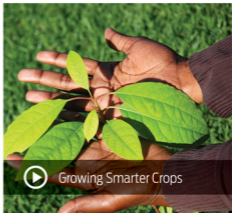
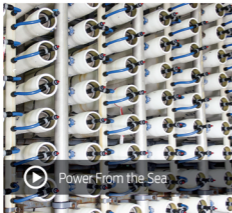


STEM IN CURRENT EVENTS

- ▶ Agriculture ▶ Energy ▶ Entertainment Industry ▼ **Environment & Sustainability**
- ▶ Forensics ▶ Information Technology ▶ Medicine and Health Care
- ▶ Space Science ▶ Transportation ▶ War and the Military

ENVIRONMENT & SUSTAINABILITY

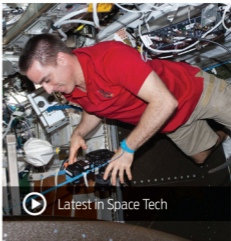
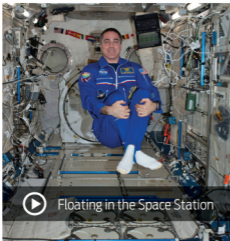


STEM IN CURRENT EVENTS

- ▶ Agriculture ▶ Energy ▶ Entertainment Industry ▶ Environment & Sustainability
- ▶ Forensics ▶ Information Technology ▶ Medicine and Health Care
- ▼ **Space Science** ▶ Transportation ▶ War and the Military



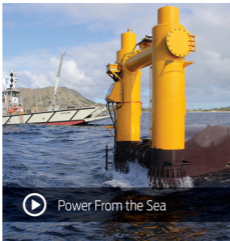
SPACE SCIENCE



STEM IN CURRENT EVENTS

- ▶ Agriculture ▼ **Energy** ▶ Entertainment Industry ▶ Environment & Sustainability
- ▶ Forensics ▶ Information Technology ▶ Medicine and Health Care
- ▶ Space Science ▶ Transportation ▶ War and the Military

ENERGY



SCIENCE AND Energy

1

Words to Understand



consumption the act of using a product, such as electricity

electrodes a material, often metal, that carries electrical current into or out of a nonmetallic substance

inorganic describing materials that do not contain the element carbon

nuclear referring to the nucleus, or center, of an atom, or the energy that can be produced by splitting or joining together atoms

organic describing materials or life forms that contain the element carbon; all living things on Earth are organic

reactor a device used to carry out a controlled process that creates nuclear energy

Making energy involves a wide range of scientific disciplines. Many energy researchers have a background in one or more of the branches of physics or chemistry, for example. Biologists also play a role in looking for new fuel sources. Meanwhile, scientists who study the human mind and behaviors seek ways to understand why people do what they do when it comes to how they use—or waste—energy. The scientists often work closely with people who take basic scientific ideas and use them to create new technologies or energy systems. In this chapter, we'll

This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption.



look at recent scientific theories and projects related to energy production and consumption.

Creating the Sun's Energy on Earth

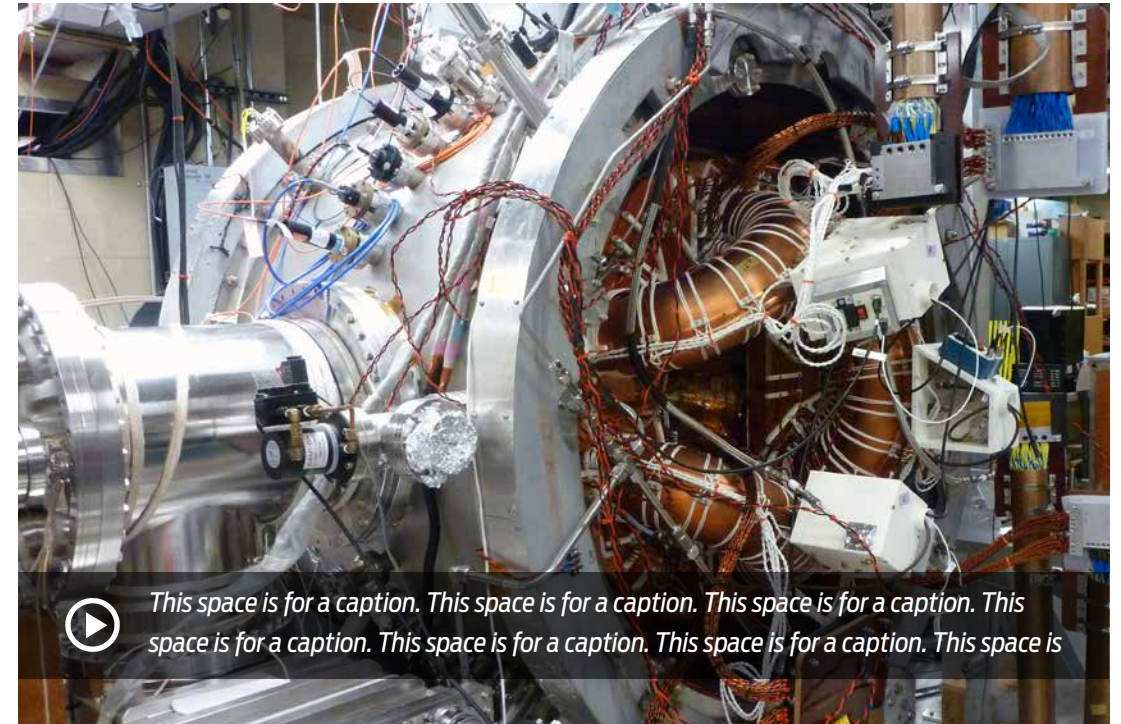
When we look up at the sun, we see a simple yellow orb. But in the core of the sun and other stars like it, a powerful process is constantly producing tremendous amounts of heat, with temperatures reaching 27 million degrees Fahrenheit. The source of that energy is a process physicists call nuclear fusion.



The Energy of Nuclear Weapons

The process of splitting atoms to release energy is called nuclear fission. It was used to create the powerful bombs that the United States dropped on Japan in 1945, just before the end of World War II. Later, even more powerful nuclear weapons called hydrogen bombs used the fission process to create an immense amount of heat to trigger the fusion process. In the weapon, however, the process is uncontrolled. Making fusion energy that can create electricity or perhaps power a vessel requires a great deal of control over the temperatures created. Only a tiny amount of fuel is heated to high temperatures at any one time, and not enough to cause an explosion.

