# Homo Sapiens

## By Jesse Kohn

It was about four months after I graduated from college that I finally got a job working at the zoo. The pay wasn’t bad: all the chicken nuggets I could stomach and my own room in the cage where they kept the human beings.

I’ve always been a little nervous starting anything new, but I remember that first day being particularly unnerving, waiting for the zoo to open. I asked Joseph, who had been there for years, if there was anything I could help set up. He told me just to relax, maybe go down the slide a few times.

“Nothing like the slide to clear your mind,” he said.

Emily and Cindy were waiting in line to go down the slide. “You look a little green,” Emily said.

“First day,” I replied.

“First day, huh?” said Cindy. “I remember my first day. I spent the whole day hiding in the laundry closet.”

“Listen,” said Emily. “There’s nothing to be nervous about. We just do our thing and the people come and watch and sometimes ask us to do a trick.”

When I got to the top of the ladder, a blow horn resounded through the park announcing that the gates were opening. My heart did a somersault, and I slid down the slide.

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Sure, the job had little to do with what I had studied in college, but after having spent four months looking for work, I was desperate. It wasn’t so bad at the zoo, either. I liked our habitat. It reminded me a lot of home. The part of our habitat that faced the visitors was kind of like a backyard. Behind the backyard was the fake house where we each had our own little room; we could always go nap there when we got tired. There was a pond‐sized bathtub we were encouraged to swim in, and there was always music playing in case we felt like dancing.

Rainy days were best because there weren’t many visitors. The zookeepers had hired a wonderful bunch of human beings, and it was a pleasure getting to know them all. It turned out every single one of them had something special they could do—Joseph composed music, Emily wrote poetry, Cindy read Tarot cards—but even more impressive than what they could do, was who they all were. Sometimes I wondered if the zookeepers—or even the wide‐eyed and fascinated visitors—had any idea just how special we all were.

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On sunny days, the visitors crammed around our cage and hollered and cooed at us. Our trainers entered every hour and had us perform tricks in exchange for chunks of cookie dough, which, of course, none of us could refuse. My tricks usually had to do with dancing. One of our trainers spotted me dancing one evening and realized quickly that I had formidable moves. Of course the visitors ate it up. Many nights I’d go to sleep with my toes painfully calloused from fancy footwork and my limbs aching from my shaking legs. Joseph did mostly magic tricks, and Emily rode her bicycle in circles.

Once I recited a poem I’d memorized in French, but by the time I’d reached the third stanza no one was listening.

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On the third Sunday of every month, our trainers would leash us up and take us for a leisurely walk about the park. Without the glass between us and them, the visitors were much more respectful. They even seemed a little frightened.

One time a little girl dropped her doll, and Cindy picked it up and handed it to her.

Her father suddenly pulled her away from Cindy.

“Don’t touch it, Amanda!” he shouted. “That’s a wild animal!”

Cindy was so angry the trainer had to wrestle the girl’s doll away from her.

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But working in the zoo had its perks, too. And eventually I’d been there so long that many of visitors started to remember me.

“It’s Jesse!” the children would shout. “Do the dance! Dance for us!” And they’d dance with me on the other side of the glass.

There was even an old woman who came now and then and asked me to recite French poetry to her.

One time I slipped out of the cage late at night and snuck into the “Oceans of the World” exhibit. The lights were out, but glowing jellyfish illuminated the walkways. I followed those drifting pillows of light through tunnels of artificial coral, past walls of water flashing with silver schools of tuna, and the circular tank with the circling sharks. Finally, I found what I was looking for: an immense cylindrical tank in the very center of the exhibit. In the dark, I could just barely read the plaque: *ARCHITEUTHIS, Giant Squid*. It was murky in the tank, and I stared at that black abyss for a long time, seeing only my own reflection trying to peer in through the glass. And I started thinking about who I was and about the other human beings, and I thought about what we were all doing in that zoo. And then, all at once, I realized that I had been looking into the eye of the squid. And in a flash of twisting tentacles and a cloud of ink even darker than the water, it disappeared into the shadows.

“And who are you really?” I whispered, staring into the tank.

Name: Date:

1. Where does the narrator of the passage work?
   1. at a library
   2. at a zoo
   3. at a movie theater
   4. at an amusement park
2. From which point of view is this story told?
3. first-person point of view (“I”)
4. second-person point of view (“you”)
5. limited third-person point of view (“he” or “she”)
6. omniscient, or unlimited, third-person point of view (“he/she/they”)
7. Read the following sentences from the story: “It wasn’t so bad at the zoo, either. I liked our habitat. It reminded me a lot of home. The part of our habitat that faced the visitors was kind of like a backyard. Behind the backyard was the fake house where we each had our own little room; we could always go nap there when we got tired.”

What can be concluded from this information?

**A** The narrator does not like working at the zoo very much. **B** The zookeepers are not taking good care of the narrator. **C** The narrator is a human being on display at a zoo.

**D** The narrator has spent his or her whole life working at the zoo.

1. How does the narrator’s attitude about being at the zoo change throughout the story?

**A** laid-back at first, then thoughtful, and finally nervous **B** laid-back at first, then nervous, and finally thoughtful **C** nervous at first, then laid-back, and finally thoughtful **D** thoughtful at first, then laid-back, and finally nervous

1. What is a theme of this story?
2. true love
3. religious belief
4. the horrors of war
5. human nature
6. Read the following sentences from the story: “‘You look a little **green**,’ Emily said. ‘First day,’ I replied.”

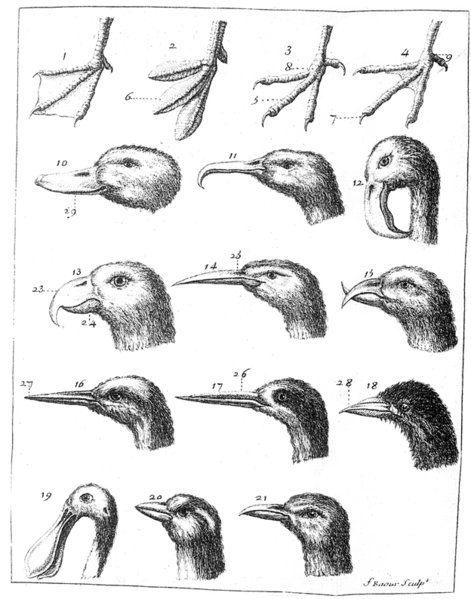
What might the word “**green**” mean in the sentence above?

1. inexperienced or sick
2. healthy or confident
3. friendly or very happy
4. old or exhausted
5. Select the word that best completes the sentence.

The human beings at the zoo have special talents, composing music, writing poetry, and dancing.

1. consequently
2. otherwise
3. earlier
4. such as
5. What does the narrator sneak off to see at the end of the story?
6. What question does the narrator ask at the very end of the story?
7. Why does the narrator ask the question at the very end of the story? Support your answer with evidence from the passage.

**When Fish First Walked**



A few hundred million years ago, the competition for food between fishes was fierce. So much so that gradually, some fish developed the ability to get out of the water and reach food sources that none of the other fish could get to. They survived long enough to successfully reproduce, and passed this characteristic on to future generations. In fact, from these fish eventually originated the animals with two pairs of limbs, including human beings.

This is an example of natural selection. An organism that develops a trait that helps it survive in its environment will have a better chance of reproducing and passing that trait on to the next generation. As a consequence, organisms with this helpful trait will become more prominent while other organisms of the same species die out. Why do giraffes have long necks? Why do rabbits produce so many offspring? Natural selection can help us understand why some species are the way they are.

