



Predicting

Level 6

A Collection of Readings

**Reading
Wings** 4th
Edition

The **Savvy
Reader**

This project was developed at the Success for All Foundation under the direction of Robert E. Slavin and Nancy A. Madden to utilize the power of cooperative learning, frequent assessment and feedback, and schoolwide collaboration proven in decades of research to increase student learning.

The Savvy Reader—Predicting, A Collection of Readings

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The Strikers Have a New Goalie

Story by Terrence Parker
Illustration by K. E. Lewis



Chapter 1

There I was, lying in bed. My knee was elevated, just as Dr. Paulson had said it should be. She'd said, "It's easy to remember, Lisa. Just remember RICE."

"Rice?" I'd asked. "What does that mean?"

"It stands for Rest, Ice, Compression, and Elevation," she'd told me. "It's an acronym."

I'd understood. "Oh yeah," I'd said, "like when I want to remember the notes on a musical scale. They're EGBDF, so I remember 'Every Good Boy Deserves Fudge.'"

"Exactly," Dr. Paulson had said and then had sent Dad and me on our way. I'd had this huge brace on my leg and crutches under each arm.

On the way home, with Dad driving especially slowly to avoid any bumps or potholes, I'd asked him, "Hey Dad, you think I'll be able to play in the playoff games this weekend?"

"Well, we'll see," Dad had said. I could tell that he hadn't wanted to get my hopes up. See, what had happened was my soccer team, the Strikers, had been playing our cross-town rivals, the Yellowjackets. I'm the goalie for our team. Toward the end of the final quarter, I'd sprinted to the left to catch a ball rocketing toward the goal. I guess I'd stepped the wrong way or something, because I immediately felt a terrible pain in my left knee. I remember that I went down like a sack of bricks. Turns out, I sprained my knee. It had been disappointing and painful because I knew my team was going to need me in the playoffs. I'm not trying to toot my own horn, but I'm a pretty good goalkeeper.

Anyway, there I was, lying in bed, remembering RICE. I'd been resting ever since we'd returned from the doctor's office. I had a bunch of pillows underneath my knee to keep it elevated. I had ice on it. Dad kept coming in and replacing the melted ice with a fresh bag whenever it was necessary. At first, I hadn't known what compression was; then Dad had told me that it meant keeping pressure on my knee. The thick brace Dr. Paulson had given me did that trick. I was thinking about RICE and gazing out the window. Then the team van pulled up, and Coach Carter and a few of the girls from the team piled out and started walking toward our front door.

Chapter 2

A few moments later, there was a knock on my bedroom door. Dad poked his head in. “Hey, Champ,” he began, “you feel up to some visitors? Looks like the team’s here, or at least some of them.”

“Send ‘em in, Dad,” I said, readjusting my knee so it would be a little less sore. “I’d be happy to see them.”

“You’re the boss,” Dad said, and then his head vanished from behind the door.

Moments later, a flurry of activity came bursting into the room. Julie Swanson, Dominique Wilson, and Sun-Li Park all ran into the room, carrying flowers, chocolates, and balloons. Sun-Li was about to leap onto the bed when I said, “Hey! Easy Sun-Li. I’ve got a sprained knee here. C’mon!”

“Sorry, Lisa,” Sun-Li said, smiling.

Coach Carter stood behind all the girls, his arms folded across his big, broad chest. His baseball hat sat low on his brow, and he looked out at me from under it.

“What’d the doctor say, Lisa?” Coach Carter asked me. There was a mix of kindness and concern in his voice. “Any muscle tears? Any broken bones?”

Before I could answer, Dad spoke up. “Coach,” he began, “Dr. Paulson thinks it’s just a sprain, but it’s swollen too much to do an MRI.”

“What’s an emmarraye?” Dominique asked.

“M-R-I. It’s sort of like an x-ray,” Coach answered.

“Anyhow,” Dad continued, “we’re keeping the knee elevated, and we’re scheduled for an MRI on Tuesday. Then we’ll know more.”

I interrupted them. “It’s just a sprain, Coach,” I said sternly. I didn’t want to think about the possibility that it might be something more than that. Like I said earlier, we had a couple of big games coming up on the weekend, and I wanted to be ready.

Coach said, “You may be right, Lisa. But let’s wait until we see what Doc Paulson says. You’re in good hands. But your dad’s got the right idea. You rest, keep ice on that knee, keep tension on it, and keep it elevated.”

“That’s called RICE!” shouted Julie, playing with the balloons that she had placed on my bedside table. “I learned about that when I sprained my knee last year.”



“That’s right, Julie,” Coach Carter said. “Anyhow, Lisa, we just wanted to check on you, and make sure you were doing okay. You know, getting by. But we’ll let you rest now. Okay?”

“Okay,” I said, though I didn’t really want everyone to leave. It made me feel good that some of my teammates, and my coach, had all come to check on me. Coach came over to my bed and shook my hand. “I’ll be ready by next weekend, Coach,” I said. I didn’t know if I was reassuring him or myself, though.

“Don’t worry about that right now, Champ,” Coach said. “Get your knee better first. Okay?”

“Okay,” I said.

Each of the girls came over, one by one, to hug me. “Take it easy,” Dominique said.

“Don’t sweat the small stuff,” Sun-Li said.

“Get some rest, and I’ll come over tomorrow,” Julie whispered.

“Thanks,” I whispered back. “I’d like that.”

Coach Carter and the girls left. Dad asked, “Do you need anything right now?”

I looked around. “Nope. I have everything I need. Unless,” I said with a smile, “you want to wheel the television in here for me.” I laughed.

“Hah! I hardly think so,” Dad said, laughing as he tousled my hair.

Chapter 3

I really like all the girls on my soccer team. We play really well together as a team, and we often hang out at each other's houses on the weekends, especially on game days, after the games are over. Usually, depending on whose house it is, somebody will make a late lunch for all of us. Sun-Li's brother makes excellent stir-fry. Dominique's mom makes killer tuna salad sandwiches.

But Julie, well, I'd have to say she's my best friend. I spend way more time with her than I do with any of the other girls. We hang out at each other's houses almost every day; we spend time together in the afternoons after school and especially on the weekends. And on a summer day like this one, when we didn't have school or soccer, she and I would be outside all day, making up fun stuff to do, so it was too bad that on such a nice, sunny day I was laid up in bed with a sprained knee. At least, I hoped it was just a sprained knee. There were some reassuring signs; in about eighteen hours, the swelling had gone down quite a bit. "You'll be able to have that MRI tomorrow," Dad said. He'd taken the day off work to help me if I needed anything.

Anyway, I was happy when Julie showed up at my house a little after breakfast. She'd brought some board games and some magazines. Dad hadn't even had to ask me if it was okay if she came in to see me. He knew it was. "Hey Julie!" I exclaimed when she knocked and then poked her head through the door.

"I said I'd be here, didn't I?" she asked with a smile.

Julie and I spent a couple of hours looking through the magazines that she'd brought along with her. We praised and cut out pictures of the kind of clothes we'd like to wear when we were in high school in a couple of years. I know, I know, it's a silly thing to do, but it kept my mind off my sprained knee. Julie was showing me a really nice, pink short-set she liked when Dad knocked on the door and then came into the room.

"Who's for chicken salad, crackers, and lemonade?" he asked. He was carrying a tray.

Julie said, "Cool, Mr. Lopez. But I have to ask my mom if it's okay if I have lunch over here."

"I already called her," Dad said. "She said it was no problem." He turned to me. "She also told me to tell you to get better soon." Dad pulled up an extra chair to the bed, and the three of us dove into our sandwiches and crackers.

As we ate, Julie asked Dad a question. "Mr. Lopez, what exactly is an MRI?"

Dad cleared his throat. “Well, girls, I’m not exactly sure. I know that many athletes have them when they are injured. I think that MRIs can look deeper into the muscle and bone than x-rays can.”

“Do they hurt?” I asked. I hadn’t thought of that before.

“Nope, not a bit,” Dad said. “At least, that’s what I read on the Internet. But let’s not talk about that.” Laughing, he said, “So show me the great looks you’ve picked out for yourselves for when you get to high school.”

“Ah, Mr. Lopez!” Julie said, embarrassed. But she laughed. So did Dad. So did I.

Later that afternoon, it was time for Julie to go home. “Good luck tomorrow!” she said before she left. “Enjoy the doctor’s office!”

“Very funny,” I said. “Don’t play too well at soccer practice. I still want my spot open for me when I get back on Friday!” I was happy that Julie had come by and spent the day with me. I didn’t know what I’d learn at the doctor’s office tomorrow, but I’d had a good day today.

Chapter 4

The next morning, the swelling had gone down even more. Now my left knee was only about one and a half times as big as the other knee. Before it had been about three times as big. Since the swelling had gone down, I was all ready for the test. Dad and I drove slowly to the hospital.

Dr. Paulson met us there in the waiting room. “How’s our soccer star feeling this morning?” she asked.

“Well, my knee’s still pretty sore,” I conceded, sitting in the wheelchair they’d put me in when I’d arrived at the hospital. My knee wasn’t nearly as sore as it had been on the first day, but it still hurt quite a bit. Perhaps moving around so much had made it hurt.

“That’s not surprising,” Dr. Paulson said. “Even if it’s just a sprain, it’s a humdinger of a sprain, and it should be sore for a few days. But let’s get you into the MRI room and figure it out. We’ll do a complete investigation. Mr. Lopez, can you wheel Lisa this way, please?”