Inside the sun, atoms of hydrogen collide into each other and fuse, or join, together. As a result, the hydrogen atoms produce helium while also releasing energy. In one second, the hydrogen inside the sun produces 600 million tons of helium, along with huge amounts of energy. During the 1930s and 1940s, scientists began to understand nuclear fusion and to look for ways to create fusion energy on Earth. The focus soon became to use the energy as a source of power for electricity. Fusion would be “clean,” not producing the harmful gases that come from burning coal, and it would produce electricity more consistently than sun or wind power can.



This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption. This space is for a caption.

Creating an affordable fusion reactor, however, has proven difficult. A typical coal-fired electric power plant is much cheaper to build than a fusion reactor that can generate the same amount of electricity. But in 2014, scientists at the University of Washington announced that they had a design for a fusion reactor that was more affordable. Leading the team was physicist Thomas Jarboe, an expert in plasma, the fourth state of matter (along with solids, liquids, and gases). Plasma is created when energy is added to a substance, releasing electrically charged particles called electrons from atoms.

Working from the design of an existing fusion reactor, Jarboe and other scientists created what they call a dynamak. Fusion reac-

Black
Achievement
IN SCIENCE

Chemistry



By JANE GARDNER

Black
Achievement
IN SCIENCE

Space



Astrophysicist
Neil DeGrasse Tyson

By MARI RICH

DRUG ADDICTION AND RECOVERY



Adderall, Benzos, and Other Prescription Drugs

Author Name Here

SERIES CONSULTANT

SARA BECKER, PHD

Brown University School of Public Health/Warren Alpert Medical School

DRUG ADDICTION AND RECOVERY



Oxy, Heroin, and Other Opiates

Author Name Here

SERIES CONSULTANT

SARA BECKER, PHD

Brown University School of Public Health/Warren Alpert Medical School



DOCTOR SHOPPING

By definition, the drugs discussed in this volume should only be taken under a doctor's orders. The reasoning behind this is clear: in the interest of public safety, laws try to ensure that dangerous drugs are only used when they are absolutely needed. But this assumes that a doctor can know precisely what a patient does and does not need. In the real world, it doesn't always work this way.

There is no test that can prove whether or not a patient is in pain. There's also no way for a doctor to know how many other doctors a patient has visited. So it is something of a guessing game as to whether or not the patient is being honest about his need for medication.

People seeking prescription drugs for nonmedical uses have been known to lie to doctors about their symptoms. They have also been known to visit more than one doctor, to obtain prescriptions from each. This practice is called "doctor shopping."

Different states have different laws regarding doctor shopping, but in most places, it is considered a criminal act to lie to a healthcare provider in order to obtain prescription medicine. Another problem with doctor shopping is that the practice can make healthcare providers deeply suspicious of anyone who comes in looking for pain medicine. Sometimes people with legitimate medical needs have trouble getting treated, because doctors have had so many run-ins with doctor-shoppers. I love this sidebar—and wonder if maybe it should end with an implication or actionable advice? Or maybe something like... Many states are cracking down on doctor shopping by creating prescription medicine registries and enacting harsh penalties for individuals caught in the act.



At times it can be difficult for doctors to tell whether patients who ask for pain medications truly need them or not.

There is one tiny element of truth here. Prescription drugs are safer than illegal drugs in the sense that they are more pure. As long as they were made by a reputable company, they were not "cut" with potentially toxic additives, as so-called "street" or "hard" drugs often are. Also there is usually (not always) far less physical danger involved in acquiring prescription drugs.

But in every other sense, there is no real difference between hard drugs and the ones that come from the pharmacy. The popular painkiller called OxyContin has the same chemistry as heroin. Medications for attention deficit hyperactivity disorder (ADHD) are members of the same drug family as both cocaine and meth. And all the drugs covered in this volume can be highly dangerous if they are used in ways other than how they are



People who struggle with drug dependence don't always look the way they are portrayed in the media; you can't know who has a problem by looking at them.

prescribed. A perfect example is prescription sleep-aids with brand names like Ambien and Lunesta: used properly, they are generally safe and non-addictive. But used improperly—in too-large amounts or mixed with other drugs—they can be risky and even deadly.

If prescription drugs are misused, it doesn't matter whether they were purchased in a dark alley or a well-lit pharmacy. These medications contain powerful chemicals that can save lives or destroy them.

TEXT-DEPENDENT QUESTIONS



1. What's the difference between OTC and prescription drugs?
2. How does a drug like cocaine affect the brain and how is it different from how a drug like marijuana affects the brain?
3. How are prescription drugs like or unlike illegal drugs?

RESEARCH PROJECT



Download a copy of *Monitoring the Future*, a wide-ranging study that collects surveys of American teenagers on the subject of drug use. (It's available at http://www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2014.pdf). Look at Chapter 10, which is the one covering prescription drugs in general and ADHD medication in particular. Study the ADHD medication tables and make some observations about trends in stimulant use over time. Consider questions like these:

- When and where have the greatest increases in misuse taken place?
- What ages and ethnic groups have experienced the greatest rise in misuse of stimulants?
- Where do most teenagers get the stimulants to misuse?
- How do most teenagers perceive what their friends are doing?
- What do these trends suggest to you about the future?

Families Today



FAMILIES AND MENTAL & PHYSICAL CHALLENGES

H.W. Poole

Families Today



FOSTER FAMILIES

H.W. Poole



Bill de Blasio with his family—wife Chirlane McCray, daughter Chiara, and son Dante—at a civil rights march in New York City in 2012.

Chapter One

WHAT IS A MULTIRACIAL FAMILY

Words to Understand



census: a survey of a particular population.

demographers: people who study information about people and communities.

ethnicity: to come.

transracial: involving more than one race; across racial lines.

When Bill De Blasio was sworn in as mayor of New York City on January 1, 2015, the moment was significant for several reasons. For one thing, the election of De Blasio, a Democrat, was a political change for the city. But for many people around the country, De Blasio's victory represented something more personal. De Blasio is white, his wife Charlaine McCray is black, and together they have two biracial children, Chiara and Dante. This made De Blasio the first white politician with a black spouse to be elected to a major office. A multiracial family would now occupy the mayor's residence of America's largest city.

MAKING A MULTIRACIAL FAMILY

How are multiracial families made? There are two main ways. The first is when two people of different racial backgrounds fall in love. They are usually referred to as an interracial couple, and any children they have together would be considered bi- or multiracial. Or someone might marry, have children, divorce, and

Hispanic Origin



When filling out a form—for example on a standardized test—you might notice that there is one question about your race, and a separate one about “Hispanic origin.” Some people find this confusing, because they think of someone who is “Latino” as being a different race from a white, black, or Asian person. But in fact, the term *Hispanic* includes a huge range of individuals. People of Hispanic **ethnicity** can be of different races. Latinos can be white or black or neither or both! That's why the question about Hispanic origin is often listed separately.

