9

RESPECT for the EARTH

Caring for God's Creation

In This Chapter

Our Common Home

Molly Burhans never imagined meeting the pope. In fact, when she was growing up, she wanted to be a ballerina. After years of training, Molly was sidelined by a debilitating foot injury and returned home. During this time, she began to take classes at Canisius University, where her mother was a professor. It was at Canisius that she experienced a spiritual awakening. Eventually, Molly spent a week on a service retreat at a monastery in northwestern Pennsylvania. Molly realized that the resident religious sisters could be doing much more with the monastery property, which was located on a vast amount of land.

> "There were many acres of forest, but, at that time, there was no forest plan, no erosion plan, no invasive-species plan," she said. "And I thought, wow, this could be done better. They could be doing sustainable forest management and earning revenue, or they could implement a permaculture farming system and actually feed people." (David Owen, "How a Young Activist Is Helping Pope Francis Battle Climate Change")

This revelation was the beginning of Molly's mission to document the global landholdings of the Catholic Church. Molly understood that the Church has the means to address climate issues directly through strong land management and, by doing so, can contribute to the protection of populations that are vulnerable to the consequences of global warming. Molly believes the Catholic Church must proactively engage with its own lands and property if climate change is to be addressed in any sort of timely manner.

Molly is creating land-use maps like this one to help the Catholic Church record their global landholdings and usage.

Molly began the work of painstakingly documenting and mapping the Church's landholdings by starting in her own state of Connecticut. In making calls, she discovered that many parishes in her area weren't necessarily aware of what exactly they owned, and a great number didn't have paper records. If this was true locally, she thought, the situation was likely similar on a global level. Molly traveled to the Vatican in hopes of finding someone who could give her access to the records to fill in the gaps. Once there, she was disappointed to discover that the Vatican had no **cartography** department. The only records of Church landholding they possessed were frescoes painted on the walls.

Molly Burhans.

Molly went on to found GoodLands, an organization whose mission is "mobilizing the Catholic Church to use her land for good"(good-lands.org). After several years, Molly was invited back to the Vatican to take part in two conferences, one of which related to Pope Francis's groundbreaking encyclical "On Care for Our Common Home." Molly became known by cardinals from all over the world as "the Map Lady." Interest in her project was evident, as many of the cardinals had never seen a map of the global Church. On that trip, Molly saw the pope in passing, but two years later she would find herself in a face-to-face meeting. The pope was very interested in Molly's proposal, though funding and the COVID pandemic created obstacles to beginning the work. While Molly waited for the situation to resolve, she continued to pursue the mission of GoodLands:

> We are working towards a future where (1) Catholic conservation and sustainability operate at the same scale as Catholic healthcare, aid, and education, (2) the Catholic Church re-invigorates its rich history of cartography and knowledge stewardship, (3) the Catholic Church integrates sciences, art, and technology to promote its mission, (4) the Catholic Church works to ensure their land-use and land management is aligned with their values to care for

If you could champion one area of social action within the Church, what would it be? What are some of the steps you might take toward accomplishing your goals?

cartography The science of making and using maps.

What is the purpose of Molly Burhans's work of attempting to document the global landholdings of the Catholic Church?

the poor and steward creation, (5) the Catholic Church becomes a role model for and engages more deeply with conversations concerning the ethical applications of IT. (good-lands.org)

GoodLands provides information, insights, and implementation tools for the Catholic Church to leverage its landholdings to address pressing issues from environmental destruction to mass human migration. Under Molly's direction, GoodLands combines community involvement, design, and mapping technology to reveal land-use strategies that help transform the attitude of land ownership into a sense of caring for our common home.