Dad pushed me, and we followed Dr. Paulson down a long hallway and into this really strange room. There was a giant machine in it. It looked like something out of a science fiction movie, like in a mad scientist’s lab or something.

“What is that?” I asked, incredulously.

“That’s the MRI machine,” Dad said. “We’re going to put you inside it. And the doctor will be able to get a good picture of the inside of your knee. But don’t worry, it won’t hurt.”

To be honest, I wasn't worried. In a way, I was actually kind of excited. I really liked science in school, and this thing seemed really neat. "Let's do it!" I exclaimed. Then Dad and Dr. Paulson put me on this metal sliding thing, and then the metal sliding thing slid halfway into the machine.

"We're just looking at your knee, so you don't have to go all the way in," Dr. Paulson said. Then she and Dad went into another room. All of a sudden, the machine started up. It was really weird, but it wasn't scary at all. In fact, the whole time I imagined that I was an astronaut, undergoing important tests for a trip into outer space.

When it was over, Dr. Paulson told Dad to wheel me back into the waiting room. "I should have the results from the exam back in an hour, Mr. Lopez, if you'd care to wait."

"We can wait," I said.

"Whatever the patient wants," Dad said with a smile. We went back out into the waiting room. We sat for an hour. Dad gave me this funny little magazine to look at. It had a bunch of games in it. The best was this picture that had all of these hidden objects somewhere inside it that you were supposed to find. There was a wrench hidden in the tree and an iron hidden behind a park bench. Just as I found the last object, Dr. Paulson came out.

"Lisa. Mr. Lopez. Please come this way," she said.

Chapter 5

Dad and I sat in Dr. Paulson’s office as Dr. Paulson sat down behind her big, oak desk. “What’s the story, Doc? What’s wrong with my girl’s leg?” Dad was holding my hand as he spoke.

Dr. Paulson studied her chart, looking down at it over her reading glasses. “Well,” she said with a smile, “the MRI came back negative. That’s a good thing.”

“Negative?” I said with a start. “Negative usually means bad? How can negative mean something good?” I was really confused.

Dr. Paulson turned to me. With a smile, she said, “No, with these tests, it’s the opposite. Think of it this way. I was examining your knee to see if I could find something really wrong with it, like a torn muscle or ligament. But that search came up negative. That means I didn’t find anything. Your knee’s just sprained, that’s all.”

“Really?” I asked. “It’s just sprained? What does that mean for playing soccer?” I looked at Dad. Dad and I both looked at the doctor.

Dr. Paulson clasped her hands together and leaned back in her chair. “Well, Lisa, Mr. Lopez,” she began, “it’s a pretty nasty sprain. One of the worst I’ve seen this soccer season actually. I highly recommend that Lisa stay on her crutches for at least a week, until her knee is completely healed. Rest, Ice, Compression, and Elevation will be the important steps, here, just like they have been.”

I couldn’t believe what I was hearing. “But Dr. Paulson!” I exclaimed. “I have soccer playoffs in just a couple of days! My team needs me! I can’t sit out this weekend!”

Dr. Paulson looked at me. “I completely understand what you’re saying, Lisa. I really do. I’m a bit of an athlete myself, and I hate when I injure myself and can’t run or play racquetball. But you have to think about getting your knee completely healed. If you overwork it, you could do some serious damage to it, and then you’d be in bad shape.”

I turned to Dad. “What about the playoffs?” I said, as I felt tears welling up in my eyes.

Before my dad could say anything, Dr. Paulson interrupted. She said, “Well, I think that if you really take it easy the next couple of days and stay off your feet as much as you can, I think you could probably at least go to the soccer games and watch them. How does that sound?”

That didn’t sound very good to me at all. Right then and there, I swore to myself that I would play soccer in the playoff games that weekend. Nothing would stop me.

Chapter 6

Later that day, after Dad and I drove home (slowly again, although I kept reminding my dad that my knee was a lot less sore, so he didn't have to be so careful), I sat in my room, in my bed. Looking out my window, I noticed Julie walking up the drive to our front door. Although I was in a bad mood because of what Dr. Paulson had said, I was happy to see her. I thought that maybe she'd agree with me, that I could definitely play during Saturday's game. I heard her knock on the door, and then I heard my dad say, "Oh, hi Julie. Yeah, go on up. She's up there."

Julie poked her head through the door and noticed the look on my face. "What are you moping about?" she asked. Julie didn't like it when people were in bad moods. "Turn that frown upside down," she'd always say. "It takes more muscles to frown than it does to smile." And that's exactly what she said right now.

"Dr. Paulson says I can't play Saturday's game," I said, hating that fact more and more each time I said it.

"Why not? Did you tear a muscle or something?" Julie asked, looking concerned.

"No," I said. "It's just sprained. But it's a bad sprain, so the doctor says I have to be on crutches for quite a while."

"Well, that's good news, isn't it?" Julie asked. "I mean, look on the bright side of things. Your knee's not really hurt as badly as it could be. You'll be up and playing soccer before you know it!"



“No I won’t!” I shouted. “If I miss these playoff games, the season will be over!” To be honest, I was ashamed of myself for yelling at Julie.

Julie was taken aback for a moment, and then she looked into my eyes. “Lisa,” she reminded me, “this weekend’s only the first round of playoffs. If we win, we’ll advance to the next round, which will be the weekend after that! You’ll be playing again by then. And that’s when we’ll need you the most.”

All of a sudden, I blurted out, “Julie, you guys can’t win without me! I’m the star of that team!”

Julie was shocked. Maybe she wasn’t as shocked as I was at what I’d just said, but she was surely shocked. Before I could do anything, Julie jumped up from her chair and ran out of the room. I felt dreadful, believe me. I didn’t mean what I said. Or did I? Did I really think I was better than anyone else on the team? Did I really think I was better than Julie, my best friend? It didn’t matter what I thought. What mattered was that I knew I had to figure out a way to apologize to Julie. That’s what I had to do.

Chapter 7

For the next couple of days, I felt terrible. I felt that way for a number of reasons. First, I didn't feel I was part of the team. I felt they were going to go on and play without me. And I knew that they had to. They couldn't forfeit the game just because their goalie couldn't play. I mean, this was the playoffs! But I also felt I wasn't part of the



team for a different reason. I felt guilty about seeing myself as the star of the team and seeing Julie and the rest as just secondary players who supported me, like the cast of supporting actors who aren't the big-name superstar. That's not how a player on a team should feel. I knew that players on a team should feel everybody contributes. That's what teamwork meant.

I'd learned my lesson. But since I wasn't going to be able to play on Saturday, I didn't know quite how I'd show the rest of the team that I hadn't meant what I said, or that if I had meant it, I didn't mean it anymore. Even if I weren't playing, I wanted my team to win. And, if I'm being honest, I also wanted them to win so we could advance to the next round, because then I'd be able to play. But more than anything, I wanted them to win because they were my teammates.

On Friday evening, I decided to call Julie. She answered on the first ring. "Hey Julie," I said.

"Hey Lisa!" Julie didn't sound very mad. That was good.

"Listen, Julie," I began. "I just wanted to say sorry about what I said the other day. I really didn't mean the things I said."

“I understand,” Julie responded. “I’m not mad anymore. I mean, I was at first, but I got over it. You were pretty upset about what the doctor had told you. I understand that. I knew I couldn’t spend too much time being angry at you. I knew I had to focus on tomorrow’s game. Since we’ve been practicing, I’m getting pretty good at goalkeeping. Maybe not as good as you, but...”

I interrupted her. “That’s why I’m calling you, Julie. I wanted to say good luck with tomorrow’s game. I know you and the rest of the Strikers will win. I just know it.”

“Thanks, Lisa! You really think so?” I could tell that Julie liked hearing that from me. “Are you coming to the game tomorrow?” she asked.

“We’ll see,” I said.



Chapter 8

The next morning, my knee felt pretty good, all things considered. I mean, sure, it was still a little sore, but I felt pretty comfortable getting around on my crutches. I hobbled on down to breakfast.

“Hey, look who’s up and at ’em!” Dad said. I told Dad I wanted to go to the soccer game that day. He asked me if I really felt up to it, and, when I assured him I did, he poured me a quick bowl of cereal. I finished it, and off we went to the field.

When we got there, Coach Carter made sure there were two chairs on the sideline for me: one for me and one that I could prop my leg up on. I was actually quite comfortable. “This is a good place to watch the game from, Coach!” I said, smiling.

Coach Carter smiled back. “It’s where I watch the game from every week, Champ,” he said. The game began. We, the Strikers, were playing the Sidewinders. Oh man, was it a nail-biter. Back and forth, back and forth went each team. The Sidewinders’ goalie was stunning. She had honed her skills perfectly, probably through a lot of practice. I must say that I was impressed. But do you know who impressed me even more? Julie! She was also amazing. She would jump left and snag slapshot kicks from everywhere. She’d leap right and deflect kicks from near and far.

I was really proud of Julie. Before I knew it, I was shouting “Alright, Julie! You go, girl! Way to stop those kicks!” Julie would look at me and flash me the smile of the week.

Before anyone knew it, it was the end of regulation. The score was tied 0-0. Overtime! Here's how overtime works in our soccer league. Each team gets three kicks against the other team's goalie. The team that scores the most goals after those three kicks comes out triumphant.