This may be changing, however. The U.S. Census Bureau revised the ethnicity question for its 2010 count, and it looks likely to do so again for the next census in 2020.



According to the U.S. Department of Health and Human Services, 40 percent of adoptions are transracial.

then remarry. If the new spouse is of a different race, this situation also creates a bi- or multiracial family.

The other major way multiracial families are made is when a person or couple adopts a child who has a different racial background. So for example, two white parents might adopt a black or Asian child. This is called **transracial** adoption, because *trans* means “across,” and a transracial adoption takes place across racial lines. There are two types of adoption: domestic and international. A domestic adoption involves a child already in the United States, while an international one involves bringing a child from another country to the United States.

COUNTING MULTIRACIAL FAMILIES

In the 2010 **census**, more than 9 million Americans described themselves as being of more than one race. This group includes celebrities such as the



LIVING PROUD! GROWING UP LGBTQ

FINDING COMMUNITY

Foreword by
Lorem Dolores,
Human Rights
Campaign



Robert Rodi and Laura Ross

- The Importance of Community
- LGBT Pioneers
- Gay Liberation and AIDS
- Going Mainstream
- And More



LIVING PROUD! GROWING UP LGBTQ



BEING TRANSGENDER

**Foreword by
Lorem Dolores,
Human Rights
Campaign**



Robert Rodi and Laura Ross

- Feeling Wrong in Your Body
- Finding Your Place on the Gender Spectrum
- How Gender Relates to Sexual Preference
- The Truth About Surgery
- And More

girls who don't feel comfortable with these gender roles will have to struggle to be free of them, and that process can be difficult.

“**Ambiguity** has never been popular,” said Rachel Kahn, a student at Bryn Mawr College who researched binary gender systems in sports. “We like to categorize, and we don't like it when people do not fit neatly into our categories.”



Notice how similarly these male and female businesspeople are dressed. Appropriate clothing for businesswomen is very much the same as men's. Why should women be expected to dress and act like men in order to be respected in the business world?

Gender Roles: Still Evolving

To summarize what we've been discussing, *gender* is the collection of behaviors and traits that society typically assigns to each sex. Gender roles change when society changes how it regards men and women. For centuries, society considered women to be of less value than men, but as culture progressed, women achieved some basic equalities—such as the right to vote and run for office.

“If you look back in history books at the changes that have occurred in our society in the last hundred years, even, there have been so many ways that the roles of men and women have changed and expanded,” Barrett says. “It just stands to reason that things will change just as much, if not more, in the next hundred years. It's arrogant for us to think that the way we look at things now is the only way they will ever be. We are constantly moving forward, constantly progressing.”

Barrett herself was raised in a strict religion that adhered to very traditional gender roles. She always wore skirts, and her mother ingrained in her that “the purpose of life is to get married and have children.” She wasn't encouraged to go to college or leave her parents' house until she was married and ready to live with a husband.

“I don't think there's anything wrong with behaving that way, but only if that's what someone actually wants,” she says. “The problem is that it starts so early, when we're just little kids. We don't know enough to know who we really are yet. So all we can do is follow what people around us say and do, no matter whether or not it actually fits who we are. Would I have worn skirts every day if I had my own choice? I don't know. All I know is that I don't wear them now. Ever. And I know I'm still a woman.”

But what about someone born biologically female who abandons skirts in favor of pants and jackets because she really doesn't *identify* as a woman? What if she self-identifies as male?

Clearly this goes beyond gender nonconformity. This is known as being *transgender*.



TEXT-DEPENDENT QUESTIONS

- How does gender-nonconforming differ for transgender and cisgender people?
- Can you name some examples of gender characteristics we don't mention in the chapter?
- Why do you think people dislike gender ambiguity?
- Is gender conformity a religious issue?



Even before their babies are born, these mothers are shaping their gender identities by choosing pink clothes for girl babies and blue for boy babies.



CLOSE-UP: GENDER PROGRAMMING FROM BIRTH

For many parents today, the surprise of finding out if their child is male or female comes earlier than birth. Although initially used to detect problems prenatally, ultrasound technology is now routinely used to let the parents know whether they'll be having a boy or girl. Once parents, friends, and family members know the child's sex, clothing and toys are purchased, many with a specific gender bias. Even the decorating of the nursery—and certainly the selection of potential names—is influenced by the newborn's sex. These choices begin to set the stage for the development of gender identity in the child, even before that child comes into the world.

Within each culture, and even each family unit, preconceived ideas exist about what it means to be male or female. As soon as the baby is born, the individuals with whom he or she interacts will treat that child as they believe a person of that particular sex should be treated. Parents tend to cuddle and hold female children more than males. Assertive play is often encouraged in male children while females are encouraged to be more gentle. In most cases (though not all, of course), many aspects of the way a baby is treated from the earliest days are based on his or her physical sex.



RESEARCH PROJECTS

- Make a list of jobs and occupations once reserved for one sex that are now open to both (for instance, flight attendant and garage mechanic).
- Watch an old movie from several decades ago—preferably a romance or romantic comedy. Think about whether the story would be plausible today, with our more flexible gender roles.
- If you're religious, think about ways in which your religion has changed to allow for more diverse gender roles—or has resisted doing so. How do you feel about this?

CRIME AND DETECTION

CAPITAL PUNISHMENT

By Michael Kerrigan

- ✓ Death sentence
- ✓ Death row
- ✓ Execution
- ✓ Capital punishment around the world

CRIME AND DETECTION

DAILY PRISON LIFE

BY **Joanna Rabiger**

FOREWORD BY

Manny Gomez

Expert on Terrorism and Chairman of the National Law Enforcement Association

- ✓ Admission and classification
- ✓ Daily Routine
- ✓ Violence and gang warfare
- ✓ Getting out

THE U.S. PRISON SYSTEM IS THE LARGEST IN THE WORLD AND THE MOST COMPLEX. INSTEAD OF A SINGLE NATIONAL SYSTEM, IT IS MADE UP OF A NETWORK OF PRISONS RUN BY THE FEDERAL GOVERNMENT, STATE GOVERNMENTS, AND LOCAL GOVERNMENTS OR MUNICIPALITIES. THE U.S. ALSO HAS THE LARGEST PRISON POPULATION IN THE WORLD. MANY STATES ACROSS THE U.S., AS WELL AS THE FEDERAL GOVERNMENT, ARE CURRENTLY CONSTRUCTING NEW PRISONS. BECAUSE OF THIS CONTINUING EXPANSION OF THE PRISON SYSTEM, THE U.S. NOW HAS SOME OF THE MOST MODERN AND TECHNOLOGICALLY ADVANCED PRISONS IN THE WORLD.

