



SECTION  
3

# The War in the Pacific

## MAIN IDEA

In order to defeat Japan and end the war in the Pacific, the United States unleashed a terrible new weapon, the atomic bomb.

## WHY IT MATTERS NOW

Countries of the modern world struggle to find ways to prevent the use of nuclear weapons.

## Terms & Names

- Douglas MacArthur
- Chester Nimitz
- Battle of Midway
- kamikaze
- J. Robert Oppenheimer
- Hiroshima
- Nagasaki
- Nuremberg trials

## One American's Story

The writer William Manchester left college after Pearl Harbor to join the marines. Manchester says that, as a child, his “horror of violence had been so deep-seated that I had been unable to trade punches with other boys.” On a Pacific island, he would have to confront that horror the first time he killed a man in face-to-face combat. Manchester’s target was a Japanese sniper firing on Manchester’s buddies from a fisherman’s shack.

### A PERSONAL VOICE WILLIAM MANCHESTER

“My mouth was dry, my legs quaking, and my eyes out of focus. Then my vision cleared. I . . . kicked the door with my right foot, and leapt inside. . . .

I . . . saw him as a blur to my right. . . . My first shot missed him, embedding itself in the straw wall, but the second caught him dead-on . . . . A wave of blood gushed from the wound. . . . He dipped a hand in it and listlessly smeared his cheek red. . . . Almost immediately a fly landed on his left eyeball. . . . A feeling of disgust and self-hatred clotted darkly in my throat, gagging me.”

—from *Goodbye Darkness: A Memoir of the Pacific War*

The Pacific War was a savage conflict fought with raw courage. Few who took part in that fearsome struggle would return home unchanged.



▲ American soldiers on Leyte in the Philippine Islands in late 1944.

## The Allies Stem the Japanese Tide

While the Allies agreed that the defeat of the Nazis was their first priority, the United States did not wait until V-E Day to move against Japan. Fortunately, the Japanese attack on Pearl Harbor in 1941 had missed the Pacific Fleet’s submarines. Even more importantly, the attack had missed the fleet’s aircraft carriers, which were out at sea at the time.

### Background

Allied forces held out against 200,000 invading Japanese troops for four months on the Bataan Peninsula. Hunger, disease, and bombardments killed 14,000 Allied troops and wounded 48,000.

**JAPANESE ADVANCES** In the first six months after Pearl Harbor, the Japanese conquered an empire that dwarfed Hitler's Third Reich. On the Asian mainland, Japanese troops overran Hong Kong, French Indochina, Malaya, Burma, Thailand, and much of China. They also swept south and east across the Pacific, conquering the Dutch East Indies, Guam, Wake Island, the Solomon Islands, and countless other outposts in the ocean, including two islands in the Aleutian chain, which were part of Alaska.

In the Philippines, 80,000 American and Filipino troops battled the Japanese for control. At the time of the Japanese invasion in December 1941, General **Douglas MacArthur** was in command of Allied forces on the islands. When American and Filipino forces found themselves with their backs to the wall on Bataan, President Roosevelt ordered MacArthur to leave. On March 11, 1942, MacArthur left the Philippines with his wife, his son, and his staff. As he left, he pledged to the many thousands of men who did not make it out, "I shall return."

**DOOLITTLE'S RAID** In the spring of 1942, the Allies began to turn the tide against the Japanese. The push began on April 18 with a daring raid on Tokyo and other Japanese cities. Lieutenant Colonel James Doolittle led 16 bombers in the attack. The next day, Americans awoke to headlines that read "Tokyo Bombed! Doolittle Do'od It." Pulling off a Pearl Harbor-style air raid over Japan lifted America's sunken spirits. At the same time, it dampened spirits in Japan.

**BATTLE OF THE CORAL SEA** The main Allied forces in the Pacific were Americans and Australians. In May 1942 they succeeded in stopping the Japanese drive toward Australia in the five-day Battle of the Coral Sea. During this battle, the fighting was done by airplanes that took off from enormous aircraft carriers. Not a single shot was fired by surface ships. For the first time since Pearl Harbor, a Japanese invasion had been stopped and turned back.

**THE BATTLE OF MIDWAY** Japan's next thrust was toward Midway, a strategic island which lies northwest of Hawaii. Here again the Allies succeeded in stopping the Japanese. Americans had broken the Japanese code and knew that Midway was to be their next target.