Our team went first. Sun-Li lined up and fired the ball toward the Sidewinders' goal. She scored! The crowd on our side of the field went wild! Coach Carter and Dad were jumping up and down. So was Sun-Li's brother. I was hooting and hollering, waving one of my crutches in the air. Then it was the Sidewinders' turn. One of them fired the ball directly toward Julie. With ease, Julie caught the ball before it went in. We were up 1-0! Everyone was cheering. Sun-Li lined up again. She fired the ball again. SWOOSH! Into the net it went. We were now up 2-0. We were almost there! If Julie could stop the next kick, we'd win the game because the Sidewinders wouldn't be able to score 2 points. It all came down to this.

The Sidewinder set up the ball. She prepared to kick. Julie squared herself at the goal line. The Sidewinder fired the ball toward the goal...



Chapter 9

...and Julie leapt hard to her left. The ball bounced off her outstretched arms and then flew wide of the goal! We won the game! Julie jumped up from the ground. Her arms flew up in victory. She barely had time to grab the ball before the remainder of the team, including Coach Carter, ran out onto the field and hoisted her up in the air. I continued to bang my crutches together, shouting “Way to go Julie! Awesome! Woo-hoo!”

The team carried Julie over to our sidelines and set her down. Julie still held the ball in her arms. She trotted over to me. “That was great work, Julie! I’ve never seen somebody tend goal that well. You’re awesome!” I shouted.

Julie said, “Well, for as long as I’ve been on this team, I’ve been watching you tend goal, so, in a way, I learned everything from you.” She handed me the ball. “This one’s for you, Champ,” she said.

“No way, Julie,” I said. “You earned it. I’m just glad I was here to cheer all you guys on. I’m proud to be part of this team, even if only from the sidelines.”

Then Julie said, “Well, we won this game, so we’ll be playing next week. You’ll be back in the goal. Your knee will be all better by then, right?”

I thought for a minute. I thought about being in the goal for the biggest game of the season. I thought about doing my part, and doing it for the team. But then I thought about how happy Julie was. I could still picture the team hoisting her up into the air when she saved that last kick. I called Coach Carter over. “Hey Coach,” I called. “I think I’d better stay off the field for the next few weeks. You know, I want to make sure my knee stays healthy, like for next year. You know?” Coach Carter looked down at me and saw that I was smiling. I could feel Dad’s hand on my shoulder.

“You sure?” Coach Carter asked me.

“Oh yeah,” I said. You know what? I was sure. And it wasn’t because I was worried about the health of my knee. “Looks like the Strikers have a new goalie.”

Julie smiled. So did I.

Outlaws & the Seas

Part 1. The Golden Age of Piracy

Part 2.

True or False:

Pirates Buried Their Treasure

Part 3.

The Most Fearsome Pirate
of All

Part 4.

Girls Could Be
Pirates Too



Outlaws of the Seas

Part 1.

The Golden Age of Piracy

Pirates are outlaws who rob ships at sea. There have been pirates the world over for thousands of years, but the Golden Age of Piracy only lasted about thirty years, from the late 1600s to the early 1700s. During that time, hundreds of pirates sailed the seas, attacking ships, stealing the cargo, and taking sailors and passengers prisoner. Pirates were especially active in the Caribbean Sea.



Many pirates sailed the Caribbean Sea and had hideouts on islands like Jamaica and the Bahamas.

Part 2.

True or False: Pirates Buried Their Treasure

Many of us learn about pirates from movies or television. But not all that we see is true. For example, pirates didn't really bury their treasure. They spent it all as soon as they got to shore!

Some stories are true though. Pirates did often pierce their ears and wear earrings. They believed it improved their eyesight!

Part 3. The Most Fearsome Pirate of All

The most feared and hated pirate of all time may have been William Teach. Known as "Blackbeard" because of the long black beard that covered much of his face, Teach was so



William Teach, known as "Blackbeard," was so fierce that even his crew was afraid of him!

frightening looking that most of his victims surrendered without a fight. Even his own crew feared him.

Blackbeard commanded a fleet of four pirate ships in the Caribbean. During his career, he captured more than forty ships and their cargo. To bury all that treasure, he would have needed a very big hole!

Part 4. Girls Could Be Pirates Too

When Anne Cormac of Charleston, South Carolina was sixteen years old, she fell in love with a sea captain named James Bonny. They married and moved to the Caribbean island of Nassau. It was there that Anne Bonny first encountered pirates. Longing for adventure and excitement, Anne disguised herself as a man and joined the crew of a pirate ship. It's said that she was such a good pirate that no one ever guessed she was a woman!



Did pirates really keep parrots? No, they were much too busy robbing ships to take care of pet birds!

Image courtesy of U.S. Fish & Wildlife Service

Sunken Treasures

Part 1. Watery Graveyards

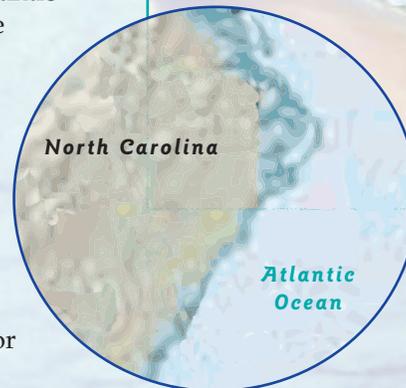
Thousands of shipwrecked vessels have been found in North American waters: in the Pacific Ocean, the Gulf of Mexico, the Great Lakes, and in the so-called “Graveyard of the Atlantic” off the coast of North Carolina. These lost ships include historic warships, huge cargo and passenger vessels, and ordinary fishing boats. But they all have a story to tell. Some of them capsized in violent storms, some were sunk by enemy fire, some fell victim to human error, while some met an unknown fate.

Part 2. Lost and Found

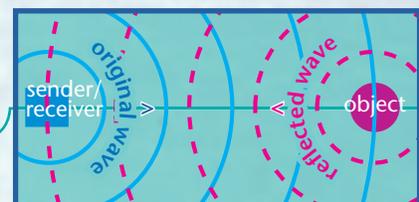
Some shipwrecks are found by accident, but most are found because underwater archaeologists go looking for them. Finding shipwrecks is not easy. There is nothing on the surface of the water to tell an underwater archaeologist where to look. So underwater archaeologists often begin by looking at historical documents, such as records of when a missing ship left port and where it was headed. Once the general location of the wreck is determined, archaeologists will scuba dive to search for it or try to locate it using sonar equipment.

Probably the most famous find was the wreck of the *RMS Titanic*, the passenger liner that hit an iceberg and sank during its first voyage from England to America in 1912. After years of searching, the remains of the *Titanic* were discovered off Nova Scotia in 1985.

Archaeologists recover and study objects from the past. Underwater archaeologists recover and study objects found in a body of water.



The “Graveyard of the Atlantic” lies off the coast of North Carolina.



Sonar equipment uses sound waves to locate objects under water. The sound waves bounce off the object and send a signal back to a screen on a boat. The signal shows where the object is, but not what it is. Divers have to find that out.

The Birth of Aviation

Part 1: The Toy That Changed History

One day in 1878, Bishop Milton Wright brought a toy helicopter home to his sons, Wilbur and Orville. It was not a helicopter as we know it today, just two wooden blades powered by a rubber-band. Nevertheless, the toy fascinated the boys: it showed them that something heavier than air could actually fly. The brothers began dreaming of inventing a machine that would allow man to fly.

Gliders depend on the wind to make them fly.

Part 2: The Wright Brothers Try, Try, and Eventually Fly!

The Wright brothers began by making gliders—heavier-than-air machines that could fly.

From 1900 to 1902, the brothers made and flew several gliders. But the gliders depended on the wind to keep them up in the air. The wind also determined the direction the glider would take and how long it stayed aloft. Wilbur and Orville were not satisfied. They wanted to power the glider with an engine so it did not depend on the wind.

In 1903, in Kitty Hawk, North Carolina, the Wright brothers' dream came true; they succeeded in building and flying the first engine-powered, heavier-than-air machine. Although it only stayed aloft for twelve seconds and traveled just 120 feet, the Wright brothers had invented the first true airplane.

Part 3: Relive the Birth of Aviation

Visit the Birth of Aviation exhibit and relive the Wright brothers' quest to build the first airplane. Learn about the brothers' inventive lives. Fly a toy like the rubber-band-powered one that inspired the brothers' dream; see exact replicas of their early flying machines; experience the thrill of flying a computer-simulated aircraft. It's not just an exhibit—it's an adventure!



The Wright brothers figured out how to put an engine on a glider to create the first airplane.

"First Flight" Photo (1903) attributed to Wilbur/Orville Wright, courtesy of Library of Congress

Outer Space Place

Learn about the amazing discoveries of the Hubble Space Telescope.

Part 1: Pictures from Space

The Hubble Space Telescope was launched in 1990 and ever since has been sending astronomers pictures of our galaxy and other far-off galaxies. From an orbit 375 miles above the earth, Hubble circles the earth about every ninety-seven minutes. Named for the American astronomer Edwin Hubble, it is the first telescope to operate from space.

Part 2: Exploring Planets Far, Far Away

Hubble has changed our understanding of the universe. It has taken pictures that prove the existence of black holes, recorded a comet colliding with Jupiter, and provided the best ever pictures of the fiery red planet Mars. But Hubble's most important discovery may be the existence of galaxies that are twice as old as our own. Astronomers believe that the existence of these older galaxies proves that the universe is still expanding.