The term “natural selection” was coined by Charles Darwin, who developed the scientific theory of evolution. Darwin was born in England in 1809 and spent his life observing animals and plants from around the world. He explained the theory in his landmark book *On the Origin of Species*.

Sometimes, the changes that occur among a group of organisms will seem very small but still play an important role in their survival. Take, for example, the peppered moth. The peppered moth was light in color and had speckled wings. It was hard to pick out against many of the

trees and buildings in England and could camouflage itself easily. But during the Industrial Revolution, London became polluted, and the smog turned everything black. Now the moths could be seen more easily by predators; they had nowhere to hide. Around this time, dark‐ colored peppered moths, which are almost invisible against a dark background, began to appear and soon became widespread. The lighter moths, on the other hand, became scarce in these sooty industrial areas.

Another case that has to do with survival through camouflage involves the little deer mouse. Typically, deer mice are dark brown, which makes it easier for them to hide from owls and other predators in the dark soil of the woods. The deer mouse that lives in Nebraska’s light‐ colored Sand Hills, however, has gone from brunette to blonde so it can blend in and have a better chance at survival. It took thousands of years for these mice to change the color of their coats, which may sound like a long time, but when it comes to evolution, that’s pretty quick!

One interesting case study is that of the Galápagos finches, about 14 species of bird that were studied by Darwin on the Galápagos Islands. Often referred to as “Darwin’s finches,” these birds look very much alike. The most significant difference among them is the size and shape of their beaks. Every different beak evolved the way it did so as to be suited to a particular feeding task. When, in 1977, a drought hit the island, vegetation withered and the only seeds left were large and tough. The finches with deeper, stronger beaks were able to crack through these seeds, and many more of them survived than their smaller‐beaked brothers. However, in the mid‐1980s, during an especially rainy time, smaller, softer seeds flourished. The birds best adapted to eat them had smaller beaks and they fared much better.

Where have all the dull male peafowl (peacocks) gone? Well, female peafowl (peahens) choose their mates based on the color and brightness of their plumage. This means that peacocks with impressive tail feathers are able to find mates more easily. A few thousand years ago, there were many more males with dull feathers, but they kept getting passed over by the females and did not reproduce. Their numbers therefore began to dwindle. These days, they’re quite rare.

Darwin’s theory teaches us that an animal or plant that adapts to its environment and remains alive long enough to procreate will thrive. The dodo bird, which has gone extinct, was not lucky in this respect. A lack of predators for thousands, and maybe even millions, of years meant that the dodos never learned to fly. When humans finally arrived to their home on the island of Mauritius, the dodos had no way of protecting themselves and, in the 17th century, were wiped out. It isn’t easy being on the wrong side of natural selection. Fortunately for us humans, the fish with the fleshy, leg‐like fins came out on top.

Name: Date:

1. What is natural selection?
   1. the process by which humans evolved from fish and monkeys
   2. the process by which species change as unsuccessful traits are passed on to the next generation
   3. small changes in individual organisms that are not passed on to the next generation
   4. the process by which species change as successful traits are passed on to the next generation
2. What does the author list and describe in the passage?
3. examples of natural selection in various species
4. how the dodo bird adapted to the invasive human population
5. the different wing sizes of Galápagos finches
6. how the Industrial Revolution affected London’s human population
7. Peppered moths became darker colored because the dark moths were better suited to the sooty environment than the light moths. What details from the passage support this statement?
8. Peacocks with impressive tail feathers are able to find mates more easily.
9. Deer mice are dark brown, which makes it easier for them to hide from owls and other predators in the dark soil of the woods.
10. The light moths could be easily seen by predators, while the dark moths were nearly invisible on dark backgrounds.
11. During the Industrial Revolution, London became polluted and the smog turned everything black.
12. Read the following sentences: “Another case that has to do with survival through camouflage involves the little deer mouse. Typically, deer mice are dark brown, which makes it easier for them to hide from owls and other predators in the dark soil of the woods. The deer mouse that lives in Nebraska’s light-colored Sand Hills, however, has gone from brunette to blonde so it can blend in and have a better chance at survival.”

Which of the following conclusions about deer mice is supported by the text?

1. Deer mice migrated from Nebraska to the woods.
2. The color of deer mice changes based on the environment.
3. Deer mice that are blonde will survive more easily in the woods.
4. Owls do not hunt deer mice in Nebraska.
5. What is this passage mostly about?
6. Charles Darwin
7. the evolution of fish
8. natural selection
9. Galápagos finches
10. Read the following sentences: “An organism that develops a trait that helps it survive in its environment will have a better chance of reproducing and passing that trait on to the next generation. As a consequence, organisms with this helpful trait will become more **prominent** while other organisms of the same species die out.”

As used in the passage, what does “**prominent**” most nearly mean?

**A** widely seen **B** unpopular **C** scarce

**D** large

1. Choose the answer that best completes the sentence below.

Peahens prefer to mate with males that have brightly colored plumage; , peacocks with dull feathers have become quite rare.

1. however
2. finally
3. specifically
4. as a result
5. Why did the dodo bird never develop the ability to fly?
6. Fish that developed the ability to live out of water is one example of natural selection. Explain how another species has adapted via natural selection.
7. How can a particular trait be both advantageous and disadvantageous? Support your answer with details from the passage.

**NJ Physics Professor Has the “Right Stuff”**

Valorie Sands



In 2005, Dr. Greg Olsen became the third person ever to travel into outer space as a private citizen. Unlike NASA astronauts who earn a generous salary, he bought his own ticket into space. He paid about $20 million for the trip, a ten‐day orbit aboard the Expedition 11 Russian Soyuz rocket, which docked at the International Space Station. He also took responsibility for his own training. The space flight was the achievement of a lifetime for the New Jersey entrepreneur and college physics professor.

Olsen's fascination with outer space and astronomy began when he was still a boy. He was born in 1945, years before space travel was close to becoming a reality. In fact, space exploration did not really heat up until the post‐WWII rivalry known as the Cold War between Russia and the U.S. Both countries fought to win the race to space.

# The Race to Space

In 1957, the Soviet Union took the lead when it sent Sputnik, the world's first artificial satellite, into space. But by 1962, U.S. President John F. Kennedy made it clear that the nation would not take a backseat to Russia. “We choose to go to the moon in this decade... because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win,” said Kennedy.

When asked why he loved space travel, Dr. Olsen talked about his professional crewmates, NASA astronaut Bill McArthur and Russian cosmonaut Valery Tokarev. “For the same reason they love it ‐‐ to be weightless, to see the awesome sight of Earth from space,” he said.

# Spaceflight Training School

Going to space school for the Expedition 11 spaceflight “was also like being a college student again,” said Dr. Olsen. That is, except for some of the training, which involved zero gravity flights and spins around in a centrifuge of up to 8 Gs acceleration (eight times Earth’s gravitational pull). However, most of Dr. Olsen's training was spent in classrooms and in flight

simulators. He was expected to know his way around the Soyuz vehicle, the space station, and to help with day‐to‐day routines. Yet neither NASA nor the Russians assigned him to heavy‐ duty responsibilities during the space flight.

According to Olsen, the most physically challenging part of the training was the water‐ landing exercise to practice “splash down.” This is a demanding and dangerous method of landing a spacecraft by parachute into a body of water. To prepare for the grueling task, Olsen and his crewmates wore wet suits and other protective survival gear. During just two hours of practice, he sweated off more than three pounds from his 170‐pound frame.