Pope Francis: Champion of Creation

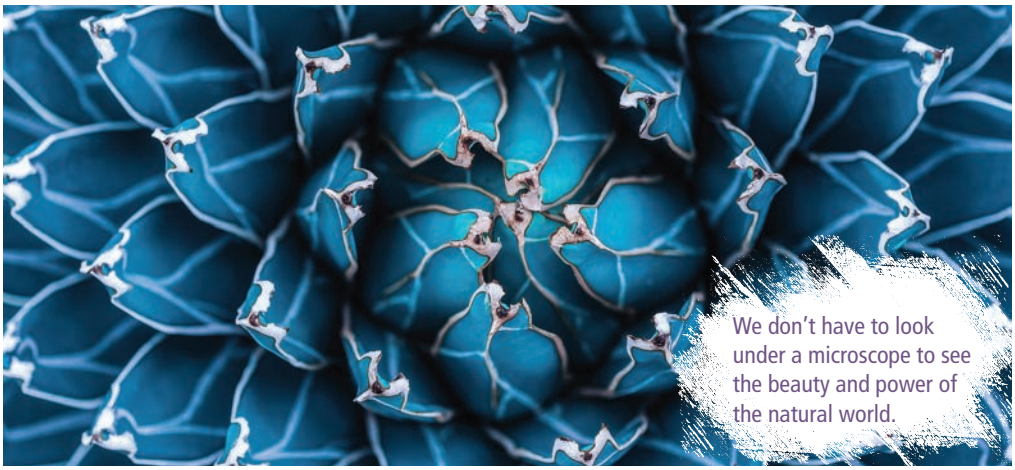
Many people think of creation as a product of God's love that activates and sustains life. Earth is a vast network of **ecosystems** providing oxygen, food, water, and shelter to support millions of life forms. This living planet is our common home.

"This living planet is our common home."

From humans to invisible organisms, we are all interconnected and interdependent. Even when we aren't fully aware of this, each of us depends on others to survive and thrive. Being interconnected means that our interactions with nature truly matter because they have consequences. We are provided with sustenance, enjoyment, and inspiration in nature, and we put these benefits at risk when we fail to care for our common home.

Consider the ways you interact with nature. Have you ever thought about how all our lives depend on nature? How often have you felt in awe of the beauty and power of the natural world? These reflection questions remind us that humans are only one part of the vast natural world in which everything was created out of love and with its own purpose. In his encyclical "On Care for Our Common Home" ("Laudato Sí") Pope Francis reminds us of this fact: "Our insistence

ecosystems A community of living organisms that interact, and the environment they share.



We don't have to look under a microscope to see the beauty and power of the natural world.

that each human being is an image of God should not make us overlook the fact that each creature has its own purpose. None is superfluous. The entire material universe speaks of God's love, his boundless affection for us" (84).

Pope Francis's encyclical expresses great concern for our planet in distress. He sounds the alarm for everyone in the world to look closely at how humanity is shaping our planet. But when we become more aware of the many environmental problems endangering livelihoods, health, and human survival, it can be overwhelming. One might even feel that the situation is hopeless. But Pope Francis guides us in the other direction as he wholeheartedly embraces the Gospel message of hope: "Hope would have us recognize that there is always a way out, that we can always redirect our steps, that we can always do something to solve our problems" ("On Care for Our Common Home," 61).

Even though years of human choices and activities have contributed to a complicated environmental crisis, there is still time and opportunities to turn things around. Redirecting our steps means envisioning and working together toward a more just and **sustainable** future.

"Even though years of human choices and activities have caused a complicated environmental crisis, there is still time and opportunities to turn things around."

sustainable A method of harvesting or using a resource so that it can be created and maintained without depleting or destroying other things in the process.

Vertical gardens and rooftop gardens are innovative ways to work toward a sustainable future.

Themes in "On Care for Our Common Home"

What is something you intentionally do or avoid doing on a regular basis that impacts the environment in a positive way?

Catholic theology teaches that creation is a gift from God and that we cannot survive without the natural world. Unfortunately, it is possible for humanity to take God's gift of creation for granted. In doing so, we can easily find ourselves facing the tragic effects of **environmental degradation** as we do now. Recognizing the gravity of this global crisis, Pope Francis speaks with urgency in "On Care for Our Common Home." Here are some important themes explored in this encyclical:

1. Be thankful for the gift of creation by cultivating and caring for nature.
2. By treating the earth as if it has an unlimited supply of resources, humanity is damaging our common home.

environmental degradation The deterioration of the natural environment caused by human activities, such as exploiting and polluting natural resources, destroying habitats, disrupting ecosystems, or depleting biodiversity.

3. Everything is interconnected.
4. Science can inform faith, and faith should also inform science.
5. Apathy and selfishness make environmental problems worse.
6. When creation suffers, people in poverty or vulnerable populations are most at risk of being adversely affected.
7. Less is more.
8. Being created in God's image with dominion over the earth does not justify human activities that destroy nature.
9. Young people demand and deserve a sustainable future.
10. Each person can make a difference given their culture, experience, involvements, and talents.