Part 3: Need a repair? Call an astronaut!

Hubble was designed to be repaired by astronauts. Since 1990, three spacewalking astronauts have replaced worn out parts of the telescope. Each repair has made Hubble ten times more powerful than before.

Predicto predicts:

Part 1 will be about how the Hubble Space Telescope takes pictures of Earth from space.

Clues: The title, heading, illustration of Hubble in orbit and the caption, and the sidebar about astronomers

Part 2 will be about how Hubble has landed on different planets in the universe.

Clues: The heading (I don't think Hubble can explore planets without actually landing on them.)

Part 3 will be about how astronauts repair Hubble.

Clues: The heading



Roughly the size of a school bus, the Hubble Space Telescope orbits the earth about every ninety-seven minutes.

A black hole is an area of the universe where gravity is so strong that nothing, not even light, can be seen. Stars, and perhaps even planets, can disappear into black holes.

Astronomers are scientists who study celestial bodies such as planets, stars, comets, and asteroids. Astronomers use pictures from Hubble to learn more about the universe.



Images courtesy of Space Telescope Science Institute

USS Constellation

m u s e u m

Experience life aboard a 19th-century naval vessel.

PART 1. Welcome Aboard!

When you cross the gangway and step aboard the USS *Constellation*, you enter the unique world of a 19th-century naval vessel. Launched in 1854, the *Constellation* was the last all-sail wooden warship built by the United States Navy. The ship and her crew had many adventures at sea and took part in some of the most important events of the last two centuries, including the American Civil War and World War II. On board the *Constellation*, you'll find many things to see and do that will help you learn what life was like aboard this historic ship.

Starting at the Top

The *Constellation* has four levels, or **decks**. Step off the gangway and you're on the top, or **spar**, deck. Look up. The sails, three tall wooden masts with rope rigging, rise high above you. When the *Constellation* was built, engines didn't exist; the wind in her sails powered the ship across the sea. The captain plotted the ship's course on a nautical map, or **chart**. At the ship's wheel, or **helm**, an experienced sailor steered the *Constellation*. Using a compass, another sailor kept the ship on course. Take a turn at the wheel and imagine what it was like to steer this great ship across the sea.

Near the front of the ship, there is a bell that was rung to let sailors know when to report for work. Eight rings signaled the start of a new work shift, or **watch**. The sailors worked around the clock in four hour shifts—four hours of work followed by four hours of rest. Ring the bell, and imagine the sailors hurrying on deck to report for duty.

The *Constellation* was a warship, built for battle. To experience her fire power, go one deck below.

USS *Constellation* is the last all-sail warship built by the U.S. Navy. USS stands for United States ship.

Ready, Aim, Fire

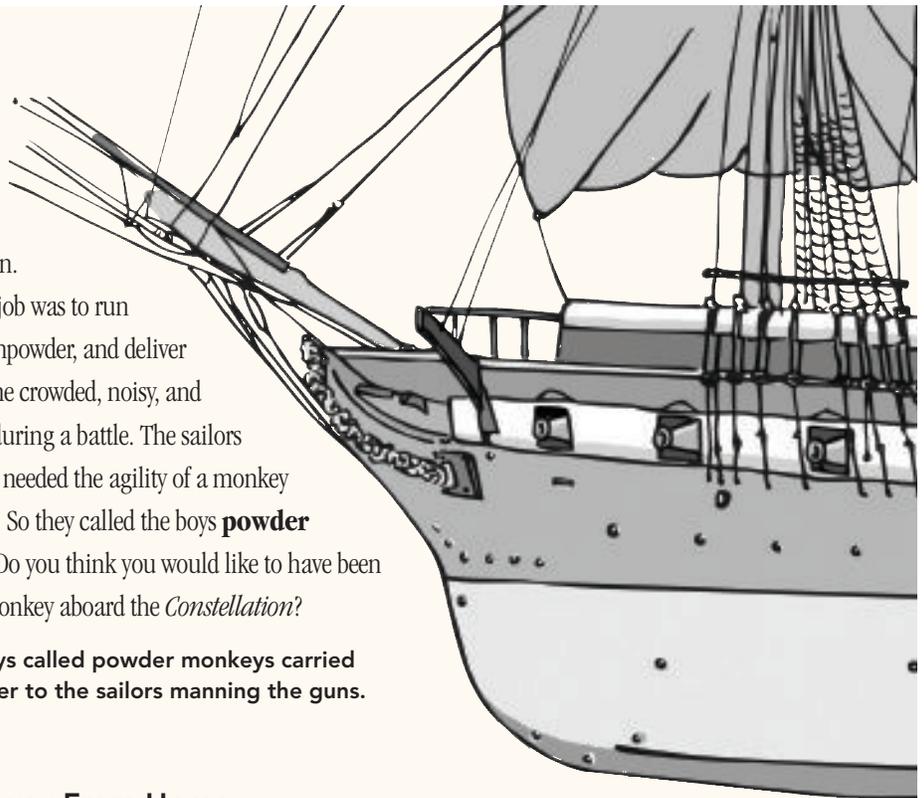
Take the narrow ladder one flight down, and you'll find yourself on the **gun deck**. You'll see twenty guns, ten on each side of the ship.

It took fourteen men and one boy to fire each gun.

Some of the boys were as young as twelve. Their job was to run to the far end of the deck, pick up a supply of gunpowder, and deliver it to the gun crews. It became crowded, noisy, and smoky on this deck during a battle. The sailors

thought the boys needed the agility of a monkey to do their job. So they called the boys **powder monkeys**. Do you think you would like to have been a powder monkey aboard the *Constellation*?

Young boys called powder monkeys carried gunpowder to the sailors manning the guns.



Home Away From Home

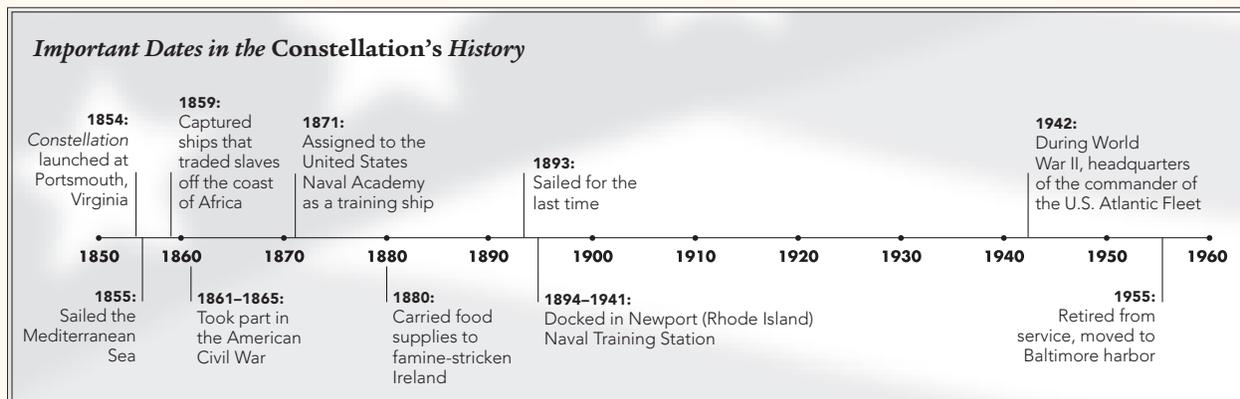
One deck below the gun deck is the **berth deck** where the sailors lived while on board.