# Learning Russian

Despite demanding tests of endurance, Olsen described the physical training as the easiest part of preparation for the experience. He said that for him the hardest part “was trying to learn Russian. I love Russians and the Russian culture… but I’ve never been good at languages since I was a young person.”

Dr. Olsen learned Russian well enough to succeed in bonding well with his Russian crewmate and training personnel. “I’m just in awe of them,” he said. “When I watched them operate the Soyuz spacecraft and the simulators, they seemed to know every nut and bolt on the vehicle. I just tried to soak up the knowledge.”

Overcoming fear was no problem for Dr. Olsen. He was “very, very confident” about space travel aboard the Russian Soyuz vehicle. “It has a great safety record, and I have no qualms about doing this whatsoever.” The main goal of the Soyuz mission was to switch crews, and to replace emergency capsules that must always be attached to the space station in case of an emergency escape.

# A Smooth Launch

Olsen’s launch from the Cosmodrome, a space launch facility in Kazakhstan, went smoothly. He reported that one of the most unforgettable highlights of his ten‐day trip was the lift‐off experience during takeoff. He was also awed by the sight of Earth passing by in the rocket's window and the memorable feeling of floating around the space station.

# Radio Broadcast from Space

A licensed ham radio operator, Dr. Olsen spoke to New Jersey students from space via a ham radio. In the first of three broadcasts from the International Space Station (ISS) Olsen said, “Welcome to space. It's really nice here. It's nice and roomy."

"In some ways it's like camping out, because we have no running water, no sinks, and we kind of have to fend for ourselves for food," said Dr. Olsen. He reported that the professional astronauts had made him feel welcome aboard the space station.

Olsen expressed appreciation to many of his teachers, colleagues, and family in his space broadcast. He thanked his professors at Fairleigh Dickenson University in Teaneck, New Jersey, where he earned a Master’s Degree in Physics. He also thanked engineering students and former classmates at the University of Virginia, the school where he earned his doctorate. It was with their support that he was able to first build a spectrometer that became the basis for his New Jersey company, Sensors Unlimited. Spectrometers are sophisticated space age tools that use light to help astronomers and astronauts collect information. Using a spectrometer, astronauts can calculate the temperature of an object in space, learn which direction it’s moving, calculate its speed and weight, and find out what it is made of.

# Scientific Studies from Space

Olsen had planned to take an infrared spectrometer built by his Princeton, New Jersey firm with him on his space trip. However, it failed to pass through U.S. Export Customs, so the project had to be shelved. Instead, he conducted three medical experiments designed to study the human body's reaction to the absence of gravity. He also conducted studies on bacteria growth in zero gravity, and on how spaceflight affects the lower back and inner ear. He contributed his scientific findings to the European Space Agency.

# The Journey Home

During Olsen's return trip to Earth, there were pressurization problems aboard the Soyuz TMA‐6 spacecraft carrying him and his crew home. Overcoming the difficulties at undocking and during the descent tested the astronauts' skill, emotional strength and mental capability. In fact, at a press conference, a Russian News Agency announced that it had been a fairly serious situation. Fortunately, disaster was avoided because the Expedition 11’s astronauts all kept their cool and monitored the glitch very closely during re‐entry. All three space travelers wore Russian‐built Sokol spacesuits, a standard precaution, for an extra layer of protection, according to Olsen.

“At no time was there panic or alarm, or anything of that sort,” said Olsen about the pressurization problems during re‐entry. He added that at one point during the descent, he needed to add more oxygen into the Soyuz cabin. “We had practiced this many times during simulation practice, and I thought everyone handled it like pros.” Ten days after liftoff, the Soyuz crew landed safely back on Earth, in a desert in Kazakhstan.

Name: Date:

1. Who is Greg Olsen?
   1. a man who used to be the president of the United States
   2. a student at Fairleigh Dickenson University in New Jersey
   3. a NASA astronaut aboard the Expedition 11 Russian Soyuz rocket
   4. a physics professor who traveled to outer space in 2005
2. What does this passage describe?
3. This passage describes the classes that Olsen took to earn his Master’s Degree in Physics.
4. This passage describes the results of Olsen’s studies on bacteria growth in zero gravity.
5. This passage describes the trip that a private citizen took into space and his preparation for it.
6. This passage describes what the desert in Kazakhstan looked like when the Soyuz crew landed.
7. Training for spaceflight takes a lot of physical effort.

What evidence from the passage supports this statement?

1. Olsen tried to learn Russian even though he has never been good at languages since he was a young person.
2. During just two hours of practice, Olsen sweated off more than three pounds from his 170 pound frame.
3. While NASA astronauts earn a generous salary, Olsen had to pay $20 million for his trip into space.
4. After World War Two, the U.S. and the Soviet Union fought to win the race to space during the Cold War.
5. How did Olsen feel when he was up in space?
6. nervous and scared
7. foolish and embarrassed
8. sad and disappointed
9. happy and thankful
10. What is this passage mostly about?
11. Greg Olsen’s preparation for a flight into space and his experience in space
12. the pressurization problems aboard the Soyuz TMA-6 spacecraft
13. the infrared spectrometer that Greg Olsen planned to take on his space trip
14. three ham radio broadcasts from the International Space Station
15. Read the following sentences: “In 2005, Dr. Greg Olsen became the third person ever to travel into outer space as a private citizen. Unlike NASA **astronauts** who earn a generous salary, he bought his own ticket into space.”

What does the word “**astronauts**” mean?

1. people who teach physics
2. people who travel into space
3. people who like to wear wet suits
4. people who build spectrometers
5. Choose the answer that best completes the sentence below.

Greg Olsen enjoyed his trip into space preparing for it was not easy.

**A** second **B** currently **C** although

**D** specifically

1. What language did Olsen learn during his training?
2. For Olsen, what result did learning Russian have?
3. Explain how Olsen’s training prepared him for his trip into space. Give one example of something he learned during training that he used while in space.

**Sir Isaac Newton and LeBron James**



The English physicist and mathematician Sir Isaac Newton discovered three basic laws of motion. The First Law says that objects at rest and objects in motion will remain at rest or in motion, unless they are acted upon by an “unbalanced force.” The Second Law says that when a force acts on a mass, acceleration is produced. The greater an object’s mass is, the more force is needed to accelerate it.

Newton’s laws of motion have become known throughout the world, including his Third Law of Motion. It reads: “For every action, there is an equal and opposite reaction.” A simpler way of saying this might be: “When you push an object, it pushes back.” For every force, in other words, there is a reaction force equal in size.

There are many ways to describe how the Third Law of Motion works in the world of sports. One of the more interesting examples is the way that LeBron James dunks a basketball.

In order for LeBron James to score a slam‐dunk, he must exert a certain amount of force against the surface of the basketball court. LeBron James is a big man. He is 6 feet, 8 inches tall. He weighs 245 pounds. When he is standing upright, with his arms raised above his head, his reach extends to 8 feet and 10 ¼ inches.

The rim of the basketball hoop is exactly 10 feet high. For LeBron James to slam the ball, he must propel himself high enough that he can force the basketball, which is approximately 9.39 inches in diameter, into the hoop. This requires that he reach well above the height of the rim, which he does fairly often. In photographs and slow‐motion replays of LeBron James dunking the basketball, his elbow is often equal to the height of the rim!