Admiral **Chester Nimitz**, the commander of American naval forces in the Pacific, moved to defend the island. On June 3, 1942, his scout planes found the Japanese fleet. The Americans sent torpedo planes and dive bombers to the attack. The Japanese were caught with their planes still on the decks of their carriers. The results were devastating. By the end of the Battle of Midway, the Japanese had lost four aircraft carriers, a cruiser, and 250 planes. In the words of a Japanese official, at Midway the Americans had "avenged Pearl Harbor." **A**

The **Battle of Midway** was a turning point in the Pacific War. Soon the Allies began "island hopping." Island by island they won territory back from the Japanese. With each island, Allied forces moved closer to Japan.

## HISTORICAL SPOTLIGHT

### NAVAJO CODE TALKERS

On each of the Pacific islands that American troops stormed in World War II, the Japanese heard a "strange language gurgling" in their radio headsets. The code seemed to have Asian overtones, but it baffled everyone who heard it. In fact, the language was Navajo, which was spoken only in the American Southwest and traditionally had no alphabet or other written symbols. Its "hiddenness" made it a perfect candidate for a code language.

Though the Navajo had no words for combat terms, they developed terms such as *chicken hawk* for *divebomber* and *war chief* for *commanding general*. Throughout the Pacific campaign—from Midway to Iwo Jima—the code talkers were considered indispensable to the war effort. They finally received national recognition in 1969.



▲ Four hundred Navajo were recruited into the Marine Corps as code talkers. Their primary duty was transmitting telephone and radio messages.

### MAIN IDEA

#### Comparing

**A** In what ways were the American victory at Midway and the Japanese triumph at Pearl Harbor alike?

# War in the Pacific and in Europe

INTERACTIVE

## PACIFIC

1941

Apr Jun

Dec 1942

Apr May Jun Aug

Nov

1943 Feb

May

## EUROPE

Germany invades the Soviet Union.  
Germany invades Greece and Yugoslavia.

Germany and Italy declare war on the United States.

Hitler orders attack on Stalingrad.

Allies land in North Africa.

German troops surrender at Stalingrad.

Axis forces surrender in North Africa.

U.S. surrenders Bataan in the Philippines.  
Allies turn back Japanese fleet in Battle of the Coral Sea.  
Allies defeat Japan in Battle of Midway.  
U.S. Marines land on Guadalcanal.

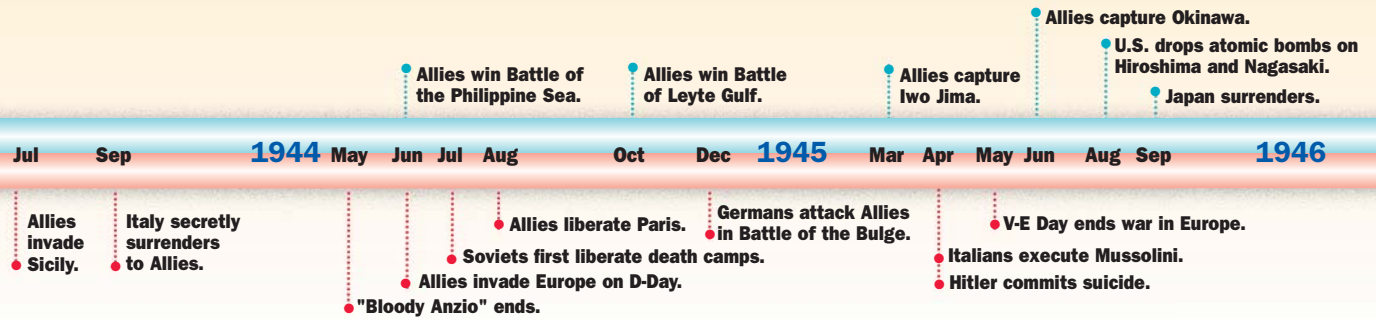
## World War II: The War in the Pacific, 1942–1945

INTERACTIVE



### GEOGRAPHY SKILLBUILDER

- 1. Movement** Which island served as a jumping-off point for several Pacific battles?
- 2. Human-Environment Interaction** How do you think the distances between the Pacific islands affected U.S. naval strategy?



## The Allies Go on the Offensive

The first Allied offensive began in August 1942 when 19,000 troops stormed Guadalcanal in the Solomon Islands. By the time the Japanese abandoned Guadalcanal six months later, they called it the Island of Death. To war correspondent Ralph Martin and the troops who fought there, it was simply “hell.”