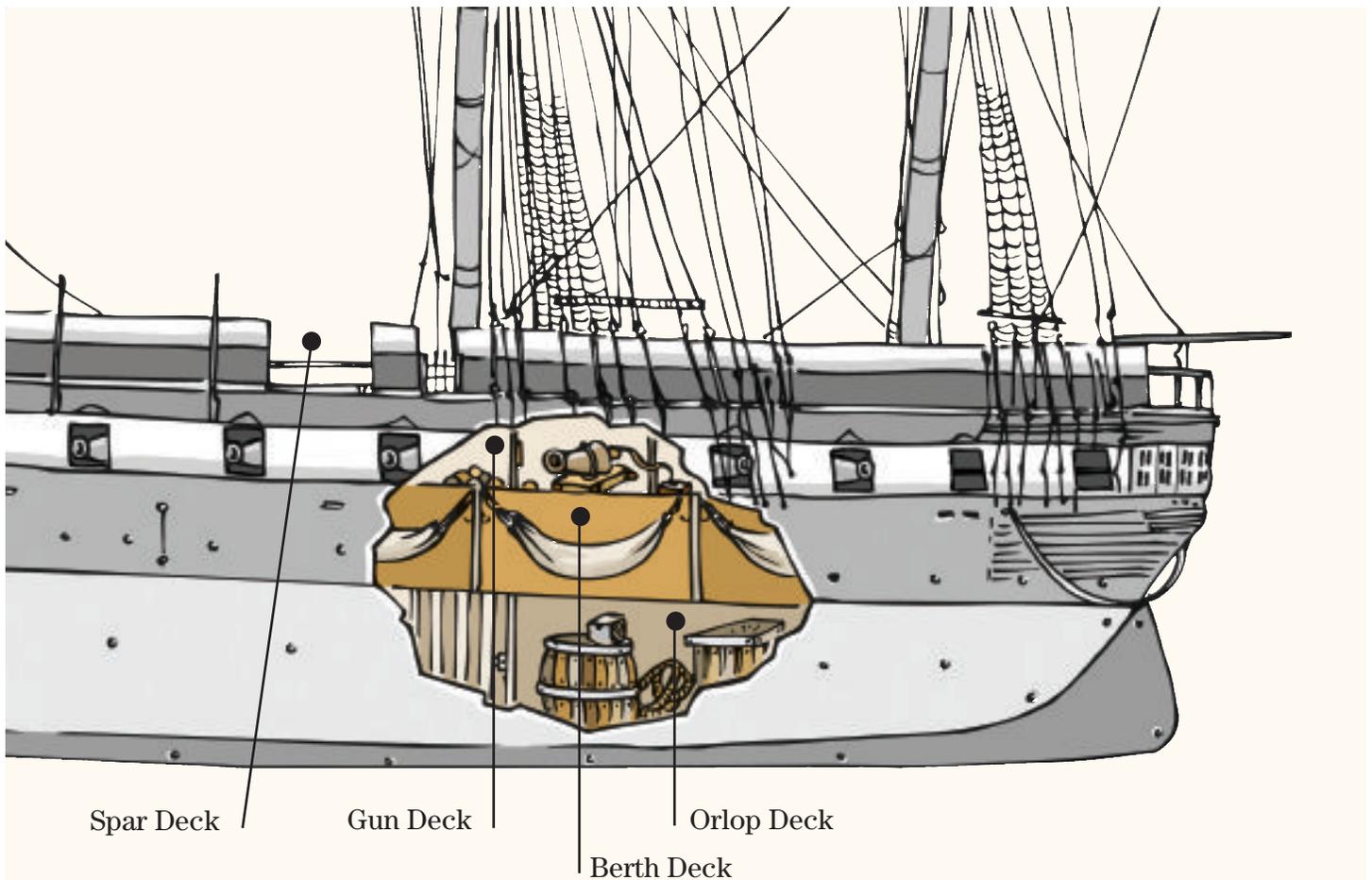
Between watches, about 150 off-duty sailors at a time ate, slept, and relaxed on this deck. Try out one of the sailor's canvas hammocks. Would you trade your bed for a hammock?

Down Below

On the bottom, or **orlop deck**, you'll find the hold, the place where the ship's supplies were kept. The *Constellation's* hold was stocked with everything the crew needed for a long voyage: food, water, and other supplies for the sailors, and the canvas, nails, lumber, and rope they needed to repair the ship.

The ship's jail, or **brig**, was also on this deck. Sailors who disobeyed orders or committed crimes while at sea, were locked up in the brig. Some claim the *Constellation's* brig is haunted! In 1863, a prisoner reported that he saw the ghosts of two dead sailors there. Maybe they liked life on board the *Constellation* so much that they never wanted to leave!





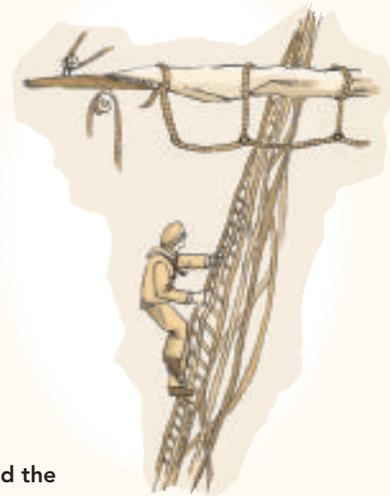
PART 2. Ahoy, Matey!

about 350 officers and sailors served aboard the *Constellation*. The captain was in charge, and he was assisted by several officers. The officers each supervised a group of sailors. A sailor's job included raising and lowering the sails, keeping the ship clean and in good repair, and firing the guns in battle. Imagine that you're a sailor on board the *Constellation*.

A Sailor's Day Begins

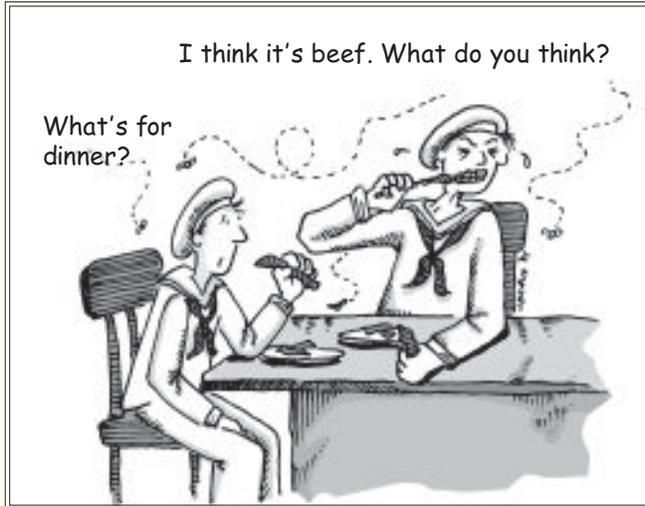
It's 7:00 a.m.: time to wake up and begin your day. You have seven minutes to climb out of your hammock, dress in your uniform, and line up with your fellow sailors on the top deck. At 7:07, an officer inspects you and your mates to make sure that you are neat, clean, and ready for duty. Then morning exercises begin. Jogging? Jumping jacks? No, sailors exercise by climbing the rope rigging to the top of the masts and back down again. And you'd better be quick! The last sailor to finish the climb has to do it all over again! At 8:00, the ship's bell sounds, and your watch begins. Your first job is to help haul up the ship's huge iron anchor. The *Constellation* is about to set sail!

For exercise, sailors climbed the rigging to the top of the mast.



Let's Eat!

It's hard work hauling the anchor, trimming the sails, keeping the ship cleaned and repaired, and keeping a lookout for enemy ships, so when your watch ends, you're going to be hungry. Head for the berth deck where the



sailors dine. The ship would have been stocked with fresh food while it was in port. But since there weren't any refrigerators on the *Constellation*, the fresh food would eventually run out or spoil. Until they could restock with fresh food, the crew made do with food that didn't require refrigeration, like dried meat, cheese, beans, and an oatmeal-like cereal called burgoo. But don't worry; there is plenty of salt and vinegar aboard to improve the taste!

At Ease

After eating, you might want to relax on the berth deck, write letters to your family, or swap stories with your shipmates.

While the 150 sailors shared one large living space, the captain and officers had private rooms. The captain even had his own kitchen and dining room, and the only bathtub on board. Go ahead, while no one's watching, look around the captain's cabin.

Then climb into your canvas hammock and get some sleep. In less than four hours, you'll be back on duty again.



Sailors were given canvas and rope and had to make their own hammocks.

Seasick

If the burgoo that you ate gives you a stomachache, don't worry. The *Constellation* has everything on board that the crew needs for a long voyage, even a doctor. The doctor's office, or sickbay, was stocked with medicine and medical and dental tools, like the pliers he used to pull out an aching tooth. Bet you're glad you just have an upset stomach!

◆ Maryland

SCIENCE

◆ Center

Discover for yourself how much fun science can be!

When Dinosaurs Ruled

Triassic Period

251 to 203 million years ago
dinosaurs appear.

Jurassic Period

203 to 146 million years ago
dinosaurs flourish.

Cretaceous Period

146 to 65 million years ago
at the end of which
dinosaurs disappear.

Humans first appeared about
200,000 years ago.



T-Rex: The meat-eating *Tyrannosaurus rex* roamed North America from 68 to 65 million years ago. How could another dinosaur escape a hungry T-rex? Run. Scientists think the T-rex was slow, reaching a top speed of about 20 miles per hour.



Giganotosaurus: *Giganotosaurus* lived about 100 million years ago in South America. The *Giganotosaurus* was a meat eater that walked upright on two legs. Scientists think that T-rex was smarter than *Giganotosaurus* because it had a larger brain. Now that's scary!

Highlights of just some of the things you'll see:

1. DINOSAURS: UNCOVER THE MYSTERY!

Although dinosaurs roamed the earth for nearly 200 million years, there were no humans around to tell their story so many mysteries about them remain unsolved. How did dinosaurs live? Why did they disappear? How many different kinds of dinosaurs were there? What was our planet like in the age of the dinosaurs? It has only been within the past 150 years that scientists, called paleontologists, have been studying dinosaurs and trying to solve the mysteries of these fascinating creatures.

Have you ever thought about becoming a paleontologist and studying dinosaurs? This exhibit will let you imagine what that would be like. Watch a video that shows paleontologists at work. Learn how to tell dinosaur fossils from ordinary rocks. Experience the excitement of discovery as you dig up dinosaur bones, measure them, and assemble the skeletons. Touch a 100-million-year-old dinosaur skull, bones, and teeth and see dinosaur eggs in their seven-foot-long nest. Examine dinosaur footprints, and predict the size of the creatures. You can even hear what a dinosaur might have sounded like!

And you'll see thirteen full-size dinosaur models, including a forty-foot-long

Tyrannosaurus rex,
a forty-five-foot-long
Giganotosaurus,
and the smaller
Astrodon johnstoni that
once lived
in Maryland.

DINO HUNTING

Dinosaurs roamed throughout North America, but the most likely places to find dinosaur fossils today are: Montana, Utah, Colorado, and the Connecticut Valley, where the first dinosaur footprints were found in 1902.