LeBron James may be tall, strong, and fast. He may be extremely mobile and flexible. But it is no easy feat to dunk a basketball, especially when you weigh 245 pounds. His vertical leap— that is, the maximum height he can reach when he jumps—is around 44 inches. The average vertical leap in the National Basketball Association, or NBA, is about 27 inches. That means that LeBron James, despite his large size, can jump more than 10 inches higher than most players in the NBA! This is a serious benefit in basketball, a game of inches in which how high someone can jump often means the difference between scoring and missing the shot.

Why can LeBron James jump higher than other basketball players? The answer has to do with Newton’s Third Law of Motion. When LeBron James jumps, he is driving force into the court. That force is created by the energy stored inside his muscles. And how high he jumps depends not just on how much energy he forces into the surface of the court, but also on how well he does it.

When LeBron James jumps, he pushes down on the surface of the court. This is the “action” that Newton mentions in his Third Law. The “reaction” comes when the floor pushes back using an equal amount of force.

It may seem strange to think of the floor exerting force on an object, especially a basketball player. But this concept is what Sir Isaac Newton understood way back in 1687, when he published his most famous book, *Mathematical Principles of Natural Philosophy*.

Newton would have been fascinated by LeBron James’s jumping ability. But he would also have understood that it is not simply the strength of James’s legs that enables him to jump so high. The stability of his body, located in his core and his torso, also contributes to the energy that he forces into the surface of court. The energy and strength of LeBron James’s *entire body* is what enables him to reach such fantastic heights.

Watching LeBron James dunk on television often causes people to think he is defying the force of gravity, which pulls us and other objects to the ground. In reality, no one can defy such force. LeBron James just happens to be so strong and agile that, when he jumps into the air, he *appears* to be defying the force of gravity. He seems almost capable of flying.

Naturally, smaller basketball players require less force to dunk a basketball. Since they are lighter, they don’t have to combat the same gravitational pull. On the other hand, the fact that they are lighter means they do not have as much mass to store energy. The more muscles you have, the more energy you can force into the ground, and the higher you can go.

This is why professional basketball players appear to have no fat on their bodies at all. Fat does not store energy as effectively as muscle, but it still contributes to one’s body weight. Fat on a basketball player is equal to wearing lead weights around their hips during a game. Obviously, this would hinder a player’s performance, especially his ability to dunk.

Physicists have spent time thinking about the physics of dunking. To remain in the air for one second, they say, one would have to have a vertical leap of 4 feet, which is higher than pretty much any basketball player of all time. One exception is Michael Jordan, who is believed to have the highest vertical leap—48 inches, or 4 feet—of any professional basketball player. Michael Jordan was just 6 feet, 6 inches tall—average for an NBA player—but his vertical leap placed his head about 6 inches above the rim.

That one of the best basketball players in history also has the highest vertical leap is no coincidence. Michael Jordan’s body was strong, stable, and proportioned in such a way that the force he pushed onto the ground placed him above the rest. He was one of the best overall athletes in the game, and his slam‐dunking ability was an indication of his prowess.

From basketball players like LeBron James to Michael Jordan, it may seem like they are bending the rules of physics and gravity when they dunk a basketball. On the contrary, they are able to perform crowd‐rousing slam‐dunks because of these rules.

Name: Date:

1. What is Sir Isaac Newton’s Third Law of Motion?
   1. Objects at rest and objects in motion will remain at rest or in motion, unless they are acted upon by an unbalanced force.
   2. For every action there is an equal and opposite reaction. **C** When a force acts on a mass, acceleration is produced. **D** When a force acts on a mass, the mass increases.
2. What does the author describe in the passage?
3. Sir Isaac Newton’s most famous book, *Mathematical Principles of Natural Philosophy*
4. how LeBron James developed his basketball dunking skills
5. how Sir Isaac Newton came up with the three basic laws of motion
6. how the way that LeBron James dunks a basketball illustrates Newton’s Third Law of Motion
7. Read the following sentences from the passage: “When LeBron James jumps, he pushes down on the surface of the court. This is the ‘action’ that Newton mentions in his Third Law.”

Based on this information, LeBron James jumping is an example of which part of Newton’s Third Law?

1. both the action and the equal and opposite reaction
2. the equal and opposite reaction of an action
3. the action which causes an equal and opposite reaction
4. neither the action nor the equal and opposite reaction
5. The force created when the floor pushes LeBron James upwards is equal to which force?
6. the force LeBron James used to dunk the ball
7. the force LeBron James drives into the court when he jumps
8. the force LeBron James uses to throw the ball
9. the force LeBron James drives into the court when he lands after jumping
10. What is the main idea of this passage?
11. LeBron James and Michael Jordan are two of the best players in the history of professional basketball.
12. Basketball players must have high vertical leaps in order to dunk basketballs.
13. Newton’s Third Law of Motion is related to the First and Second Laws of Motion.
14. Newton’s Third Law of Motion can be examined using the examples of basketball players jumping.
15. Read the following paragraph from the passage:

“LeBron James is a big man. He is 6 feet, 8 inches tall. He weighs 245 pounds. When he is standing upright, with his arms raised above his head, his reach extends to 8 feet and 10¼ inches.”

How can the tone of the author best be described in this paragraph?

1. humorous
2. angry
3. disinterested
4. factual
5. Choose the answer that best completes the sentence below.

LeBron James has an impressive vertical leap of 44 inches, Michael Jordan holds the record with a vertical leap of 48 inches.

**A** In contrast **B** For example **C** Although

**D** Initially

1. According to the passage, in order for LeBron James to score a slam-dunk, what must he exert?
2. When LeBron James jumps, he is driving force into the court. How is this force created?
3. How does the example of LeBron James jumping to dunk a basketball illustrate Newton’s Third Law of Motion? Use information from the passage to support your answer.

# Inside Scoop

## By Michael Stahl



In New York City, one of the most popular brands of ice cream comes from a company called Mister Softee. Mister Softee sells ice cream to children and adults alike right out of a large blue‐and‐white truck. One particular Mister Softee truck driver is named Gus Elefantis. He has not only made Mister Softee ice cream his career, but the tasty, smooth ice cream has helped him make a few friends, too, since he first bought a truck in the mid‐1980s.

Gus Elefantis’s summer days begin at about 8 a.m. when he and his wife Lola wake up to make breakfast for their two daughters. Once breakfast is finished, Gus and Lola leave their daughters at home (the oldest daughter is 18 years old and capable of babysitting) and drive 20 minutes to a very special parking lot. It is there where Gus parks his very own Mister Softee ice cream truck every night alongside about a dozen others.

As soon as they arrive, Lola begins cleaning and stocking his truck, inserting all of the local favorite types of ice cream pops and flavored frozen ices into specific freezer compartments to be sold once Gus drives along his route. “Everything’s in the same place every day,” says the short, blonde lady. “This way, my husband doesn’t even have to think!”

Gus agrees, saying he won’t even need to glance inside the freezer as he fills orders for the long lines of customers waiting on the sidewalks.

Watching his wife wipe down the sink, the refrigerator and the slushy machine, Gus explains that Lola has cleaned the truck for over 20 years, ever since they were first married. “She’s the best at it,” he says with a heavy Greek accent. “I’ve tried to clean the truck plenty of times before, but I’m no good at it. When Lola cleans, it is spotless.”