### A PERSONAL VOICE RALPH G. MARTIN

“Hell was red furry spiders as big as your fist, giant lizards as long as your leg, leeches falling from trees to suck blood, armies of white ants with a bite of fire, scurrying scorpions inflaming any flesh they touched, enormous rats and bats everywhere, and rivers with waiting crocodiles. Hell was the sour, foul smell of the squishy jungle, humidity that rotted a body within hours, . . . stinking wet heat of dripping rain forests that sapped the strength of any man.”

—*The GI War*

Guadalcanal marked Japan’s first defeat on land, but not its last. The Americans continued leapfrogging across the Pacific toward Japan, and in October 1944, some 178,000 Allied troops and 738 ships converged on Leyte Island in the Philippines. General MacArthur, who had left the Philippines two years earlier, waded ashore and announced, “People of the Philippines: I have returned.”

**THE JAPANESE DEFENSE** The Japanese threw their entire fleet into the Battle of Leyte Gulf. They also tested a new tactic, the **kamikaze** (kā’mīkā’zē), or suicide-plane, attack in which Japanese pilots crashed their bomb-laden planes into Allied ships. (*Kamikaze* means “divine wind” and refers to a legendary typhoon that saved Japan in 1281 by destroying a Mongol invasion.) In the Philippines, 424 kamikaze pilots embarked on suicide missions, sinking 16 ships and damaging another 80.

Americans watched these terrifying attacks with “a strange mixture of respect and pity” according to Vice Admiral Charles Brown. “You have to admire the devotion to country demonstrated by those pilots,” recalled Seaman George Marse. “Yet, when they were shot down, rescued and brought aboard our ship, we were surprised to find the pilots looked like ordinary, scared young men, not the wide-eyed fanatical ‘devils’ we imagined them to be.”

Despite the damage done by the kamikazes, the Battle of Leyte Gulf was a disaster for Japan. In three days of battle, it lost 3 battleships, 4 aircraft carriers, 13 cruisers, and almost 500 planes. From then on, the Imperial Navy played only a minor role in the defense of Japan. **B**

Japanese kamikaze pilots pose—smiling—just before taking off on the mission that would be their last.



### MAIN IDEA

#### Drawing Conclusions

**B** Why was the Battle of Leyte Gulf so crucial to the Allies?

**RAISING THE FLAG ON IWO JIMA**

On February 19, 1945, the war in Europe was nearing its end, but in the Pacific one of the fiercest battles of World War II was about to erupt. On that day, 70,000 marines converged on the tiny, Japanese-controlled island of Iwo Jima. Four days later, they had captured Mount Suribachi, the island's highest point, but the battle for Iwo Jima would rage on for four more weeks.

Photographer Lou Lowery documented the men of "Easy Company" hoisting an American flag on a makeshift pole atop Mount Suribachi. But the original flag was soon taken down to be kept as a souvenir by the commanding officer.



▲ Six marines were sent to replace the flag with an even larger one. Joe Rosenthal, a wire-service photographer, saw the second flag raising, grabbed his camera, and clicked off a frame without even looking through his viewfinder. Rosenthal's photo appeared the next morning on the front pages of American newspapers. In the minds of Americans, it immediately replaced the gloomy, blurred images of Pearl Harbor going up in flames.

**SKILLBUILDER Interpreting Visual Sources**

1. One of the Mount Suribachi images became one of the most recognized, most reproduced images of World War II. Study the details and point of view in each photo. Explain why you think Rosenthal's image, rather than Lowery's, became important.
2. What human qualities or events do you think Rosenthal's photograph symbolizes?



SEE SKILLBUILDER HANDBOOK, PAGE R23.

**IWO JIMA** After retaking much of the Philippines and liberating the American prisoners of war there, the Allies turned to Iwo Jima, an island that writer William Manchester later described as “an ugly, smelly glob of cold lava squatting in a surly ocean.” Iwo Jima (which means “sulfur island” in Japanese) was critical to the United States as a base from which heavily loaded bombers might reach Japan. It was also perhaps the most heavily defended spot on earth, with 20,700 Japanese troops entrenched in tunnels and caves. More than 6,000 marines died taking this desolate island, the greatest number in any battle in the Pacific to that point. Only 200 Japanese survived. Just one obstacle now stood between the Allies and a final assault on Japan—the island of Okinawa.