The U.S. prison population first began to rise during the 1980s and early 1990s. During this period, North America experienced the effects of a profound economic **recession**, high unemployment, and soaring crime rates. Drugs and gangs were major causes of concern, and urgent action was necessary to combat the new **epidemic** of crack cocaine addiction and gang-related activity. The president at the time, Ronald Reagan, declared a “War on Drugs,” and the criminal justice system in the U.S. became accordingly “tough on crime.” As a result, more people were sent to prison for drug-related offenses. The state of California led this change in 1994 with a harsh law that stated, “Three strikes and you are out.”

This law meant that anyone convicted of three felonies might end up facing life in prison. A **felony** offense is categorized as a serious crime, while a **misdemeanor** is a less-serious crime. For example, occasional shoplifting is generally considered a misdemeanor, while car theft is more often classified as a felony. Many other states followed the example of California and tightened their drug violation laws so that they were empowered to remove persistent offenders and gang members from the streets of the larger American cities.

By the 2010s, a backlash was growing against these mandatory minimums. By 2010, the vast majority of defendants convicted of federal offenses were subject to mandatory minimum sentences. Most of these offenses had to do with drugs. In 2010, almost half of drug offenders were convicted of an offense carrying a ten-year mandatory minimum penalty. Critics argued that these policies put huge numbers of men behind bars and left judges no latitude to create sentences that might be less destructive to the convicts and their families. One unintended consequence of the policies was extreme overcrowding of prisons.

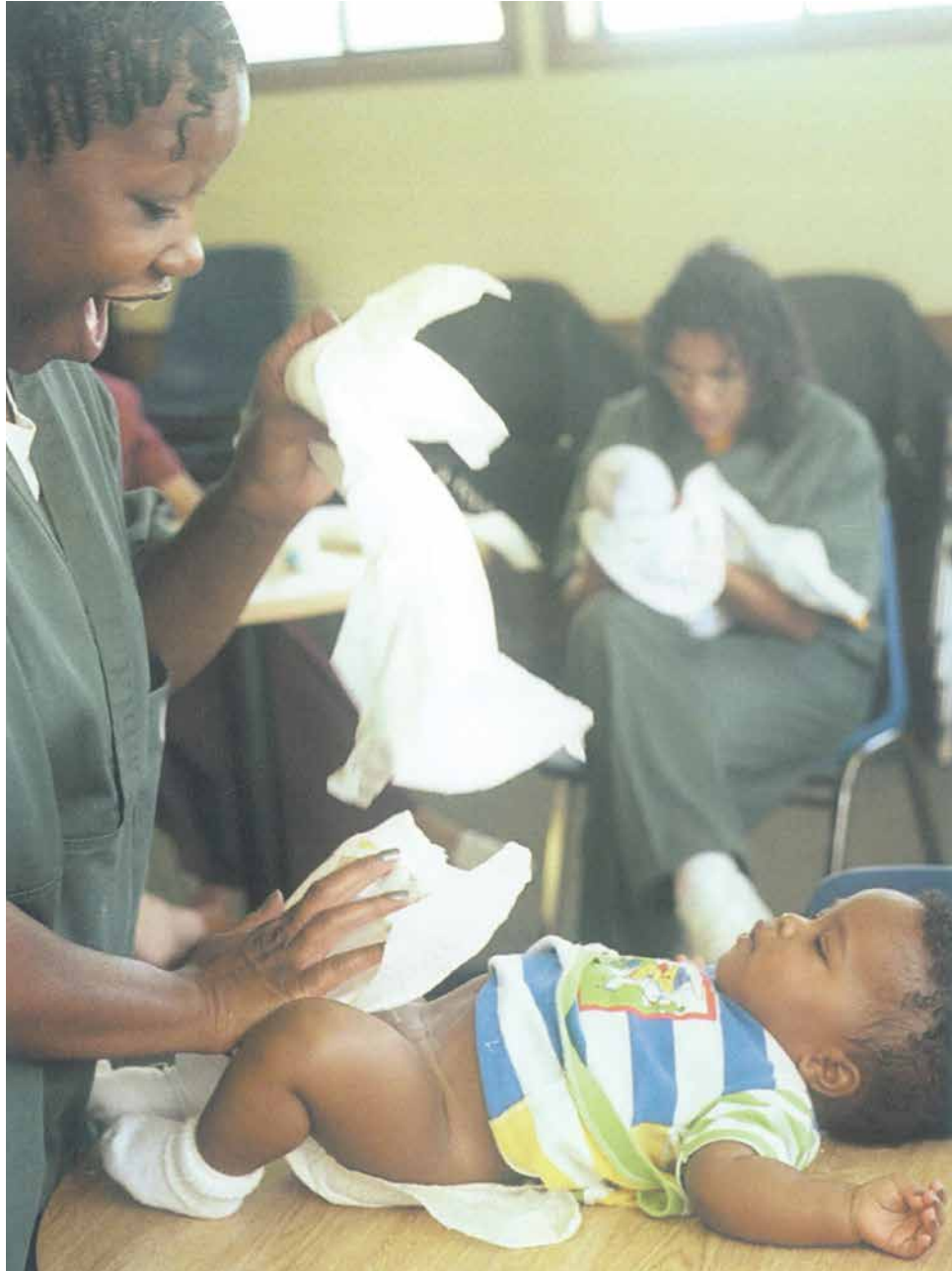
Prisons were becoming overcrowded in the 1990s, which led to a vigorous program of prison construction. By the teens, some states were trying to reverse



An inmate leads a discussion in a drug rehabilitation group meeting at a state prison in Montana. Most inmates have a history of drug and alcohol addiction problems. Effective drug and alcohol rehabilitation programs form an essential part of nearly all prisons' daily routines.

this trend. California, for example, reduced its crowding situation from 199 percent of capacity in 2007 (in other words, prisons were housing twice the number of inmates as they were intended to) to 143 percent of design capacity in 2013; still crowded, but improved. In 2012 voters decided to change the three strikes law so the third strike had to be a serious or violent felony, and to allow inmates serving third-strike sentences to reduce their sentences.

As the U.S. prison system has grown, so have state governments, and the federal government increasingly turned to security specialists. Private security companies, such as Corrections Corporation of America (CCA) and Wackenhut Corrections Corporation, now manage several major prisons in the U.S. The federal govern-



An incarcerated mother changes her son's diaper during visiting hours at a correctional facility in Colorado. Incarcerated mothers are not permitted to raise children within the prison walls and spend limited—and therefore precious—time with them.

Isolation units may be used periodically to separate violent psychiatric offenders and are sometimes used to prevent suicide attempts or self-inflicted bodily harm.