Gus’s morning duty is to “go shopping” and purchase any new stock the truck needs for the day. He buys these items from his old friend Dimitri Tsirkos, who got Gus into the business and now runs the Mister Softee station. The station consists of a few parking lots for the trucks and a store where drivers buy supplies. Into a shopping cart Gus loads a few cartons of chocolate and vanilla ice cream mix, which will later freeze up inside the truck’s dispenser machine. He adds a can of whipped cream, some blue paper cups and a gallon of strawberry syrup.

Lola has finished cleaning Gus’s truck. Tupperware containers of sprinkles are filled. Gallons of milk are placed just behind a steel refrigerator door at Gus’s feet. Chocolate sauce that hardens when chilled is poured into a bowl for Dip Cones. The truck is finally ready.

After unplugging the back of the truck from a wall outlet that is used to keep the refrigerators and freezers inside running overnight, then starting up and revving the engine for a while to warm it up (the truck itself is over 30 years old), Gus drives out of the garage to sell ice cream in the neighborhood he’s called home for over 40 years: Astoria, New York. Gus will spend between nine and ten hours driving around, jumping from the driver’s seat to the serving window countless times. This takes a toll on a big man’s body. “You’re walking on steel all day,” he says. “Talk to any Mister Softee driver and they’ll tell you that their legs from the knees down are a problem.”

Though there is an air conditioner in the truck that isn’t completely useless, its work is made more difficult by the heat coming from the refrigerators, not to mention the sweltering humidity in New York City’s summer air. The back of the truck is searing on days when temperatures climb above 95 degrees, which are also some of the least profitable days because customers stay inside their air‐conditioned homes. Naturally, rainy days hurt business as well. How much money the drivers make changes from year to year, depending on the weather. Gus remembers one year, though, when the weather was so cooperative, he started driving in February and didn’t stop until Thanksgiving! “I made a lot of money that year,” he says with a nod of his head.

Usually, Gus doesn’t drive the Mister Softee truck for more than six months a year. He works every day it doesn’t rain between April and October, unless there is an important family event or holiday like Greek Easter. A day spent inside his home is a day he’s not making money, so he’ll put in 12‐hour days as often as he possibly can. On those days he misses his daughters, Joann, the older one, and Nora, who is eight.

After a long summer season and parking his truck for winter, Gus searches for a new winter job to provide for his family. “Once I drove a cab, but that was too much driving in one year for me,” he laughs. “Usually, I work part‐time in construction or at a restaurant just like when I was young.” In some ways, he would love a stable, everyday job, he says. But with Mister Softee, he’s his own boss, which has its perks.

“I eat ice cream every day,” Gus says, admitting that he dips into his own supply, usually after accidentally making something a customer didn’t ask for, like a cone with chocolate sprinkles instead of rainbow. “I feel like I have to eat the mistakes. I don’t want them to go to waste!”

When he’s had enough ice cream for the day, he gives his errors away, no charge. Gus loves giving away free ice cream, which has gotten him a lot of fans. However, the people of Astoria don’t go to his truck just for ice cream—whether it’s free or not—they also go to see their friend.

“My husband loves everyone,” says Lola. “Adults, kids, pets. It doesn’t matter.”

The side windows of the truck have few stickers, making it easy to see into the back where Gus works. This was done on purpose. He feels it makes parents much more comfortable dealing with him because it shows he has nothing to hide. Gus doesn’t drive his route late at night because he knows the truck’s song will get kids to jump out of bed. During the daytime, he plays the song only once per block to limit the disturbance.

“My mother always told me that if you live in a glass house, don’t throw stones at your neighbors. And I live in a glass house,” he says, referring to his windowed truck. He calls the job “easy,” despite the long hours away from his daughters while they’re on summer vacation, the heat, the hurt in his legs, and the requirement of a new job every winter. But Gus Elefantis isn’t going anywhere, to the delight of the many Astorians with which he comes into daily summer contact. “Unless I hit the lotto,” he says, “which I don’t play, I’m not going to stop.”

Name: Date:

1. What does Gus Elefantis do during the summer?
   1. Gus Elefantis teaches Greek to tourists.
   2. Gus Elefantis drives an ice cream truck.
   3. Gus Elefantis works on a construction site.
   4. Gus Elefantis waits tables at a restaurant.
2. What is the sequence of events in a summer day for Gus?
3. Gus gives away ice cream for free; Gus goes shopping for supplies; Gus drives around to sell ice cream.
4. Gus gives away ice cream for free; Gus drives around to sell ice cream; Gus goes shopping for supplies.
5. Gus goes shopping for supplies; Gus drives around to sell ice cream; Gus gives away ice cream for free.
6. Gus goes shopping for supplies; Gus gives away ice cream for free; Gus drives around to sell ice cream.
7. Many people in Astoria like Gus.

What evidence from the passage supports this statement?

1. “However, the people of Astoria don’t go to his truck just for ice cream— whether it’s free or not—they also go to see their friend.”
2. “Gus’s morning duty is to ‘go shopping’ and purchase any new stock the truck needs for the day.”
3. “Gus Elefantis’s summer days begin at about 8 a.m. when he and his wife Lola wake up to make breakfast for their two daughters.”
4. “The side windows of the truck have few stickers, making it easy to see into the back where Gus works.”
5. What is one problem with Gus’s job?
6. Gus buys the items he needs for his truck from a friend.
7. Gus works in Astoria, New York.
8. Gus’s job causes pain in his legs.
9. Gus’s job allows him to interact with people.
10. What is this passage mostly about?
11. an ice cream company called Mister Softee
12. the neighborhood of Astoria, New York
13. different flavors of ice cream
14. the work of an ice cream truck driver
15. Read the following sentence: “Gus agrees, saying he won’t even need to glance inside the freezer as he fills orders for the long lines of **customers** waiting on the sidewalks.”

What does the word **customers** mean?

1. people who get into trouble
2. people who work hard
3. people who are mean to others
4. people who buy things
5. Choose the answer that best completes the sentence below.

Gus likes some things about his job not others.

1. in summary
2. above all
3. but
4. after
5. Name two things Gus likes about his job.
6. Name two things Gus does not like about his job.
7. Gus says that, in some ways, he would love a stable, everyday job. Why does he choose to be an ice cream truck driver instead? Support your answer with evidence from the passage.

# Lightning and Fire



Florida receives the most lightning strikes in North America. Scientists have recorded over 20 million lightning strikes in the continental United States, and Florida gets more than any other state. Florida is mostly surrounded by water, with the Gulf of Mexico to the west, the Straits of Florida to the south, and the Atlantic Ocean to the east. This water is warm, which means it can be very humid in Florida throughout the year. During the hot summer season, this mix of heat and humidity creates many thunderstorms. This pattern of storms and the lightning they often bring is predictable. It is so common that Florida has been called the Lightning Capital of the World!

### FIRE IS NATURAL

Over billions of years, lightning and the fires lit by lightning on the ground have shaped our planet. Many plants and animals in Florida depend on fire, and they have adapted to the constant presence of fire. A plant called wiregrass is so used to fire that it germinates, or grows out of its seeds, after a fire. The bare soil that remains after a fire is a soft and fertile soil bed. The wiregrass plant uses this soil bed to put down its roots. Without regular fires, wiregrasses might be taken over by trees and other plants that grow faster and taller.

An animal in Florida that likes to eat wiregrass is the gopher tortoise. Wiregrass is a big part of a gopher tortoise’s diet, so regular fires mean gopher tortoises have a regular food supply. The gopher tortoise has adapted to fire by living and digging their homes, or burrows, in the ground. They don’t have to dig very deep to escape a fire’s heat, but their burrows can be almost 10 feet deep. These burrows provide great protection from fire, and other animals understand this, too. Mice, frogs, and snakes have been found in burrows with a gopher tortoise, during fires. Skunks, coyotes, and owls have often been found using burrows that gopher tortoises abandon.