**THE BATTLE FOR OKINAWA** In April 1945, U.S. Marines invaded Okinawa. The Japanese unleashed more than 1,900 kamikaze attacks on the Allies during the Okinawa campaign, sinking 30 ships, damaging more than 300 more, and killing almost 5,000 seamen.

Once ashore, the Allies faced even fiercer opposition than on Iwo Jima. By the time the fighting ended on June 21, 1945, more than 7,600 Americans had died. But the Japanese paid an even ghastlier price—110,000 lives—in defending Okinawa. This total included two generals who chose ritual suicide over the shame of surrender. A witness to this ceremony described their end: “A simultaneous shout and a flash of the sword . . . and both generals had nobly accomplished their last duty to their Emperor.”

The Battle for Okinawa was a chilling foretaste of what the Allies imagined the invasion of Japan’s home islands would be. Churchill predicted the cost would be a million American lives and half that number of British lives. 🍷

**MAIN IDEA**

**Drawing Conclusions**

🍷 Why was Okinawa a significant island in the war in the Pacific?

**KEY PLAYER**



**DOUGLAS MACARTHUR**  
1880–1964

Douglas MacArthur was too arrogant and prickly to be considered a “regular guy” by his troops. But he was arguably the most brilliant Allied strategist of World War II. For every American soldier killed in his campaigns, the Japanese lost ten.

He was considered a real hero of the war, both by the military and by the prisoners on the Philippines, whom he freed. “MacArthur took more territory with less loss of life,” observed journalist John Gunther, “than any military commander since Darius the Great [king of Persia, 522–486 B.C.]”

## The Atomic Bomb Ends the War

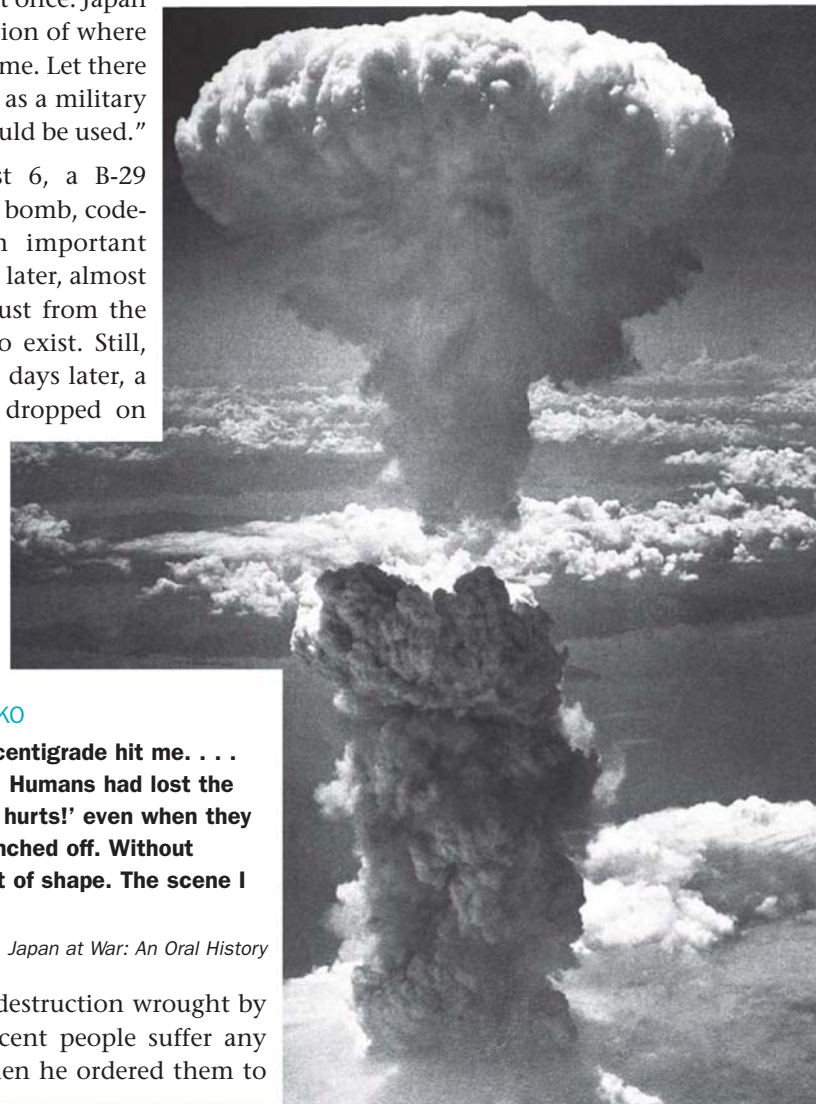
The taking of Iwo Jima and Okinawa opened the way for an invasion of Japan. However, Allied leaders knew that such an invasion would become a desperate struggle. Japan still had a huge army that would defend every inch of homeland. President Truman saw only one way to avoid an invasion of Japan. He decided to use a powerful new weapon that had been developed by scientists working on the Manhattan Project—the atomic bomb.