As the U.S. prison system continues to expand, many new programs have been introduced and technological advances made. Overcrowding is decreasing as new prisons are built, and as a result of innovations in prison architecture and technology, the U.S. prison system continues to modernize itself at a dynamic rate.

Research Projects



1. Research mandatory minimum sentences. What was the thinking behind implementing them? What result have they had?
2. The 1990s and 2000s saw a rapid increase in construction of new prisons, many by private companies. What caused this? Have the new prisons improved the crime situation? Have they been economically profitable for their owners?
3. Investigate the various levels of American prisons. What sort of convicts go to minimum security facilities? What are conditions like there? What about maximum security?

Text-dependent Questions



1. What are mandatory minimum sentences?
2. What is a boot camp?
3. What is a jail?
4. What percentage of the black male population was incarcerated in 2013? How did this compare with other races?

FOUNDATIONS OF DEMOCRACY



CITIZENSHIP AND IMMIGRATION

Series Advisor: Tom Lansford, PhD

Professor of Political Science, University of Southern Mississippi, Gulf Coast

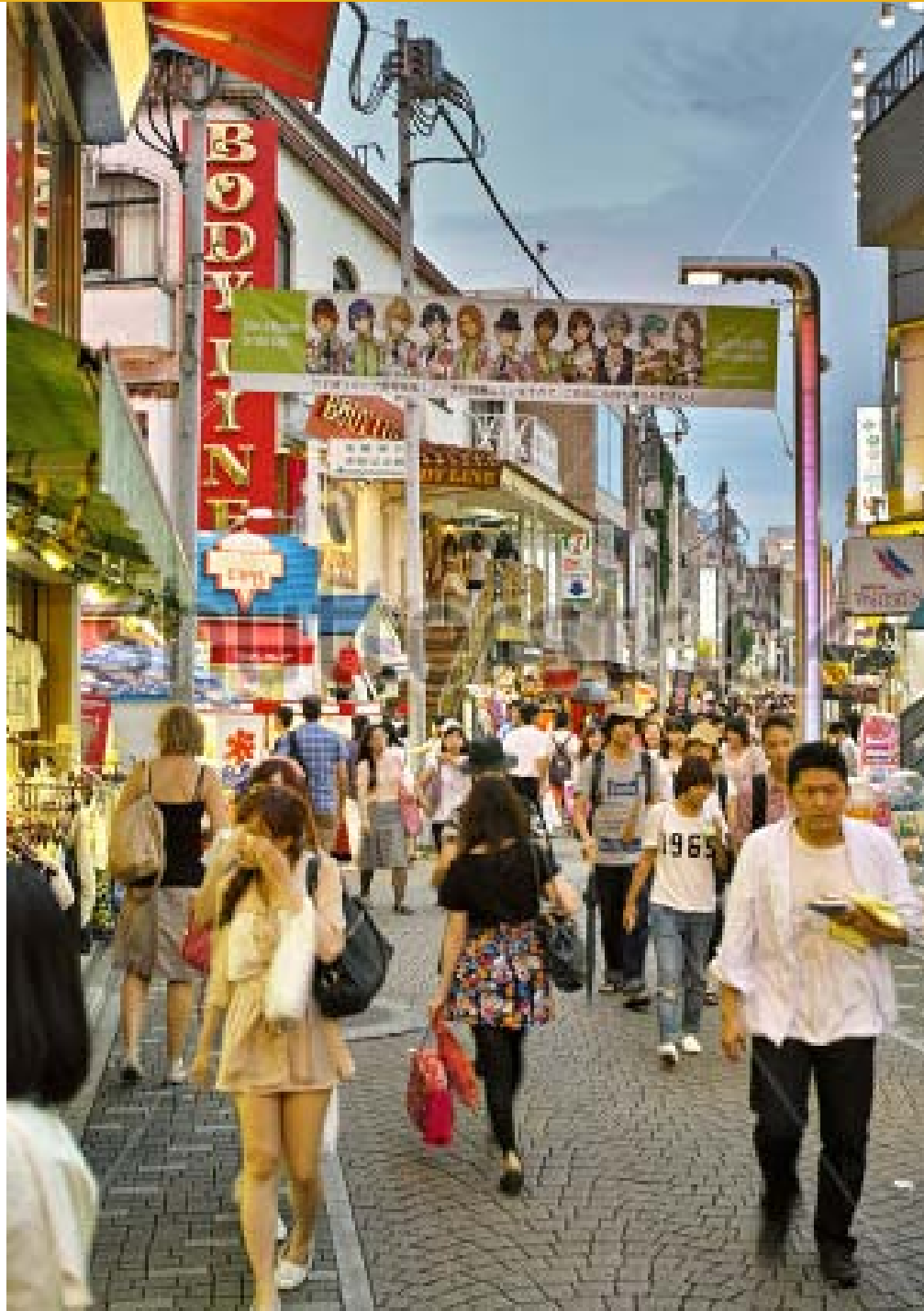
FOUNDATIONS OF DEMOCRACY



JUSTICE, POLICING, AND THE RULE OF LAW

Series Advisor: Tom Lansford, PhD

Professor of Political Science, University of Southern Mississippi, Gulf Coast



Shoppers on Takeshita Street, in Tokyo. Japan has one the highest rates of citizenship in the world.

expected to participate in governance through a variety of activities ranging from paying taxes to voting. Non-citizens may reside in a political community, but often do not have the same economic, political or social rights as the citizens of that area.

Within any country, the majority of the populace are citizens. For instance, 92.3 percent of the people who live in Germany are citizens, as are 87.1 percent of those in the United States, while Japan has one of the highest rates of citizenship in the world at 98.8 percent. The most common way to obtain citizenship is through birth. Countries around the globe usually confer citizenship on the children of their citizens. In some instances when one parent is from one country, while the other is from a different nation, their children may be granted **dual citizenship**. Some nations forbid dual citizenship and require children to renounce citizenship of other countries when they turn 18.

Citizenship may be restricted for residents who were not born in a particular country, but who live there. Countries may impose conditions before an individual can gain citizenship. Common conditions include residency for a specific period of time and no history of criminal activity.

RIGHTS AND RESPONSIBILITIES

Citizenship comes with both rights and responsibilities. Citizens have access to the full range of a nation's civil liberties--legal protections against unwarranted government interference or action, such as arbitrary arrest or the indiscriminate confiscation of property. Common civil liberties include freedom of religion, free speech, and the right to a fair trial. In addition, citizenship usually allows individuals to work in restricted occupations closed to non-citizens. For instance, most nations restrict the ability of non-citizens to work in national security fields such as weapons research and design.