### FIGHT FIRE WITH FIRE

Before people built roads and cities, a fire could just burn and extinguish naturally. Today, when lightning hits the ground in and around people’s homes, fires can cause a lot of damage to the houses or buildings, so firefighters work very hard to stop them. When they aren’t fighting fires, some firefighters switch jobs and light fires on purpose! Don’t worry, they are burning forests and grasslands, not where people live and work. To do this, they join something called a Prescribed Fire Crew.

Prescribed Fire Crews light fires for several reasons. One reason is to protect people from wildfires, and another is to maintain the ecosystems where species have adapted to the presence of fire. Although forest fires and grassfires can cause damage when they reach where people live and work, fire is necessary for many plants and animals around the world, not just for some of Florida’s plants and animals.

The fires Prescribed Fire Crews set are carefully planned with clear start‐and‐end points. By regularly burning parts of a forest, they prevent larger wildfires. In some ways, they are fighting fire *with* fire because regular burning keeps the amount of fuel low. This fuel can be anything found in forests, like trees, leaves, and bushes. These fires are helpful for the people that live close‐by and for the plants and animals that depend on fire.

1. Which state in the United States receives more lightning strikes than any other?
   1. Texas
   2. Florida
   3. New York
   4. California
2. Fires are an effect. What is one cause?
   1. lightning
   2. wiregrass
   3. gopher tortoises
   4. the Gulf of Mexico
3. Many plants and animals in Florida depend on fire. What evidence from the passage supports this statement?
   1. Forest fires and grassfires can cause a lot of damage when they reach where people live and work.
   2. Prescribed Fire Crews set carefully planned fires with clear start-and-end points.
   3. Florida is mostly surrounded by water, with the Gulf of Mexico to the west, the Straits of Florida to the south, and the Atlantic Ocean to the east.
   4. A plant called wiregrass uses the bare soil that remains after a fire to put down its roots.
4. How do Prescribed Fire Crews fight fire with fire?
   1. They find homes for mice, frogs, and snakes during wildfires.
   2. They find homes for skunks, coyotes, and owls during wildfires.
   3. They live in a state with lots of lightning strikes.
   4. They light carefully planned fires to prevent larger wildfires.
5. What is this passage mostly about?
   1. differences between the Gulf of Mexico and the Atlantic Ocean
   2. how thunderstorms are created from a mix of heat and humidity
   3. fires in Florida and how they affect life there
   4. why Florida is known as the Lightning Capital of the World
6. Read the following sentence: "Many plants and animals in Florida depend on fire,and they have

**adapted** to the constant presence of fire."

What does the word **adapted** mean in the sentence above?

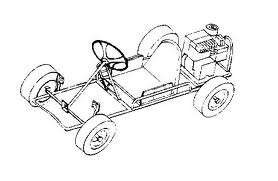
* 1. burned to the ground
  2. changed in order to live with
  3. set carefully planned fires
  4. surrounded by water on all sides

1. Choose the answer that best completes the sentence below. Lightning often strikes Florida; ,fires are sometimes started.
   1. consequently
   2. otherwise
   3. such as
   4. previously
2. What do gopher tortoises eat?

9. Why are regular fires important to gopher tortoises?

**10.** Are fires in Florida helpful or harmful? Explain your answer with evidence from the passage.

# The Go-Kart



Michael and Sam had been neighbors for as long as they could remember, but they only just started loving go-karts a few months before. Sam’s dad took the boys to the go-kart track for the first time as soon as school let out for the summer, and since then, they had been obsessed with getting their own go-kart. It would be a few years before Michael and Sam got their driver’s licenses, and this seemed like the next-best thing. They would fantasize about go-karting down their block and into the main street, competing with taxis, speeding bikes, and other cars for room on the road. In these dreams they would wear old-fashioned brown helmets and vintage airplane goggles, like in old video footage of the people who got to drive the first-ever cars.

One evening, Sam was talking about it—again—over dinner. “Wouldn’t it be great? We’d be low to the ground so we could even drive under big trucks! We’d go so fast, we’d be like a blur in all of the traffic. Can I get a go-kart for Christmas?”

Sam’s mom rolled her eyes and set down a helping of spaghetti and meatballs on his plate. “I don’t think so,” she said. “Why don’t you and Michael just build one?”

After dinner, Sam went over to Michael’s house. “My mom had the best idea,” Sam said. “We should build our own go-kart!”

Michael was also excited by the idea. His uncle John worked at an auto repair shop, and the boys called him right away to ask if he had any spare parts he would give them, and if he could help them: they had no idea how to build a car. John was thrilled that Michael and Sam were interested, and promised to talk the boys through it later in the week.

That weekend, John came by Michael’s apartment with a bunch of different auto parts that they could use for a go-kart, like a steering wheel, brakes, and an ignition pedal, as well as a large poster board.

“The first thing we need to do is draw how you want the go-kart to look,” John said. He laid the poster board flat on Michael’s kitchen table and looked at the boys expectantly.

Michael and Sam both agreed that they wanted the go-kart to be extremely fast, but other than that, they had no idea how it should look. John showed them a few drawings. They decided that a four-wheeler would be the best, with a long nose and an open top.

John wrote a list of materials that they would need. “You can get this stuff at a hardware store,” he said. “Let me know when you have everything, and you can come out to the shop to build it.”

A few weeks later, the boys showed up at John’s auto shop with a cart full of materials to build the go-kart. They had bought most of the hardware with chore money, but had found some of it at a scrap yard by their school. They had tubing, plywood planks, bearings, bolts, and chains. John told them he would provide the frame, petrol tank, driving shaft, engine, and seat—all the objects they could get from an auto body shop. Michael, Sam, and John took over a corner of the shop and began to build.

Soon they had a prototype go-kart. “Let me try it first,” Sam begged, grinning at Michael. He jumped into the shiny new go-kart and revved the engine. He pressed his foot down on the pedal, expecting the go-kart to shoot forward out of the garage and into the parking lot. Instead, it crept like a snail towards the open garage door.

“Woah!” Sam said. “This is way too slow.” Sam stopped the kart and got out. Michael nodded and said, “Yeah, I agree. Uncle John, how do we make it go faster?”

There were a few problems that the boys could fix, Uncle John said. First, the engine that Michael and Sam had chosen—the biggest one—took up a lot of space and was very heavy, so

it probably dragged the go-kart down. Second, the design they had chosen was not ideal for fast vehicles. Lastly, John said with a smile, it looked like Sam had forgotten to turn off the emergency brake.

So the three guys got back to work. They scoured the auto repair shop for a smaller engine, and found one in a small lawnmower that had been taken for disposal into the garage. They had fun taking the lawnmower apart to get to the small, powerful engine inside. The second problem was much more difficult to fix. Would they have to redesign the entire go-kart?

Together, they drew some other sample sketches that might make the go-kart less bottom- heavy, and even considered taking away one of the wheels so that it would be a three-wheel go-kart. Michael thought it would be a good idea to get lighter materials all around and keep their original design, but John didn’t think that would work. Michael, Sam, and John needed to think about ways to maximize the go-kart for its speed: what aspects of their original design were unnecessary? The three of them came to the conclusion that it was probably the long nose. It looked cool, but ultimately, what was more important to Michael and Sam?