**THE MANHATTAN PROJECT** Led by General Leslie Groves with research directed by American scientist **J. Robert Oppenheimer**, the development of the atomic bomb was not only the most ambitious scientific enterprise in history, it was also the best-kept secret of the war. At its peak, more than 600,000 Americans were involved in the project, although few knew its purpose. Even Truman did not learn about it until he became president.

The first test of the new bomb took place on the morning of July 16, 1945, in an empty expanse of desert near Alamogordo, New Mexico. A blinding flash, which was visible 180 miles away, was followed by a deafening roar as a tremendous shock wave rolled across the trembling desert. Otto Frisch, a scientist on the project, described the huge mushroom cloud that rose over the desert as “a red-hot elephant standing balanced on its trunk.” The bomb worked!

President Truman now faced a difficult decision. Should the Allies use the bomb to bring an end to the war? Truman did not hesitate. On July 25, 1945, he ordered the military to make final plans for dropping two atomic bombs on Japanese targets. A day later, the United States warned Japan that it faced “prompt and utter destruction” unless it surrendered at once. Japan refused. Truman later wrote, “The final decision of where and when to use the atomic bomb was up to me. Let there be no mistake about it. I regarded the bomb as a military weapon and never had any doubt that it should be used.”

**HIROSHIMA AND NAGASAKI** On August 6, a B-29 bomber named *Enola Gay* released an atomic bomb, code-named Little Boy, over **Hiroshima**, an important Japanese military center. Forty-three seconds later, almost every building in the city collapsed into dust from the force of the blast. Hiroshima had ceased to exist. Still, Japan’s leaders hesitated to surrender. Three days later, a second bomb, code-named Fat Man, was dropped on **Nagasaki**, leveling half the city. By the end of the year, an estimated 200,000 people had died as a result of injuries and radiation poisoning caused by the atomic blasts. Yamaoka Michiko was 15 years old and living near the center of Hiroshima when the first bomb hit.



#### **A PERSONAL VOICE** YAMAOKA MICHIKO

“They say temperatures of 7,000 degrees centigrade hit me. . . . Nobody there looked like human beings. . . . Humans had lost the ability to speak. People couldn’t scream, ‘It hurts!’ even when they were on fire. . . . People with their legs wrenched off. Without heads. Or with faces burned and swollen out of shape. The scene I saw was a living hell.”

—quoted in *Japan at War: An Oral History*

Emperor Hirohito was horrified by the destruction wrought by the bomb. “I cannot bear to see my innocent people suffer any longer,” he told Japan’s leaders tearfully. Then he ordered them to draw up papers “to end the war.” On September 2, formal surrender ceremonies took place on the U.S. battleship *Missouri* in Tokyo Bay. “Today the guns are silent,” said General MacArthur in a speech marking this historic moment. “The skies no longer rain death—the seas bear only commerce—men everywhere walk upright in the sunlight. The entire world is quietly at peace.”

**Hiroshima in ruins following the atomic bomb blast on August 6, 1945**



## POINT

**“The only way to end the war against Japan was to bomb the Japanese mainland.”**

Many advisors to President Truman, including Secretary of War Henry Stimson, had this point of view. They felt the bomb would end the war and save American lives. Stimson said, “The face of war is the face of death.”

Some scientists working on the bomb agreed—even more so as the casualty figures from Iwo Jima and Okinawa sank in. “Are we to go on shedding American blood when we have available a means to a steady victory?” they petitioned. “No! If we can save even a handful of American lives, then let us use this weapon—now!”

Two other concerns pushed Americans to use the bomb. Some people feared that if the bomb were not dropped, the project might be viewed as a gigantic waste of money.