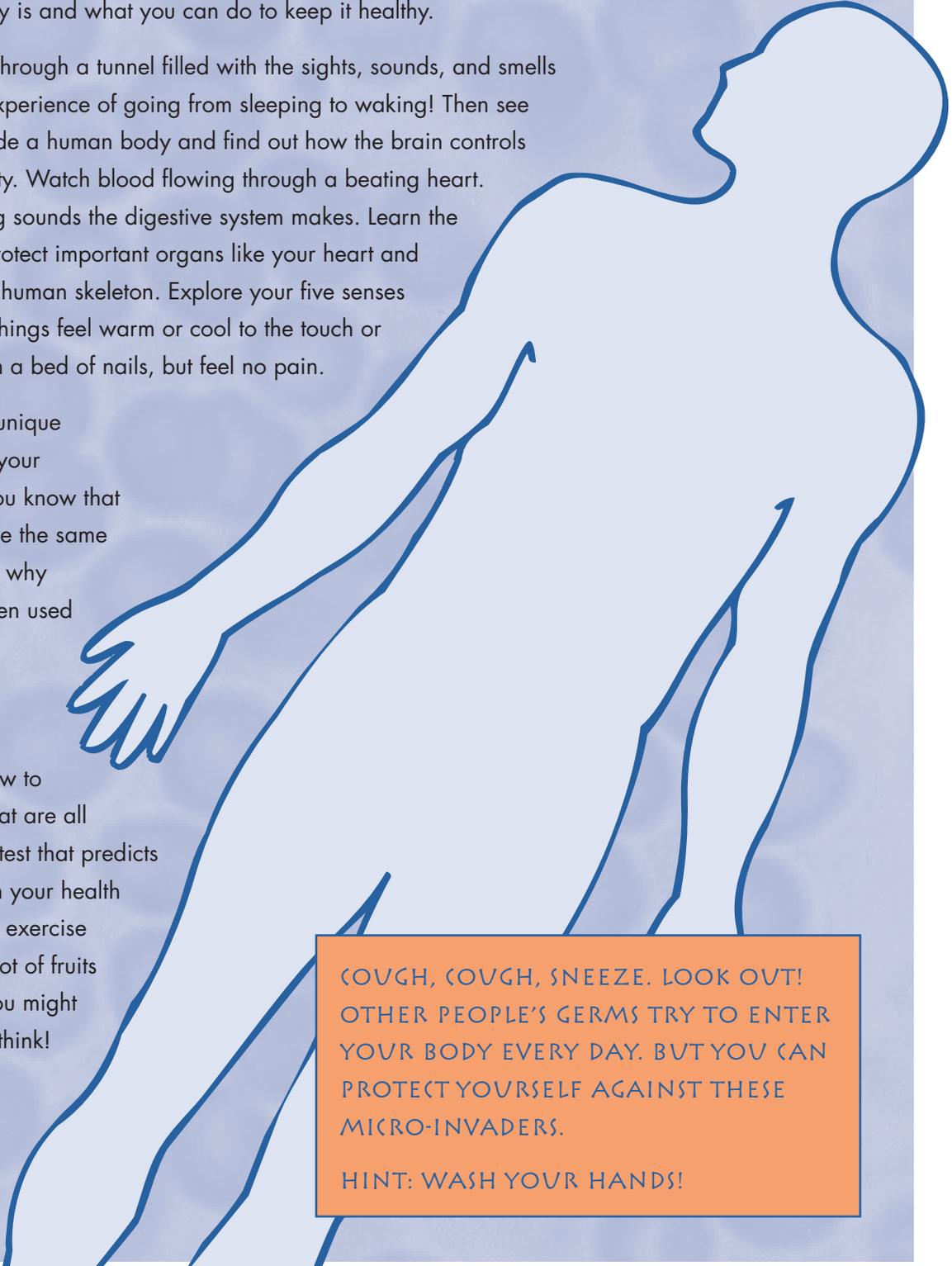
2. YOUR BODY: THE INSIDE STORY

Dinosaurs may have been bigger (okay, a **lot** bigger), but we humans are fascinating creatures too! Explore your own body and find out how everybody's body works. By taking a journey through a typical day and learning how different organs and bodily systems work, you'll find out how amazing your body is and what you can do to keep it healthy.

Begin by walking through a tunnel filled with the sights, sounds, and smells that recreate the experience of going from sleeping to waking! Then see a movie taken inside a human body and find out how the brain controls every bodily activity. Watch blood flowing through a beating heart. Hear the disgusting sounds the digestive system makes. Learn the way your bones protect important organs like your heart and lungs. Assemble a human skeleton. Explore your five senses as you learn why things feel warm or cool to the touch or why you can lie on a bed of nails, but feel no pain.

Discover just how unique you are by taking your fingerprints. Did you know that no two people have the same fingerprints? That's why fingerprints are often used to catch criminals.

Learn how to keep your body in top shape. Find out how to avoid the germs that are all around us. Take a test that predicts your age based on your health habits. If you don't exercise regularly or eat a lot of fruits and vegetables, you might be older than you think!



COUGH, COUGH, SNEEZE. LOOK OUT! OTHER PEOPLE'S GERMS TRY TO ENTER YOUR BODY EVERY DAY. BUT YOU CAN PROTECT YOURSELF AGAINST THESE MICRO-INVADERS.

HINT: WASH YOUR HANDS!



Predators of the Sea

PART 1: Anatomy of a Shark

Sharks have roamed the oceans for more than 400 million years. They are so efficient and skillful at surviving that they have actually changed very little over time. Sharks are categorized as fish. They have very sleek bodies and five different fins, making them excellent swimmers. They breathe through gills, or slits, just behind their eyes and mouth. Sharks also have extremely sharp teeth to rip and tear through prey. If any of these teeth break, they are replaced by new teeth. Some sharks may use as many as 20,000 teeth in a lifetime.

PART 2: What's for Lunch?

Many humans would agree that sharks are scary. However, humans are not a shark's natural prey. Sharks are carnivores, or meat eaters. They are often referred to as the garbage cans of the sea. This is because they will eat just about anything, even other sharks. Sharks have an extremely good sense of smell. In fact, two-thirds of a shark's brain are dedicated to this sense. This helps the shark locate prey with precise expertise.

PART 3: The Most Feared Predator

Arguably, one of the most feared sharks is the great white. These amazing beasts can grow up to twenty feet long and weigh as much as 4,500 pounds. They can also swim at amazing speeds—up to forty-three miles per hour. This very aggressive shark rips its prey into bite-sized pieces and then swallows it nearly whole. The great white is feared greatly by many humans because of its size and because it has been known to attack humans. Most great white shark attacks occur in the waters off the coast of the United States. However, these attacks are extremely rare.

PART 4: Sharks in Danger

Ironically, although sharks are feared, they are in more danger from humans than humans are from them. Shark has become a popular food fish. Now overfishing has put many shark species in grave danger. Unfortunately, sharks grow very slowly and do not reproduce quickly, and their pups often die within the first year. As a result, many sharks are now endangered or threatened. Since sharks play an important part in balancing the ocean ecosystem, the oceans may be permanently damaged if sharks begin to disappear.

Comprehension Questions

Preview *The California Gold Rush*, and answer question 1. Then read *The California Gold Rush*, and answer the remaining questions.

The California Gold Rush

Part 1: GOLD IS DISCOVERED

TOP PHOTO:
Forty-niners like this man came from everywhere to seek gold in California.

John Sutter was a businessman in California. In 1848, one of his workers, James Marshall, discovered a few bits of shiny metal. The metal was tested and proven to be gold. Although John Sutter hoped to keep the amazing discovery a secret, rumors soon spread that gold had been found in California. One man's discovery ignited a frenzy across the entire nation.

BOTTOM PHOTO:
The landscape of California changed dramatically. In the pursuit of gold, dams were built to expose riverbeds.

Part 2: THE FORTY-NINERS

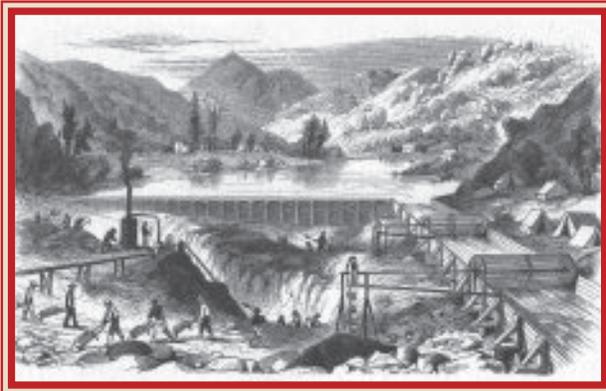
The gold frenzy, or rush, was soon dubbed Gold Fever. Everyone wanted his or her own chance at wealth, so people flocked to California. Those people were named the forty-niners, after the year of the gold rush—1849. Most of these travelers were men who left their families behind in hopes of finding wealth and sending for their families later. The life and travels of a forty-niner



were not easy. Traveling was quite difficult. Most people traveled west on foot and used covered wagons on undeveloped trails. Many forty-niners died of disease or accidents while traveling. Few people really struck it rich. The reality of the gold rush was very different than what people expected. Many miners covered the same riverbeds and most did not discover enough gold to even buy food.