They had welded the nose to the frame, and used a grinder to break the metal away from the go-kart. When they were finally done, Michael stepped into the go-kart and put on the helmet he and Sam had found at a used-clothing store. He snapped on a pair of swimming goggles, revved the engine, and made sure to take the emergency brake off. All of a sudden, he sped out into the parking lot, and Sam ran after him with a big smile.

1. What do Michael and Sam build?
   1. a fast car
   2. a big truck
   3. a go-kart
   4. an engine
2. What problem do Michael and Sam face with their first go-kart prototype?
   1. It is too slow.
   2. It is too fast.
   3. It is too small.
   4. It breaks apart easily.
3. The second time Michael and Sam test their go-kart,they are satisfied with its speed. Which sentence supports this idea?
   1. "Sam pressed his foot down on the pedal,expecting the go-kart to shoot forward out of the garage and into the parking lot."
   2. "Michael,Sam,and John needed to think about ways to maximize the go-kart for its speed: what aspects of their original design were unnecessary?"
   3. "Michael snapped on a pair of swimming goggles, revved the engine,and made sure to take the emergency break off."
   4. "All of a sudden, Michael sped out into the parking lot,and Sam ran after him with a big smile."
4. Why might using a small engine instead of a large engine have increased the go-kart's speed?
   1. The small engine was built for a go-kart, but the large engine was built for a lawnmower.
   2. The small engine was easier for Sam and Michael to carry and work with than the large engine.
   3. The small engine used more fuel than the large engine did.
   4. The small engine did not weigh the go-kart down as much as the large engine did.
5. This passage is mainly about
   1. how visiting a go-kart track can change someone' s life
   2. a mother who gives her son a piece of great advice
   3. building a go-kart and then rebuilding it to make it faster
   4. an uncle who lets his nephew and his nephew's friend play in his auto repair shop
6. Read the following sentence: "That weekend, John came by Michael's apartment with a bunch of different **auto** parts that they could use for a go-kart, like a steering wheel, brakes, and an ignition pedal,as well as a large poster board."

What does the word **"auto"** mean in the sentence above?

* 1. car
  2. metal
  3. cheap
  4. simple

1. Choose the answer that best completes the sentence below. The go-kart moves slowly Michael and Sam rebuild it.
   1. after
   2. before
   3. when
   4. since
2. What does John say is the first thing that he, Michael,and Sam need to do in order to make the go-kart?
3. Why did Michael and Sam ultimately decide to shorten the nose of the go-kart?

10.If Michael and Sam were to make another go-kart,what might they do differently than what they did the first time? Support your answer with details from the story.

# Water from the Air: Cloud Forests

## Alden Wicker



In the Americas, Asia, and Africa, there’s a special kind of forest. It’s rare, beautiful, and incredibly important to the animals and plants living there, and the humans who live nearby.

It’s called the cloud forest. Cloud forests, like the name implies, can be found in the clouds on the slopes of mountains. Because they are often shrouded in warm mist, cloud forests are very humid and wet places. But that’s what makes these forests so valuable.

Like rainforests, cloud forests experience rainfall, but they also capture water straight from the air. Water condenses on the leaves of the plants (sort of like dew on the grass in the morning) and drips through the canopy to the floor. If you stand in a cloud forest, you’ll hear the constant drip of water, even if it’s not raining. The water captured is pure and unpolluted, and flows through the ground into streams and then rivers.

Some people call cloud forests “water towers,” because they are so important for providing water to nearby villages and cities. In the capital of Honduras, Tegucigalpa, four out of 10 people get their water from La Tigre National Park. That’s about 340,000 people drinking cloud forest water! And there are a lot of other big cities that get some of their water from cloud forests, like Quito, Ecuador; Mexico City, Mexico; and Dar es Salaam, Tanzania.

In Guatemala, most of the water comes from the Sierra de las Minas Biosphere Reserve. More than 60 permanent streams flow from the reserve downhill to settlements, villages, and cities. People drink the water, use it for cooking, and irrigate their farm fields with it. In Kenya, people rely on the water from cloud forests to provide electricity by harnessing the energy of rivers that flow from Mount Kenya.

But it’s not just humans who rely on cloud forests. While they only make up 2.5 percent of the world’s forests, they are home to a stunning array of animals and plants. There are more species of hummingbirds in cloud forests than anywhere else in the world. Colorful birds, lizards, moss, and ferns live here; plus plants that grow on trees, called bromeliads. There’s even a bear called the spectacled bear, named for the markings on its face. It’s the only bear that lives in South America, and there are only a few thousand remaining because of habitat destruction and hunting.

We don’t even know all of the plants, animals, and insects that live in cloud forests, yet we keep discovering new ones. In the 1990s, scientists discovered two bird species that only live in cloud forests. One is the Jocotoco Antpitta, or *Grallaria ridgelyi*, which lives in Ecuador in a small patch of cloud forest. Another is the Scarlet‐banded Barbet, or *Capito wallacei*, which was discovered in Peru living on just one mountain. Scientists also discovered a new type of cow and barking deer in the cloud forests of Laos and Vietnam.

As you can see, cloud forests are extremely special places. But they are also very fragile and face a wide array of threats. Local poor people clear the forest so that they can grow subsistence crops. They also hunt endangered and threatened animals for meat, and cut down trees to heat their homes and cook. Commercial farmers convert the land so that they can grow fruits, vegetables, and coffee beans. Cloud forests are cleared and turned into pasture for cattle. Building roads and gem mines also severely damages the cloud forests.

Once cloud forests are cleared, the damage can be irreversible. The cloud cover, which is so essential to the growth of these forests, disperses. The soil degrades and erodes, washing down the mountain slopes. Many species vital to the ecosystem die off. What is left behind is a barren, dusty slope unsuitable for farming and unable to support animals, plants, or even people.

You can think of cloud forests sort of like little habitat islands, bounded by other types of forests and habitats on all sides. Many species are unable to leave one patch to travel to another. Once one patch is completely cleared, many species of plants and animals can go extinct, without ever being seen or studied by people like us. Some of the plant species lost could have been a new medicine or edible crop.

Scientists estimate that each year, 1.1 percent of the world’s total cloud forest land is cleared for logging and timber falling. But even more worrying is the threat of climate change. Cloud forests form at very specific altitudes and rely on certain temperatures to thrive. If world temperatures rise, cloud forests would have to move up to a higher altitude where the temperatures are cooler in order to adjust. Some cloud forests are on mountain peaks with

nowhere to climb and would die out. Climate change could also lessen cloud cover, which cloud forests rely on to grow. Because of this, the rate of loss could double.

As you can see, cloud forests are essential, providing water, food, and medicine to the people living in, around, and near them. So why would local people destroy them? To understand why, you have to put yourself in the shoes of a poor local farmer.

Imagine that you have no electricity or gas to heat your home or cook your meals. You do not have an oven or stove, so you get wood from the forest to build a fire. You also need food, and you cannot find a job that pays enough to buy any. There might not be a grocery store anywhere nearby, either. Therefore, you clear some forest next to your home so that you can plant fruits, vegetables, and grains. You also hunt local animals to eat. You would probably be excited to have a road built through the forest to your village, so you can easily go to a nearby city, or reach a hospital if you or someone in your family has an emergency.

If only a few people did these things, it might not be a problem. But the population is growing fast, and when thousands of people clear the forest and hunt animals, it becomes a crisis. Scientists fear we might lose cloud forests altogether, along with the water and other services they provide.