The second consideration involved the Soviet Union. Tension and distrust were already developing between the Western Allies and the Soviets. Some American officials believed that a successful use of the atomic bomb would give the United States a powerful advantage over the Soviets in shaping the postwar world.

## COUNTERPOINT

**“Japan’s staggering losses were enough to force Japan’s surrender.”**


Many of the scientists who had worked on the bomb, as well as military leaders and civilian policymakers, had doubts about using it. Dr. Leo Szilard, a Hungarian-born physicist who had helped President Roosevelt launch the project and who had a major role in developing the bomb, was a key figure opposing its use.

A petition drawn up by Szilard and signed by 70 other scientists argued that it would be immoral to drop an atomic bomb on Japan without fair warning. Many supported staging a demonstration of the bomb for Japanese leaders, perhaps by exploding one on a deserted island near Japan, to convince the Japanese to surrender.

Supreme Allied Commander General Dwight D. Eisenhower agreed. He maintained that “dropping the bomb was completely unnecessary” to save American lives and that Japan was already defeated. Ike told

Secretary of War Henry Stimson, “I was against it [the bomb] on two counts. First the Japanese were ready to surrender and it wasn’t necessary to hit them with that awful thing. Second, I hated to see our country be the first to use such a weapon.”

### THINKING CRITICALLY


- 1. CONNECT TO HISTORY** **Summarizing** What were the main arguments for and against dropping the atomic bomb on Japan?  
 **SEE SKILLBUILDER HANDBOOK, PAGE R4.**
- 2. CONNECT TO TODAY** **Evaluating Decisions** Do you think the United States was justified in using the bomb against the Japanese? In a paragraph, explain why or why not.

## Rebuilding Begins

With Japan’s surrender, the Allies turned to the challenge of rebuilding war-torn nations. Even before the last guns fell silent, they began thinking about principles that would govern the postwar world.


**THE YALTA CONFERENCE** In February 1945, as the Allies pushed toward victory in Europe, an ailing Roosevelt had met with Churchill and Stalin at the Black Sea resort city of Yalta in the Soviet Union. Stalin graciously welcomed the president and the prime minister, and the Big Three, as they were called, toasted the defeat of Germany that now seemed certain.

For eight grueling days, the three leaders discussed the fate of Germany and the postwar world. Stalin, his country devastated by German forces, favored a harsh approach. He wanted to keep Germany divided into occupation zones—areas controlled by Allied military forces—so that Germany would never again threaten the Soviet Union.

When Churchill strongly disagreed, Roosevelt acted as a mediator. He was prepared to make concessions to Stalin for two reasons. First, he hoped that the Soviet Union would stand by its commitments to join the war against Japan that was still waging in the Pacific. (The first test of the atom bomb was still five months away.) Second, Roosevelt wanted Stalin’s support for a new world peace-keeping organization, to be named the United Nations. 

### MAIN IDEA

#### Analyzing Motives

 Why was Roosevelt anxious to make concessions to Stalin concerning the fate of postwar Germany?



The historic meeting at Yalta produced a series of compromises. To pacify Stalin, Roosevelt convinced Churchill to agree to a temporary division of Germany into four zones, one each for the Americans, the British, the Soviets, and the French. Churchill and Roosevelt assumed that, in time, all the zones would be brought together in a reunited Germany. For his part, Stalin promised “free and unfettered elections” in Poland and other Soviet-occupied Eastern European countries.

Stalin also agreed to join in the war against Japan. That struggle was expected to continue for another year or more. In addition, he agreed to participate in an international conference to take place in April in San Francisco. There, Roosevelt’s dream of a United Nations (UN) would become a reality. **E**

**THE NUREMBERG WAR TRIALS** Besides geographic division, Germany had another price to pay for its part in the war. The discovery of Hitler’s death camps led the Allies to put 24 surviving Nazi leaders on trial for crimes against humanity, crimes against the peace, and war crimes. The trials were held in the southern German town of Nuremberg.

At the **Nuremberg trials**, the defendants included Hitler’s most trusted party officials, government ministers, military leaders, and powerful industrialists. As the trial began, U.S. Supreme Court Justice Robert Jackson explained the significance of the event.