Citizenship is a vital component of **democracy**. Citizens are the building blocks of democratic governments. Governments rely on citizens to help make decisions about major issues and to run the country. Citizenship also grants people the right to seek



THE RISE OF DEMOCRACY

Democracy has spread rapidly to become the most common type of government in the world. Democracy expanded dramatically between 1990 and 2000, but declined slightly between 2000 and 2010.

Year	1970	1980	1990	2000	2010
Number of Democracies in the World	45	58	75	120	115

Source: Freedom House (www.freedomhouse.org).

elected office. One of the key rights of any citizen is the ability to vote in elections. All countries restrict voting by non-citizens in elections with some notable exceptions. For instance, countries in Western Europe allow non-citizens to vote in local elections once they lived in an area for a certain period of time. Furthermore, many members of the Commonwealth of Nations, an organization of former colonies of the United Kingdom, permit British citizens to vote in their elections.

While voting is considered a right, it is also seen as a responsibility. Democratic governments need citizens to cast ballots in order to ensure the legitimacy of elections. Twenty-two nations even require citizens to vote or face penalties such as fines, an obligation known as compulsory voting. For example, failure to vote in Australia can result in a \$26 fine.

Citizenship also comes with a range of other responsibilities. Citizens are expected to obey a nation's laws and pay their taxes. They are also often required to serve on juries in legal cases. Citizens have a duty to defend their country by serving in the military when required. Many countries still have compulsory military service, known as conscription, whereby citizens must serve a specific period in the national armed forces. Usually the compulsory military service lasts 1-2 years and begins after someone turns 18. Countries

ranging from Austria to Brazil to Israel to South Korea continue to have conscription, although many nations also allow alternative forms of national service. With the exception of Israel, only men are subject to conscription in peacetime. Alternatives to conscription might be public service, teaching, or even working on construction projects. Those countries without conscription retain the authority to force citizens to join the military during times of national emergency.

Besides the formal responsibilities of citizenship, countries also expect their citizens to be active members of their local communities. Governments also want their citizens to stay informed of local and national issues and participate in public meetings and events. Finally, democratic systems require that citizens respect the rights and views of others, even if they disagree with those opinions.



Soldiers at Israel's School of Infantry Professions take a break during a drill. Israel is one of the few countries in the world where military service is compulsory for both men and women.

THE MAKING OF THE MODERN WORLD

1945 TO THE PRESENT

Migration and Refugees

Series Advisor: Dr. Ruud van Dijk, Contemporary History and History of International Relations, University of Amsterdam



THE MAKING OF THE MODERN WORLD

1945 TO THE PRESENT

Food, Population, and the Environment

Series Advisor: Dr. Ruud van Dijk, Contemporary History and
History of International Relations, University of Amsterdam



THE WORLD BANK



The World Bank provides financial and technical assistance to developing countries in an effort to alleviate poverty and improve living standards. IBRD, which is part of the World Bank, provides loans to middle income and creditworthy poor countries. The first loan, \$250 million, was given to France in 1947 to rebuild its infrastructure.

The International Development Association (IDA) provides grants to poor countries. Together the two institutions try to help developing nations by providing low-interest loans, interest-free credit, and grants for education, health, **infrastructure**, communications, and many other purposes.

A Second System

As the United States took its seat as a military and economic superpower in the post-war world, a second economic and social system emerged stronger than ever—communism. Communism was a social and economic philosophy characterized by a classless society and the absence of private property.

The idea of a **capitalist**-run system of globalization dominated by the United States was repugnant to Joseph Stalin, the communist leader of the Soviet Union since the mid-1920s. Even before the war ended, Stalin had begun economically and politically dominating Eastern Europe.

In Stalin's view, and the view of other Soviet leaders, the Great Depression and World War II were symptoms of an inferior capitalist system. The disastrous economic conditions following the war made Germany and other nations a prime target for the communist system. In Germany, alone, the war had destroyed 25 percent of all urban housing, and caused the country's gross domestic product, the total value of goods and services produced by a country, to fall 70 percent.

Joseph Stalin, pictured here delivering the eulogy at the funeral of the supreme commander of the Soviet Union's Red Army, Mikhail V. Frunze, in November 1925.



IN THEIR OWN WORDS

U.S. Secretary of State George Marshall

Our policy is directed not against any country or doctrine but against hunger, poverty, desperation, and chaos," Marshall said. "Its purpose should be the revival of a working economy in the world so as to permit the emergence of...conditions in which free institutions can exist.



—From a speech at Harvard University, June 5, 1947.

LEFT: The Marshall Plan was put work in Germany in the postwar years, as symbolized by this worker in West Berlin.

Marshall Plan

American policymakers feared if the United States did not take a more active role in rebuilding Western Europe, the Soviets would control all of Europe. As Stalin slowly consolidated power over Poland, the Balkans, East Germany, and other Eastern European nations, U.S. Secretary of State George Marshall unveiled an economic plan to rebuild Western Europe.

In March 1948, Congress passed the Economic Cooperation Act—the Marshall Plan—earmarking \$12 billion to reconstruct Europe. The plan jumpstarted industrialization and stimulated the U.S. economy by establishing new overseas markets for American-made products. Eventually, 16 nations participated in the Marshall Plan receiving nearly \$13 billion in aid and allowing their economies to grow quickly. Just as importantly, the Marshall Plan stopped the communists from expanding westward.

GATT

In addition to the Marshall Plan, the IMF, and IBRD, the western democracies also created the General Agreement on Tariffs and Trade (GATT), which would set international trade rules. The idea of GATT, established in 1947, was to treat every country fairly as their economies expanded.

At the heart of GATT was “most favored nation status,” or MFN. Under this designation, nations treated foreign businesses equally by eliminating unfair trade practices and reducing tariffs.

All of the institutions put in place after the war—GATT, the IMF, and the World Bank—opened foreign markets to investment, which helped a good portion of the world rebuild.

Communist Bloc

Still, Stalin was not going to sit idle while the West dominated world economic affairs. Under Stalin, the Soviet Union formed a coalition of nations, not always of the willing, that would become known as the Communist bloc, or Eastern Bloc, to head off the apparent threat of an American-led global capitalist economy. The Soviet foresaw a world split into two markets—one communist, the other capitalist. He believed that the communist system would win out as it promoted full industrialization.

To that end, Stalin in 1949 helped form the Council of Mutual Economic Assistance, which included such nations as the Soviet Union, Poland, Hungary, Romania, Czechoslovakia, and East Germany. The idea behind COMECON was to foster trade among its member states, while urging “specialization” in manufacturing. That would reduce “parallelism,” or duplication of industrial production.

A very chilly Cold War had begun. Since each economic system needed to be safeguarded, the United States led the formation of the North Atlantic Treaty Organization, a military alliance between the U.S. and most of the Western democracies, while in response, the Soviet Union and its satellite countries formed the Warsaw Pact.