To combat the problem, some governments have designated certain stretches of cloud forest as protected, and it’s illegal to clear or log them. This can help preserve cloud forests against mining companies and large commercial farmers. But it can be hard to enforce these rules against local populations. To work with local populations of people is more effective, providing them with other ways to get food and energy so that they can leave the cloud forests intact.

It is also effective to educate the local population on how cloud forests provide fresh water and what happens when they are cleared. For example, in the indigenous community of Loma Alta in Ecuador, once the people understood that the cloud forest is necessary to provide water for farms at lower altitudes, they worked together successfully to protect it.

Cloud forests are too valuable of a natural resource to lose. With laws to protect them, education, and economic support for local people, we might be able to save them—plus the animals and plants they support—before it’s too late.

Name: Date:

1. What are cloud forests?
   1. forests that are made out of clouds and float through the earth’s atmosphere
   2. forests of oak and maple trees found in the northeastern United States
   3. pine forests that are found in cold climates without much animal life
   4. humid forests that are found among clouds on mountain slopes
2. What does this article try to persuade the reader of?
3. Governments should not interfere with businesses.
4. It is too late to save cloud forests.
5. Protecting cloud forests is important.
6. Commercial farming is more important than cloud forests.
7. The loss of cloud forests is harmful to the surrounding ecosystem.

What evidence from the passage supports this statement?

1. When cloud forests are cleared away, the soil degrades and erodes. What is left behind is a dusty slope that is unable to support animals, plants, and people.
2. Cloud forests can be found among the clouds on the slopes of mountains. They are often surrounded by warm mist, which makes them very humid and wet places.
3. The Jocotoco Antpitta, or *Grallaria ridgelyi*, lives in Ecuador. The Scarlet-banded Barbet, or *Capito wallacei*, lives in Peru. Barking deer live in Laos and Vietnam.
4. Commercial farmers sometimes clear cloud forests so that the land can be used as pasture for cattle. Other times, cloud forests are cleared to build roads.
5. Why might providing economic support to people living near cloud forests help save the forests?
6. People living near cloud forests would be less likely to care about protecting animals like the Jocotoco Antpitta and the Scarlet-banded Barbet.
7. People living near cloud forests would be less likely to clear away parts of the forest to try to support themselves.
8. People living near cloud forests would be more likely to buy cars and build roads through the forest to drive on.
9. People living near cloud forests would be more likely to buy gems dug from the ground by mining companies.
10. What is this passage mainly about?
11. how people in Tegucigalpa, Quito, Mexico City, and Dar es Salaam get their water
12. the history of the Sierra de las Minas Biosphere Reserve in Guatemala
13. the mining companies and commercial farms that threaten cloud forests around the world
14. cloud forests, the threats they face, and what can be done to save them
15. Read the following sentences: “It is also effective to educate the **local** population on how cloud forests provide fresh water and what happens when they are cleared. For example, in the indigenous community of Loma Alta in Ecuador, once the people understood that the cloud forest is necessary to provide water for farms at lower altitudes, they worked together successfully to protect it.”

What does the word “**local**” mean?

1. shrinking slowly over a long period of time
2. turning out differently from what was expected
3. having to do with a particular place or area
4. causing people to feel extremely happy
5. Choose the answer that best completes the sentence below.

Cloud forests are home to unusual animals, spectacled bears and barking deer.

1. previously
2. such as
3. as a result
4. third
5. Name an animal that is found only in cloud forests.
6. How are cloud forests valuable to human beings? Support your answer with evidence from the passage.
7. Are cloud forests too valuable of a natural resource to lose, as the author claims? Explain why or why not, using evidence from the passage.

# Urban Farms

## Susannah Edelbaum



Many people wrongly think that cities don’t have farms and that fruits and vegetables are only grown in the country. Believe it or not, there are more and more urban farms popping up in cities all over the world.

Alexandra Sullivan, a food systems researcher in New York City, studies urban agriculture. Urban agriculture is another name for farming and gardening in a city environment. Ms. Sullivan studies everything from tiny gardens in empty lots between buildings to bigger fields that have been planted and cultivated. According to Ms. Sullivan, “Urban agriculture has existed since cities have, across the world.”

The number of humans living in urban areas, or cities, is increasing. The amount of people who want to garden in urban areas is also rising. Ms. Sullivan says, “In small gardens, on rooftops and indoors, city residents grow fruits, vegetables, grains, and herbs, and raise animals to produce dairy, eggs, honey, and meat. City residents use these foods as supplements [additions] to food produced by rural agriculture.” Even though some people who live in urban areas grow crops, urban residents still need to rely on food grown in rural areas. This is because a city doesn’t have enough space to grow enough food for everyone living in it.

In New York City, urban farmers have come up with many different ways to grow their own produce, even though there isn’t a lot of room. For example, Brooklyn Grange is a farming operation that has two rooftop vegetable farms in New York City. All together, the farms are made up of 2.5 acres of rooftop space. This makes Brooklyn Grange one of the largest rooftop farming operations in the world.

Brooklyn Grange grows tomatoes, lettuce, peppers, kale, chard, herbs, carrots, radishes, and beans. The farming company sells its vegetables to local residents and restaurants. And because the farms are on rooftops, they are specially adapted to their urban location. They use available space that is not needed for anything else. As more urban farmers find ways to grow food in cities, urban residents will be better able to get fresher ingredients for their meals.

Name: Date:

1. What is urban agriculture?
   1. farming and gardening in the country
   2. a term for cities that have farms
   3. farming and gardening in a city environment
   4. a method of growing food indoors
2. What does the passage describe?
3. how to grow potatoes and beans on a roof
4. agriculture in urban environments
5. the history of urban agriculture
6. technology used in urban agriculture
7. Urban agriculture cannot serve as the only food source for a large city. What evidence from the passage supports this statement?
8. “This is because a city doesn’t have enough space to grow enough food for everyone living in it.”
9. “In New York City, urban farmers have come up with many different ways to grow their own produce, even though there isn’t a lot of room.”
10. “‘In small gardens, on rooftops and indoors, city residents grow fruits, vegetables, grains and herbs, and raise animals to produce dairy, eggs, honey and meat.’”
11. “Brooklyn Grange grows tomatoes, lettuce, peppers, kale, chard, herbs, carrots, radishes, and beans.”
12. Based on the text, what is a common challenge urban farmers face?
13. Growing produce during water shortages.
14. Keeping urban farms safe from city residents.
15. Fighting against cities’ laws that ban urban agriculture.
16. Finding the right space to grow their produce.
17. What is this passage mostly about?
18. farming in city environments
19. the advantages of urban agriculture
20. how people can begin their own urban farm
21. the rooftop gardens of Brooklyn Grange
22. Read the following sentence: “In New York City, urban farmers have come up with many different ways to grow their own **produce**, even though there isn’t a lot of room.”

What does “**produce**” most nearly mean as used in this sentence?

1. foods grown in the country
2. foods made with sugar **C** fruits and vegetables **D** desserts and drinks
3. Choose the answer that best completes the sentence below.

The number of people living in urban environments is increasing. , the number of people in cities who want to start urban farms and gardens is increasing.

**A** As a result **B** In addition **C** Initially

**D** However

1. How long has urban agriculture existed?
2. Give an example of a place where urban farmers can grow their own produce.
3. Explain how and why urban farms adapt to their city environment. Support your answer using information from the passage.