**A PERSONAL VOICE** ROBERT JACKSON

“The wrongs which we seek to condemn and punish have been so calculated, so malignant and so devastating, that civilization cannot tolerate their being ignored because it cannot survive their being repeated. . . . It is hard now to perceive in these miserable men . . . the power by which as Nazi leaders they once dominated much of the world and terrified most of it. Merely as individuals, their fate is of little consequence to the world. What makes this inquest significant is that these prisoners represent sinister influences that will lurk in the world long after their bodies have returned to dust. They are living symbols of racial hatreds, of terrorism and violence, and of the arrogance and cruelty of power. . . . Civilization can afford no compromise with the social forces which would gain renewed strength if we deal ambiguously or indecisively with the men in whom those forces now precariously survive.”

—quoted in opening address to the Nuremberg War Crimes Trial

**MAIN IDEA**

**Summarizing**

**E** What decisions did Roosevelt, Churchill, and Stalin make at the Yalta Conference?

**War Criminals on Trial, 1945–1949**



Each defendant at the Nuremberg trials was accused of one or more of the following crimes:

- **Crimes Against the Peace**—planning and waging an aggressive war
- **War Crimes**—acts against the customs of warfare, such as the killing of hostages and prisoners, the plundering of private property, and the destruction of towns and cities
- **Crimes Against Humanity**—the murder, extermination, deportation, or enslavement of civilians

In the end, 12 of the 24 defendants were sentenced to death, and most of the remaining were sent to prison. In later trials of lesser leaders, nearly 200 more Nazis were found guilty of war crimes. Still, many people have argued that the trials did not go far enough in seeking out and punishing war criminals. Many Nazis who took part in the Holocaust did indeed go free.

Yet no matter how imperfect the trials might have been, they did establish an important principle—the idea that individuals are responsible for their own actions, even in times of war. Nazi executioners could not escape punishment by claiming that they were merely “following orders.” The principle of individual responsibility was now firmly entrenched in international law.

*“I was only following orders.”*

**DEFENDANTS AT THE NUREMBERG TRIALS**

**THE OCCUPATION OF JAPAN** Japan was occupied by U.S. forces under the command of General Douglas MacArthur. In the early years of the occupation, more than 1,100 Japanese, from former Prime Minister Hideki Tojo to lowly prison guards, were arrested and put on trial. Seven, including Tojo, were sentenced to death. In the Philippines, in China, and in other Asian battlegrounds, additional Japanese officials were tried for atrocities against civilians or prisoners of war.

During the seven-year American occupation, MacArthur reshaped Japan’s economy by introducing free-market practices that led to a remarkable economic recovery. MacArthur also worked to transform Japan’s government. He called for a new constitution that would provide for woman suffrage and guarantee basic freedoms. In the United States, Americans followed these changes with interest. The *New York Times* reported that “General MacArthur . . . has swept away an autocratic regime by a warrior god and installed in its place a democratic government presided over by a very human emperor and based on the will of the people as expressed in free elections.” The Japanese apparently agreed. To this day, their constitution is known as the MacArthur Constitution.

**SECTION 3**

**ASSESSMENT**

**1. TERMS & NAMES** For each term or name, write a sentence explaining its significance.

- Douglas MacArthur
- Battle of Midway
- J. Robert Oppenheimer
- Nagasaki
- Chester Nimitz
- kamikaze
- Hiroshima
- Nuremberg trials

**MAIN IDEA**

**2. TAKING NOTES**

Using a chart such as the one below, describe the significance of key military actions in the Pacific during World War II.

Military Action	Significance
1.	
2.	
3.	
4.	
5.	

Which military action was a turning point for the Allies?

**CRITICAL THINKING**

**3. DEVELOPING HISTORICAL PERSPECTIVE**

At the trials, many Nazis defended themselves by saying they were only following orders. What does this rationale tell you about the German military? Why was it important to negate this justification?

**4. DRAWING CONCLUSIONS**

Explain how the United States was able to defeat the Japanese in the Pacific.

**5. EVALUATING DECISIONS**

Is it legitimate to hold people accountable for crimes committed during wartime? Why or why not?

