetically identical dogs will help scientists study human diseases, such as cancer. "[Dog clones] could be very valuable in finding technologies useful for curing human diseases," he told the BBC.

Inhumane Experiments?

Although many people **hail**² the birth of Snuppy as a scientific breakthrough, others say scientists are barking up the wrong tree when they clone dogs. Critics say the procedure is **inhumane**³.

Specifically, opponents say, too many dog eggs are destroyed in the cloning process. Those eggs, critics argue, could become puppies. In addition, the dogs are confined to cages and used in experiments. Many of those animals undergo multiple surgeries.

Cloning Around

Still, you may soon be able to clone your pet dog. Many people, however, do not think scientists should clone Fido or Spot.

Nigel Cameron, who teaches the ethics of biology, said dogs are members of the family and should be treated with respect. "My dog [Charlie] is now deceased," he told *The New York Times*. "But I wouldn't want to clone Charlie. It would be disrespectful to Charlie and to Charlie II."

Critical Thinking

Would you clone your pet dog? Why or why not?

² **hail:** greet; express enthusiastic approval

³ **inhumane:** cruel or unkind

Question Sheet

Name: _____

Date: _____

“Cloned Canine” Questions

- ___ 1. “Zapped” in the sentence, “Once the egg was zapped, it started dividing,” is a way of saying
- stimulated in a strong way.
 - slammed into a wall.
 - hit with a thunderbolt.
 - punched with the knuckles.
- ___ 2. The sentence, “...dog cloning is tougher than a rawhide bone,” compares the problem of cloning to that of a dog’s chewing on a rawhide bone. The meaning is:
- Dogs shouldn’t be given rawhide bones to chew.
 - Rawhide is good for a dog’s teeth.
 - Cloning is a difficult problem to solve.
 - A dog can quickly chew a rawhide bone.
- ___ 3. Snuppy is an acronym (word made up of the first letters of a series of words) for
- super natural under puppy.
 - Seoul National University puppy.
 - some never undertaken puppy.
 - none of the above.
- ___ 4. “A barnyard of animals” means
- only animals that live on farms.
 - a wide variety of animals.
 - a pen of animals beside a barn.
 - a farm area belonging to animals.
- ___ 5. List the steps necessary to clone a dog.

Name: _____

Date: _____

“Cloned Canine” Answer Sheet

- FL 1. “Zapped” in the sentence, “Once the egg was zapped, it started dividing,” is a way of saying
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- only animals that live on farms.
 - a wide variety of animals.**
 - a pen of animals beside a barn.
 - a farm area belonging to animals.
- Seq 5. List the steps necessary to clone a dog.

Answers will vary but should include (1) getting cells, (2) extracting their DNA, (3) fertilizing an egg, and (4) planting it in a surrogate mother until birth.

Suggested Additional Vocabulary: stimulate, implant, ethics

To The Moon And Back

Astronauts Aim For The Moon—And Beyond

NASA recently announced plans that are out of this world—literally! The space agency hopes to send humans to the moon again by 2020.

NASA hopes to make a giant leap—back to the moon. The U.S. space agency recently [2005] announced its plan to send four astronauts to the moon within the next 15 years.



nasa.gov

The new spacecraft is like Apollo, "But bigger."

NASA officials say the moon is just the first step. They hope future missions will take astronauts to Mars and beyond. "We will return to the moon no later than 2020 and extend the human presence across the solar system and beyond," says Michael Griffin, the head of NASA.

So far, the moon is the only place beyond Earth that humans have visited. At 226,000 miles away, the moon is Earth's closest space neighbor.

On July 20, 1969, Neil Armstrong and Edwin "Buzz" Aldrin became the first astronauts to land on the moon. They traveled there aboard *Apollo 11*. When Armstrong first set foot on the moon, he spoke these famous words: "That's one small step for a man, one giant leap for mankind."

Reading Passage

During NASA's *Apollo* program, 12 American astronauts explored the lunar terrain. The last U.S. trip to the moon ended in December 1972.

New Spaceship

The new NASA mission may have the same destination, but the astronauts will have a new way of getting there. In January 2004, President George W. Bush asked NASA to retire its aging space shuttles by 2010.

Astronauts who trek to the moon will do their traveling in a crew exploration vehicle—a souped-up version of the three-person *Apollo* capsule that transported explorers to the moon. "It's very Apollo-like," says Griffin, "but bigger."

The first phase of NASA's moon plan calls for launches to begin in 2012. While on the moon, astronauts hope to demonstrate that they can "live off the land." They will use resources on the moon to produce drinkable water and fuel.

The moon journey would be a trial run for a Mars mission. Astronauts would spend more time on Mars—at least 500 days—because it is 49 million miles from Earth. Because they will be on the planet so long, astronauts will need to be able to **sustain**¹ themselves using local resources; they will not be able to bring enough supplies for the whole mission.

Split Decisions

Not everyone is over the moon about NASA's plans. The project is estimated to cost \$104 billion. Critics say the price tag is too high, especially because the United States is dealing with a federal budget **deficit**, natural disaster recovery, and the war on terror. A deficit occurs when a sum of money is short of its expected total.

However, supporters insist that space exploration offers enormous long-term benefits to all of humankind and that the United States should not be deterred from this mission. "The space program is a long-term investment in our future," Griffin says.

¹ **sustain:** supply with nourishment

Question Sheet

Name: _____

Date: _____

“To the Moon And Back” Questions

- ___ 1. The phrase, “out of this world,” means not only “off planet Earth” but also, figuratively,
- a. on another planet’s moon.
 - b. going outside the atmosphere.
 - c. visiting Mars and beyond.
 - d. above and beyond the usual.
- ___ 2. By using the phrase, “out of this world,” the author hints that he/she is:
- a. frightened about giving up the security of Earth life.
 - b. enthusiastic about NASA’s plans.
 - c. suspicious that there won’t be enough money to complete the program.
 - d. used to the idea of space travel.
- ___ 3. The author ended the article with a quote from the head of NASA, stating: “The space program is a long-term investment in our future.” This seems to indicate that
- a. the quote has nothing to do with the rest of the passage.
 - b. the statement is in line with the critics of the program.
 - c. the author wants to stress NASA’s optimism about the program.
 - d. the program is unrealistic because the destinations are so far away.
- ___ 4. In the sentence, “While on the moon, astronauts hope to demonstrate that they can “live off the land,” to “live off the land” means to
- a. eat only food grown in dirt like Earth’s soil.
 - b. support their needs with what is available on-site.
 - c. make their own fuel without digging it up.
 - d. get purified water by collecting it underground.
- ___ 5. Explain the meaning of: “Not everyone is over the moon about NASA’s plans.”

Question Sheet

Name: _____

Date: _____

“To the Moon And Back” Answer Sheet

- FL 1. The phrase, “out of this world,” means not only “off planet Earth” but also, figuratively,
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 - going outside the atmosphere.
 - visiting Mars and beyond.
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- eat only food grown in dirt like Earth’s soil.
 - support their needs with what is available on-site.**
 - make their own fuel without digging it up.
 - get purified water by collecting it underground.
- FL 5. Explain the meaning of: “Not everyone is over the moon about NASA’s plans.”

Answers will vary but should indicate that not everyone is happy about NASA’s plans.

Suggested Additional Vocabulary:

terrain, destination, souped-up, capsule, deterred