Part 3: THE AFTEREFFECTS

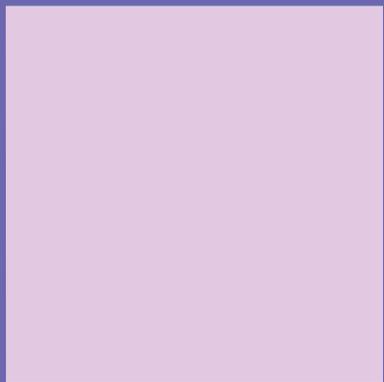
The gold rush forever changed California. Before the rush, approximately 2,000 nonnatives lived in California. By the end of the gold rush, more than 300,000 people called California home. Stores, restaurants, and other businesses were built to cater to the miners. Since industries grew and became prosperous, many people decided to stay, regardless



of whether they found gold or not. The landscape of California changed dramatically as well. Dams were built to expose riverbeds. Many rivers and streams dried up. Animals were forced to leave as their habitats changed. As more and more people streamed in, the old California quickly disappeared. By 1859, when the gold rush ended, California had become a new place altogether.

Great Women of the Modern Era

By Adrian Mathenia





Introduction

Throughout much of history, women have not been afforded the same opportunities as men to reach their full potential. Societies have often restricted women's rights and have kept them from pursuing an education and careers. Many societies have perceived women as subordinate to men and incapable of handling challenging tasks. Usually women were allowed to fulfill the traditional roles of mother and homemaker, but nothing more. When women thought outside of these standards, they were often treated with derision or ignored. But as the world marched into the modern era, some women refused to comply with the common sentiment that they were unable to do great things. These women went on to break new ground, set new records, and inspire new generations.



Did you know?

Hedy chose the last name Lamarr in honor of her favorite silent film actress, Barbara La Marr.

munitions –

Materials of war such as weapons and ammunition.

Women Inventors

Hedy Lamarr

You or someone you know probably owns a cell phone, but you probably don't know anyone who owns a secret message encoder. Did you know they are both based on the same technology? Even more surprising, this technology wasn't invented in a lab by scientists in white coats. It came from the mind of a beautiful actress named Hedy Lamarr.

Hedy was born Hedwig Eva Maria Kiesler in Vienna, Austria in 1913. She grew up fascinated by movies and the silent film actresses of her time. She knew from a young age that she wanted to be an actress and appeared in a German film at the age of seventeen. As her love for acting grew, so did her fame in Europe and around the world. In 1932, she signed a contract with a major film producer in Hollywood and moved to the United States, where she changed her name to Hedy Lamarr.

Fame and fortune came fast for Hedy after she moved to Hollywood and starred in several major films. But one important side of Hedy couldn't be seen on the silver screen; she was incredibly intelligent. During her time in Austria, she married a Viennese munitions dealer who became a Nazi sympathizer. She fled from her husband and his ties with the Nazi party, but not before she learned valuable information about military technology that she used to aid the United States during World War II.

Enemies caused problems for the United States when they blocked signals sent to radio-guided torpedoes, causing them to lose control and miss their targets. Together with composer George Antheil, Hedy co-invented frequency hopping, a system that used a player-piano roll to change between eighty-eight possible frequencies. Hopping between so many frequencies made it essentially impossible for enemies to sabotage the torpedo since they could only interfere with one frequency at a time. The method was based around eighty-eight frequencies because the rolls they were using were designed for the eighty-eight keys of a piano. The method was also used to protect encoded secret messages sent to soldiers in war zones. Frequency hopping proved to be extremely successful and was a vital part of the war effort.



Look, no hands!

Piano rolls are cylinders that contain paper with eighty-eight sections to represent the eighty-eight keys on a piano. As the cylinder turns inside a player piano, holes punched out in particular sections cause the piano to play the corresponding notes.

As computer technology advanced, microchips took on the job of changing frequencies and replaced the punch-cards that were styled after piano rolls. This opened the door for broader applications, and soon telecommunications based on frequency hopping became a part of everyday life. Today the most common worldwide application is for cell phones. Millions of people around the world talk, text, and browse the Web on mobile devices and all thanks to the brilliant invention of a beautiful Hollywood star.



Stephanie Kwolek

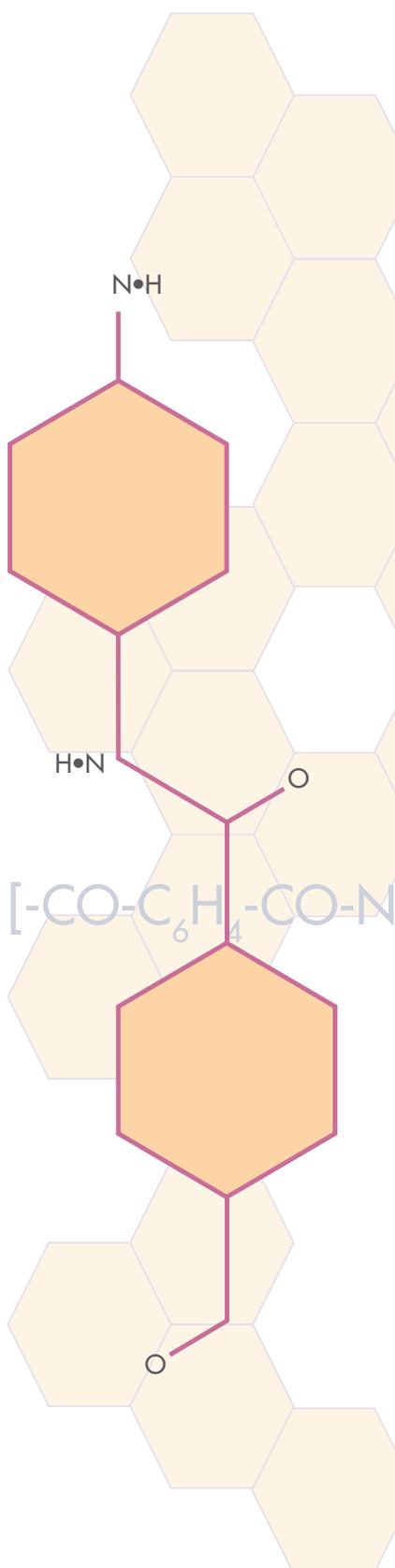
Every day, men and women in law enforcement and the military protect themselves with a special material called Kevlar. The synthetic fibers that make Kevlar are incredibly strong and stiff, allowing them to handle large amounts of stress and impact such as gunshots and shrapnel, which would tear other natural fibers. These fibers were invented by a female chemist named Stephanie Kwolek.

Stephanie was born in 1923 and grew up in New Kensington, Pennsylvania. As a child, she gained an interest in the areas of study that would later lead to her fame as a scientist from her parents. Her father, an amateur naturalist, often led her through the woods collecting samples of plants and seeds, and she wrote detailed descriptions of them in her notebook. From her mother she inherited an interest in fabrics and sewing. As a child she wanted to be a fashion designer, but was afraid that she would be too much of a perfectionist for the fashion industry. By high school, she decided to pursue medicine, where her desire for

perfection could be realized through science. She followed this interest all the way through the women's college of Carnegie Mellon University, where she graduated with a bachelor's degree in chemistry with the intention of attending medical school later.

Paving the way

Marie Curie was one of the first female scientists to become famous around the world. Her work in chemistry and physics and her Nobel Prizes paved the way for later women in science.



All of Stephanie's later success hung on her interview for a chemistry job at DuPont, a leading science and research company. The interview took place in 1946, a time when society still limited the respect and voice that women had in the workplace, but Stephanie was confident in her skills and value as a worker. Her interviewer was William H. Charch, the research director of DuPont and a man highly respected in the scientific field for his discoveries. Charch's position and authority could intimidate any potential employee, man or woman. At the end of the interview, Charch told Stephanie that he would contact her within two weeks with their decision. With polite assertiveness, Stephanie requested Charch make a decision sooner since she needed to reply to another job offer. Charch was so impressed with her boldness and confidence that he offered her the position before she could leave the office.

Stephanie spent many years doing important research for DuPont and forgot about going to medical school. After being with the company for twenty years, she was asked to search for new stronger fibers. She discovered a curious blend of polymers, or chemical compounds, that puzzled her. The blend appeared as a milky white solution of polymers that looked like a failed attempt. But Stephanie would later say that when something didn't work, she had a tendency to keep meddling with it until she discovered its potential. Eventually she realized that the polymers in the solution were abnormally strong and flexible, and that they

could be spun into fibers. The resulting fibers were stronger than any that were made before and led to the development of Kevlar.

Stephanie Kwolek's brilliance, boldness, and determination paid off in a big way: a product that has saved thousands of lives. Police officers, soldiers, and even important political figures wear bulletproof vests made of Kevlar. It's also used to make durable sporting equipment such as kayaks. She is an inspiration to both men and women to approach challenges with humble confidence and to see the potential even in our supposed failures. As she made clear, you never know when you could be on the edge of a lifesaving breakthrough.

Durable fashion:

Motorcycle owners can purchase shirts and jeans made entirely out of Kevlar to protect them in case an accident causes them to slide on pavement.

Women Leaders

Elizabeth Blackwell



In our modern world, education is encouraged for all who are willing to learn, but there was a time when education was usually reserved for wealthy men. In nineteenth-century England, even some practicing physicians did not have a medical degree. Elizabeth Blackwell wanted to be a doctor, but she wanted to do it the right way, so she decided to pursue an education.