**Think About:**

- the laws that govern society
- the likelihood of conducting a fair trial
- the behavior of soldiers, politicians, and civilians during war

TRACING

THEMES

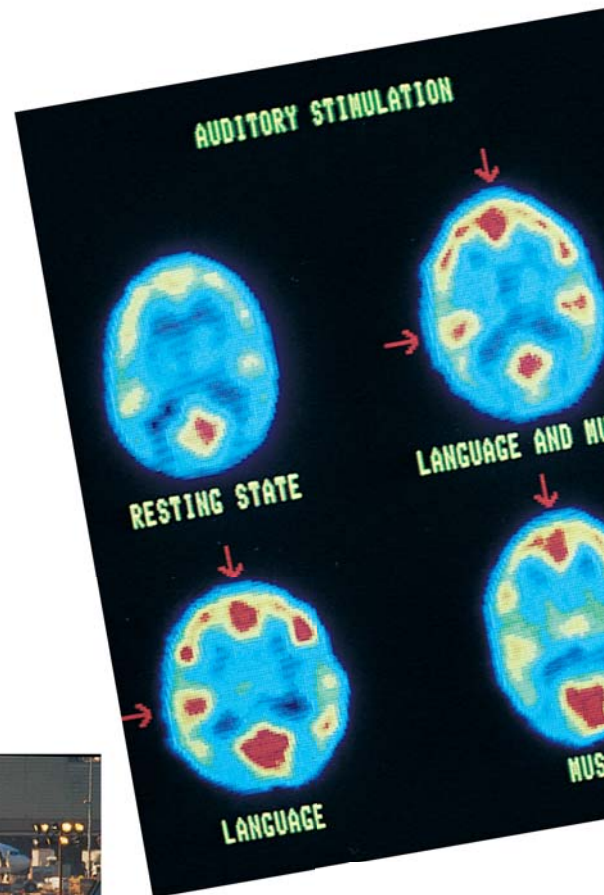
# Science and Technology

Radar, guided missiles, nuclear submarines, reconnaissance satellites, atomic bombs—the inventions of the 20th century seem intended mainly for war, with the usual dreaded results. But these technological developments have also had far-reaching applications in peacetime. Because the innovations were originally intended for the battlefield, they were developed quickly and with a narrow purpose. However, their applications during peacetime have led to life-enhancing benefits that will extend far into the 21st century.

## 1914–1918 WORLD WAR I

### FIGHTER PLANES TO COMMUTER FLIGHTS ▼

Airplanes were first used to gather military information but were soon put to work as fighters and bombers. The *Sopwith Camel* (shown at right), was one of the most successful British fighter planes, bringing down almost 1,300 enemy aircraft during World War I. The development of flight technology eventually led to sophisticated supersonic aircraft. Today, non-military aircraft are primarily used for travel and cargo transport. Jumbo jets carry hundreds of passengers with each takeoff.



# 1939–1945 WORLD WAR II

## ▼ ATOM BOMBS TO BRAIN SCANS

Faced with alarming rumors of work on a German atomic bomb, America mobilized some of the finest scientific minds in the world to create its own atomic bomb. The energy released by its nuclear reaction was enough to kill hundreds of thousands of people, as evidenced by the destruction of Hiroshima and Nagasaki. But the resulting ability to harness the atom's energy also led to new technologies for diagnosing and treating human diseases. Techniques such as positron emission tomography (PET) now reveal the inner workings of the human brain itself.



Applications of World War II Technology		
TECHNOLOGY	MILITARY USE	PEACETIME USE
Semiconductors	Navigation	Transistors, radios, electronics
Computers	Code breaking	Software programs, video games
Freeze-dried food	Soldiers' rations	TV dinners, space-shuttle rations
Synthetic materials	Parachutes, weapons parts, tires	Telephones, automobile fenders, pacemakers
Radar	Tracking and surveillance	Weather tracking, air traffic control, archaeological digs

# 1945–1991 THE COLD WAR

## ▼ SATELLITES TO CELLULAR PHONES

The Soviet Union launched *Sputnik*, the first successful artificial space satellite, in 1957. As the United States raced to catch up with the Soviets in space, both countries eventually produced satellites that have improved life for people around the world. Satellites not only track weather patterns and control air traffic but also link the continents in a vast communications network.



### THINKING CRITICALLY

#### CONNECT TO HISTORY

- Hypothesizing** Do you think that peacetime technologies would have been developed without the stimulus provided by war? Support your answer.



SEE SKILLBUILDER HANDBOOK, PAGE R13.

#### CONNECT TO TODAY

- Evaluating Technological Impact** What invention or technological breakthrough do you think has had the greatest impact on American society? Write a paragraph to explain your answer. Stage a debate with your classmates in which you defend your choice.



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