Text Dependent Questions

1. What was the purpose of the Bretton Woods Conference?
2. How many countries participated in the Marshall Plan and how much money were they granted all together?
3. How did the economic conditions after World War II helped spur the Cold War?



Research Projects

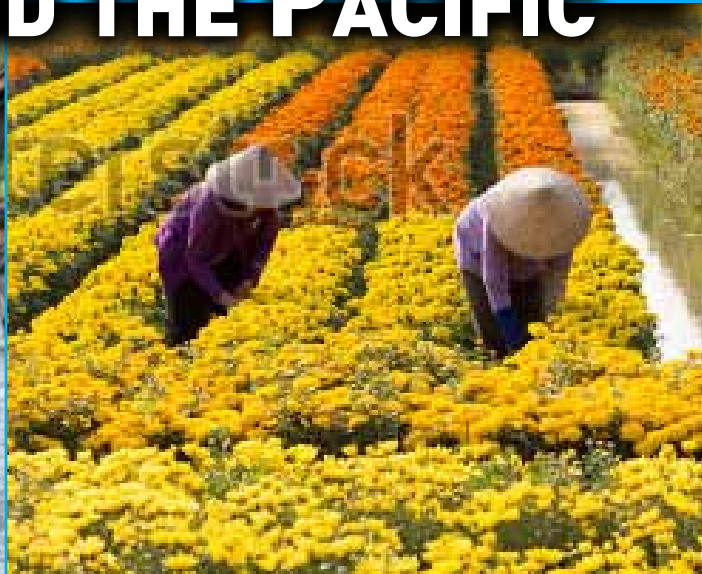
1. Use the library and the Internet to research the Marshall Plan and its successes and failures. Use that information to write a persuasive essay as to whether the Marshall Plan should have been extended into Eastern Europe.
2. Print out a political line map of Europe and highlight with shading the way the countries in Europe were aligned in the 1950s as the Cold War took shape—using one shade for capitalist Western countries and another for the communist Eastern countries.



SOCIAL PROGRESS AND SUSTAINABILITY

Shelter • Safety • Literacy • Health • Freedom • Environment

EAST ASIA AND THE PACIFIC



Foreword by Michael Green,
Executive Director, Social Progress Imperative

By Ken Mondschein

SOCIAL PROGRESS AND SUSTAINABILITY

Shelter • Safety • Literacy • Health • Freedom • Environment

EUROPE



Foreword by Michael Green,
Executive Director, Social Progress Imperative

By Don Rauf

SOCIAL PROGRESS IN NORTH AMERICA

North America is a vast region that stretches from the steamy jungles of the tropics to the permafrost wilderness of the Arctic Circle. This book explores the level of social progress in the three countries of North America: Canada, the United States, and Mexico. Social progress is a society's ability to meet the basic human needs of its citizens, create the building blocks that individuals and communities use to improve the quality of their lives, and make it possible for them to reach their potential.

The Social Progress Imperative (SPI) calculated an overall Social Progress score for 133 countries based on the following categories:

Basic Human Needs: *Do all people have food, water, shelter and access to basic medical care? Are they safe?*

Foundations of Well-being: *Do all people get a basic education? Does everyone have healthcare? Is the environment sustainable?*

Opportunity: *Do people have personal rights and freedoms? Can they participate in the political process?*

EUROPEAN COUNTRIES AT A GLANCE

AUSTRIA

QUICK STATS

Population: 8,665,550

Urban Population: 66% of total population

Comparative Size: slightly smaller than Maine

Gross Domestic Product (per capita): \$43,000 (37th in the world)

Gross Domestic Product (by sector): agriculture, 0.8%; industry, 21.1%; services, 78.1%

Government: federal parliamentary democracy under a constitutional monarchy

Language(s): German (official nationwide) 88.6%

SOCIAL PROGRESS SCORECARD

Social Progress 84.45 (23.45 points above world average of 61)

Basic Human Needs 95.04 (26.71 points above world average of 68.33)

Foundations of Well-being 82.53 (16.08 points above world average of 66.45)

Opportunity 75.77 (27.54 points above world average of 48.23)

Once the center of power for the large Austro-Hungarian Empire, Austria was reduced to a small republic after its defeat in World War I. It was annexed by Nazi Germany in 1938 and subsequently occupied by the Allies in 1945. It wasn't until 1955 that a State Treaty ended the occupation and recognized Austria's independence. Austria joined the European Union in 1995 and entered the EU Economic and Monetary Union in 1999.



*Mus doloris ut eum ex earupti
adis modisit atiatu conem.*

★ MAJOR ★
World Cities



MOSCOW

★ MAJOR ★
World Cities



ROME



THE SOLAR SYSTEM

The Sun

THE SOLAR SYSTEM



Earth and Moon

The Changing Seasons

The tilt of the Earth's axis in space brings about the seasons.

The Earth spins on its **axis** as it circles the Sun. But the Earth's **axis** is not upright in relation to its **orbit**; it is tipped at an angle and stays pointing in the same direction in space all the time. This means that during the year the axis sometimes tips towards and sometimes away from the Sun.

The tipping axis causes a particular place on Earth to lean more towards the Sun at some times of the year than

at others. The more it leans, the more heat it receives. This means that during the year the temperature at a place changes, bringing about changes in the weather, which we call the **seasons**.

Following the seasons

In the tropics above and below the **Equator**, there are only two seasons, a wet and a dry. But most of the world has four seasons: winter, spring, summer, and autumn.

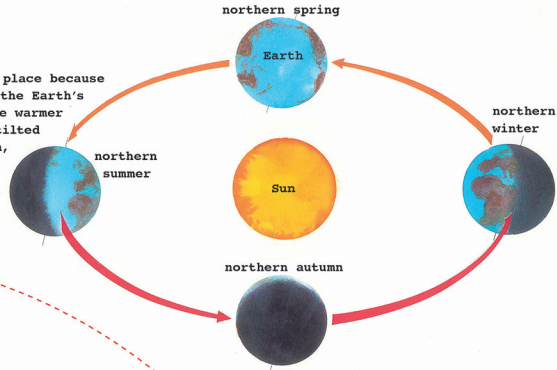
A place experiences winter when it is tilted furthest away from the Sun. In northern parts of the world, winter begins on December 21. As the Earth moves in its orbit, its axis shifts in relation to the Sun. Northern parts of the world start to tilt more towards the Sun and warm up.

The Sun is highest in summer and lowest in winter.



▲ The beautiful colors of a forest in New England in the autumn.

► Seasons take place because of the tilt of the Earth's axis. Places are warmer when they are tilted towards the Sun, and cooler when they are tilted away.