Elizabeth Blackwell was born in England in 1821. She moved to the United States with her family when she was eleven years old. When she reached college age, she applied to medical schools across the northeastern United States, but was turned away because it was unheard of for a woman to earn degrees in medicine. When her application reached Geneva Medical School in New York, the school accepted under the belief that it was sent by a rival school as a prank. She arrived at the school and studied hard despite the hostile environment. Students and even professors treated

Blackwell poorly during her education, but her determination carried her through, and in 1849 she became the first woman to receive an M.D. degree in the United States.

Her challenges were not over once she received her degree. Elizabeth moved to New York to practice medicine in the United States,

Free at last:

Elizabeth's father moved his family to the United States so he could fight to abolish slavery. This social cause was a precursor to the civil rights movement that began more than 100 years later.

but the medical community wasn't ready for a practicing female doctor. She was shunned by the medical community and barred from working in the hospitals. Yet again, Elizabeth held firm to her beliefs and opened her own infirmary. The obstacles she continued to meet showed her that there was a need for wider education for women in the medical field, so she opened a medical school for women. The school held the highest educational standards of any medical school in the United States.

She went on to open another school back at her home in England. The success of both schools and their students slowly opened the

door for female physicians in Europe and the United States to be treated with more equality in their career fields. Despite constant challenges by her peers, superiors, and communities, Elizabeth Blackwell's unfailing dedication and hard work opened up more job opportunities for women than ever before. She led the way for a global change in the world of medicine.



Women's rights:

Elizabeth Blackwell's family supported equal rights and opportunities for men and women in many areas. Her brother married famous suffragette leader Lucy Stone and fought for women's voting rights.



Rosa Parks

Most successful women throughout history were forced to overcome at least some degree of prejudice based on gender. In the segregated south of the 1930s–1960s, one woman wanted to be uninhibited by any and all social barriers, including not just her gender, but also the color of her skin. Rosa Parks helped start one of the most important movements in the history of the United States just by taking her seat.

Rosa Parks grew up in Alabama during a time when most people viewed African Americans as subordinate to other Americans. Segregation kept black students from attending the same schools as white students. Transportation, sporting events, restaurants—in almost every facet of life, blacks and whites were separated by law. Rosa was baffled by this injustice and worked hard to see an end to segregation. She became a social activist long before the climax of the civil rights movement. In 1931, Rosa marched in protest of the arrest and trial of nine innocent black teenagers who were wrongly accused of a crime. Around this same time, she began working as a secretary for the National Association for the Advancement of Colored People (NAACP).

All of Rosa's years of experience in social activism combined did not have the same impact as the singular event that changed her life on December 1, 1955. She boarded a segregated bus in Montgomery County, Alabama and took her seat in the first row of rear seats designated for

black passengers. The front rows assigned for white passengers soon filled up, leaving one white man standing without a seat. It was a state law that white and black passengers could not sit in the same row, so the bus driver asked Rosa and three other black passengers to move back a row to give the man a place to sit. Rosa was the only one to refuse, and soon authorities arrived and arrested her. When she was found guilty at trial, a movement began in Montgomery County that added fuel to the growing civil rights movement. Local sympathizers began a boycott of the county bus system that lasted 381 days.

Rosa Parks had a drive to see equality in her community and to have black people recognized as citizens with the same rights as everyone else. She dealt with the social consequences of standing up for her beliefs, which included losing her job. But with every challenge she faced, her desire

for change kept her going. Rosa's impact on the entire civil rights movement cannot be overstated. She was, and remains today, a model of standing up for justice even when facing unthinkable odds.



Launching a legacy:

The Montgomery County bus boycott launched the social activism career of its spokesperson, Martin Luther King, Jr.

Women Achievers

Amelia Earhart

In the early 1900s, aviation was brand new, and the world was just getting used to the idea of people flying. Traveling any significant distance in an airplane was a risky new undertaking and was widely thought best to be left in the hands of men. But in 1920, pilot Frank Hawks gave seventeen-year-old Amelia Earhart a ride in his small red plane, and she decided that she would dedicate her life to flying.

Even at an early age, Amelia knew in her heart that women could achieve more than society liked to believe. To remind herself of this conviction, she kept newspaper clippings of stories highlighting women who were successful in predominately male career fields in a scrapbook. Her lifelong desire was to show other women that they should not be inhibited by any preconceived notions concerning their abilities. She made this stance clear when she was quoted saying, “Women must try to do things as men have tried. When they fail, their failure must be but a challenge to others.”

Amelia set out to break records and raise the bar for female pilots and male pilots. She purchased a second-hand plane in 1921, which she called Canary because it was bright yellow, and broke the women’s altitude record by reaching an incredible height of 14,000 feet in it. Her ambition and undeniable skill as a pilot brought her national



Looking like a hero:

Fans often called Amelia “Lady Lindy” because her facial features and slim body resembled famous aviator Charles Lindbergh.

attention. Seven years later, she received a call from a publicist in New York who was organizing a project to see the first woman fly across the Atlantic Ocean. When they asked if she was interested, she responded quickly and emphatically that she would love to be the first. The story became a headline worldwide because three women had died within that year attempting the same feat. Amelia became the first woman to cross the Atlantic when she and her team of two other pilots landed successfully in Bury Port, Wales on June 17, 1928. When she returned to New York, a parade was held in her honor; the nation had fallen in love with this daring young woman.

As impressive as her flight across the Atlantic was, she wanted to reach even further. Together with her husband, she organized an attempt to

be the first woman to fly solo across the Atlantic and only the second person to achieve it since Charles Lindbergh. She took off on May 20, 1932, five years to the day after Lindbergh's historic flight. Ice buildup and poor flying conditions forced Amelia to land in a farmer's

field in Ireland rather than the airstrip she was aiming for in Paris, France. The news media took her story of incredible bravery in the face of life-threatening challenges worldwide, and an excited America welcomed her with the first Distinguished Flying Cross award presented to a woman. She went on to break more records over

“Women must try to do things as men have tried. When they fail, their failure must be but a challenge to others.”



Amelia's wings:

Amelia and her partner attempted their flight around the world in a Lockheed Electra, much like this one.

Completing the journey:

It took nearly thirty years for another woman to successfully fly solo around the world. In 1964, Jerrie Mock completed her trip in twenty-nine days, eleven hours, and fifty-nine minutes.

the next few years held by men and women alike until 1937 when she made the bold decision to be the first woman to fly around the world.

Amelia completed the first two-thirds of her trip with few complications. With just 7,000 miles left, her journey and life as a record-breaking piloting came to a tragic end. The U.S. Navy lost radio contact with Amelia and her navigator as they searched for a tiny island in the Pacific that was their next checkpoint. The government spent millions of dollars and searched 250,000 square miles of sea, but they never found Amelia or her plane. America and the rest of the world mourned her loss, but the impact she made carried on for generations. She proved that women had the ability and the knowhow to achieve any daunting or challenging task that men could achieve. Her memory continues to inspire women and men alike who want to tackle any task they once thought impossible.



Sally Ride

Much like aviation at its birth, space flight, when it was young, was a male-dominated scientific field including male-dominated careers. Not that women weren't allowed to be part of NASA, but none had succeeded in becoming an astronaut for the United States. That changed when a young tennis prodigy made time in her busy sports schedule to pursue her passion for science.

Sally Ride was born in Los Angeles, California in 1951, and grew up participating in sports such as tennis, volleyball, and softball. After high school she went to Stanford University, where she led the college tennis team and devoted herself to her studies, earning degrees in English and physics. In 1977, NASA advertised that they were looking for mission specialists for their space shuttle program. This was exactly the type of work Sally was looking for, so she applied for the position. The next year she earned her doctorate in physics; shortly thereafter she was selected by NASA as a candidate

to be an astronaut. Within a year she began a training program that moved her one step closer to taking flight in space.

First, Sally worked on the ground at NASA supporting other missions and at mission control. It was her turn to fly as the mission specialist in 1983. She flew

her monumental six-day mission aboard the space shuttle *Challenger* and became the first American woman in space. She was a vital assistant to the ship's pilot during takeoff and landing, the most

Ahead of the competition:

NASA received 8,000 applicants for the advertised position, 1,000 of which were women. Sally's education helped her stand out in such a large pool of competitors.

Sally's ride:

The space shuttle *Challenger* was an incredible technological achievement that flew nine successful missions. In 1986, it tragically exploded during takeoff. Sally Ride was involved in the investigation of the incident.

important parts of the mission. Sally was also in charge of testing a robotic arm meant to deploy and retrieve satellites, which she did successfully.

Today Sally operates the Sally Ride Science organization, which works to inform children about the endless possibilities of science and the wonderfully fun adventures it can create. While she admits that being an astronaut was never a lifelong goal, it's clear that what she accomplished opened doors for women across the country. They saw a woman reach new heights and achieve new goals. Just like Amelia Earhart before her, Sally Ride was unafraid to face a daunting challenge and reach for the previously unreachable.

Conclusion: The Continued Impact

Looking back on the daring passion and humble confidence of the great women of the modern era, everyone, male or female, can be inspired by their struggles and their victories. These women not only made a lasting impact on the social perception of women, but in the hearts of anyone who has to face incredible odds to reach their goals. Like Amelia Earhart flying into dangerous weather, we learn to be brave when bravery is not expected. Like Rosa Parks facing the criticism of her community, we learn to be strong when being strong isn't easy. Like Stephanie Kwolek's life-changing boldness, we learn to choose confidence over intimidation. We can apply the values for which they fought in many aspects of our lives. The great women of the modern era changed both their circumstances and their world.

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