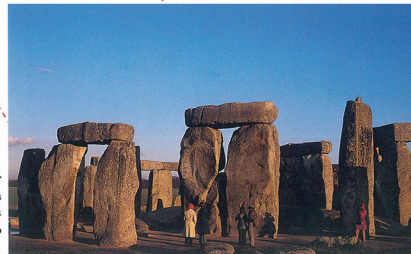
On March 21, spring begins. On this date the hours of daylight and darkness are the same all over the world. This is the spring, or vernal, **equinox** (meaning equal night).

Northern parts of the world continue heating up as they tilt more and more towards the Sun. On June 21, they are tilted most and summer begins. Then they start tilting away from the Sun and cooling down again. On about September 23, autumn begins. This is the date of the autumnal equinox. Northern parts continue cooling down until winter returns again.

Seasons in Australia

The dates given here are for seasons in northern parts of the world, or in the northern hemisphere. In the southern hemisphere, the seasons are reversed because southern parts of the world are always tilted in the opposite direction from northern parts.

► Stonehenge, near Salisbury in southern England: Ancient Britons built this monument to follow the seasons.



The Sun's Face

Dark spots often appear on the bright, bubbling surface of the Sun.



The face of the Sun that we see is known as the **photosphere**, meaning light-sphere. It is the part that gives off the energy the Sun produces inside its core as heat, light, and other kinds of radiation (see page 24). The temperature of the photosphere is about 9900°F (5500°C).

The photosphere is a layer about 300 miles (500 km) thick. Close-up photographs show that it is made up of boiling gases. They give the surface of the Sun a grainy appearance, which astronomers call granulation. In each granule, hot gas from below rises, gives off heat and then sinks as it cools. This process is called convection.

◀ This photograph (with colors added) shows slight differences in brightness on the Sun.

The whole photosphere moves up and down about 15 miles (25 km)

every five minutes. Other stars vibrate in much the same way. Some change in size so much that their brightness varies noticeably. We call them variable stars.

Spots on the Sun

The photosphere is not the same all over. Particularly bright spots occur here and there. And dark blotches called sunspots appear from time to time.

Solar butterflies

Sunspots appear furthest away from the Sun's Equator at the beginning of the sunspot cycle. They then appear closer to the equator as time goes by. A graph showing the positions of sunspots over the cycle looks like a pattern of butterfly wings.

▷ Regions of strong magnetism are found around sunspots.

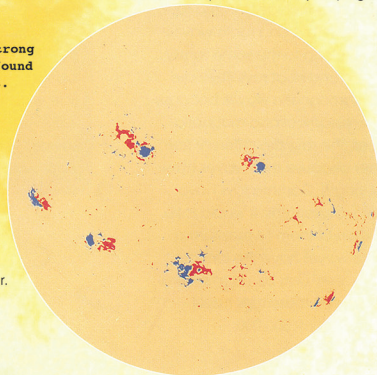
Sunspots look like ink blots on blotting paper. They look dark because they are cooler than the surrounding surface. On average, their temperature is about 2700°F (1500°C) lower.

Usually, sunspots appear in groups, with two main spots. They vary widely in size. Some may measure only a few hundred miles across, but others may be bigger than the Earth. The large ones may remain visible for months at a time.

The sunspot cycle

Sunspots come and go over a period of about 11 years. This is called the sunspot, or solar, cycle. At the beginning of the cycle, hardly any sunspots are found. Then, year by year, sunspot numbers increase to a maximum before falling again.

Sunspots occur in regions where the Sun's magnetism is intense—thousands of times stronger than the Earth's magnetism. This magnetism triggers off all kinds of activity in the atmosphere above (see page 28).



▼ The butterfly diagram, a pattern that shows how the position of sunspots changes year by year (see Solar butterflies box above).



THE GREAT OUTDOORS →

Horseback Riding

DIANE BAILEY



THE GREAT OUTDOORS →

Water Sports

BETH HESTER LANDIS



Take a Hike!



Imagine a **loop trail** that takes you and your friends through a forest to the top of a hill. It returns along a stream. In your day pack you have all the right gear and best trail mix ever (because you made it yourself).

At first your group travels through the forest. The birds are singing and it's easy hiking. Then the trail climbs above the trees and gets very steep. Goodbye shade, hello hot slopes. You zip off the legs of your pants and turn them into hiking shorts. It's hard walking uphill, even though you're on a well-built trail.

One of your friends is new to hiking and is having trouble keeping up. You stop for a drink of water, give her some trail mix (with chocolate!) and tell her, "You can do it!" You put her



WORDS TO UNDERSTAND

calories a measurement of energy burned by a body

loop trail a hiking path that begins and ends at the same point

trailhead the point at which a hiking path begins

in the front of the line and all of sudden she turns into a rocket ship and blasts up the hill! Before you know it, you've all reached the top.

What a view! Mountains and more mountains. And lots of blue sky.

Then you hike down the mountain to a meadow where a deer leaps across the trail. As the deer looks back at you, you act quickly and take some great pictures of the deer standing in some wildflowers.

Near a stream you reach a trail junction without a sign. You know to take a left and hike downstream back to the **trailhead**. But after a few minutes you realize you're not going in the direction of the waterfall. You check the map. Oops—should have gone right back there instead of left.

You double back and soon reach the waterfall, which isn't very big, but big enough to fill a waist-high pool. Time for a quick dip to cool off!

As you head downhill to finish your hike, you remember the great pictures you took . . . of your friend new to hiking looking sad and then



HIKERS DICTIONARY

Hikers have their very own vocabulary. Here are a few “hiker words” to get started.

Backpack (*noun*) A large pack worn on the back to carry camping gear; (*verb*) to go on an overnight hike carrying your gear in a backpack.

Day hike A hike that begins and ends during daylight hours.

Day pack Small, soft backpack made especially for hikers.

Degree of difficulty Measurement of how hard the hike is; ratings include easy, moderate, and difficult.

Elevation Measurement of altitude above sea level; the difficulty of a hike goes along with how much elevation gain is required.

Fleece A soft, lightweight fabric.

Junction The point at which a trail meets another trail.



Here is the caption describing the photo.
Hikers walking up the trail.

happy . . . of splashing in the water, and everyone standing proudly on the top of the mountain.

Those pictures—and your memories—will be great to share with family and friends until you start planning your next hiking adventure!

Super Popular



What's the most popular form of outdoor recreation in North America?

No, it's not swimming or soccer or bike riding.

It's hiking. And most adults who enjoy time on the trail got started as kids or teens.

Hiking is taking a walk on a trail in nature. Walking to school on sidewalks is not hiking, and neither is walking around the mall. But walking a path in the forest or a trail in the mountains is hiking. So is walking a