> **"Young people demand and deserve a sustainable future."**

The environmental crisis is not just a challenge for science, economics, and politics. In "On Care for Our Common Home," Pope Francis helps us understand why care for this planet is also an urgent moral and spiritual concern. Human ingenuity exerts enormous power over creation through science and technology. The dangers of human beings abusing power and harming nature are real. The encyclical urges humanity to take seriously the responsibility for caring for the environment.

Think of places in your school or community where there is space for an urban garden. What tools and supplies would be needed to set up and sustain this type of project? Who would benefit from an urban garden in your area? Can you think of any negative aspects of establishing an urban garden? If so, what might they be and how could they be addressed?

Everything Is Connected

> "Stewardship is most authentic when we see ourselves intimately connected to nature."

When we consider all the ways nature sustains human life, we begin to understand our role as **stewards**, or caretakers, of God's creation. Stewardship is most authentic when we see ourselves intimately connected to nature. Creation needs our care to survive, and humanity cannot survive without creation. Solidarity acknowledges this interdependent relationship. We rely on nature for both sustenance and leisure. Organisms in the earth's ecosystems work hard every day to provide services we depend on. These are called **ecosystem services**.

Here is a list of living things and the ecosystem services they provide:

- Microorganisms in the water and soil of wetlands, streams, rivers, and forests filter and improve water quality for wildlife **habitats** and for our recreation.
- Green plants absorb carbon dioxide and produce the oxygen we need to breathe.
- Animals, birds, and insects transfer pollen grains to fertilize crops that produce the nuts, fruits, and vegetables we eat.
- Plants and animals provide the fibers we use to make textiles, food, clothing, and shelter.
- Beautiful, scenic places like natural landmarks and nature trails inspire us to pray, reflect, or meditate to maintain our spiritual well-being.

stewards Those responsible for managing or caring for something else.

ecosystem services The benefits people obtain from natural environments, including provisioning services, such as food and water; regulating services, such as flood and disease control; cultural services, such as spiritual, recreational, and cultural benefits; and supporting services, such as those necessary for the production of all other ecosystem services.

habitats The natural environments of living things. Habitats are made up of physical factors, such as soil, moisture, range of temperature, and availability of light, as well as biotic factors, such as the availability of food and the presence of predators.

- Earthworms decompose animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil for growing crops we depend on for food.
- Trees and forests minimize soil erosion and control flooding to protect our farmlands and communities.
- Green spaces are open areas of grass, trees, and vegetation in urban environments that we depend on for recreation, education, public art, history, beauty, and health improvement.
- Coral reefs are crucial fish nursery habitats that also protect shorelines from erosion and provide tourism and recreational opportunities.

It's clear that ecosystem services are essential to life. Oxygen, food, and water are vital resources provided by the earth's ecosystems. However, other important provisions like medicines, fuels, and fibers also come from the earth. Additionally, services like climate regulation, pollination, recreation, and soil fermentation benefit us all. We depend on these systems operating throughout the natural world. But the health and vitality of our planet's numerous ecosystems also depend on us. Therefore, humans must embrace the role of steward to safeguard these important systems.

Urban Farming:

Feeding Families and Helping the Planet

Urban farming is becoming more popular as an eco-friendly way to address sustainability, food affordability, health, and convenience. Urban agriculture exists in many forms, including community and backyard gardens, rooftop and balcony gardens, as well as growth patches in vacant lots and parks.

On the top of a dorm building at the University of California at Berkeley, Bluma Farm grows vegetables, herbs, and edible flowers on just a quarter of an acre of rooftop space. Bluma demonstrates that when ground space is limited, green spaces can still be created to absorb city heat, produce more oxygen, reduce transportation costs, and feed more people. Urban farms play an important role in supporting low-income families, immigrants, and the elderly. With the cost of food steadily climbing, and the availability of some products becoming scarce, urban gardening provides free or low-cost fresh fruits and vegetables, which are often lacking in the diets of those who are food insecure.

Urban farming benefits not only society but also the environment. The Church can be an example in caring for and cultivating the earth by using portions of its properties as urban gardens.

For Review

1. Define *ecosystem*.
2. Give an example from the text of how to be a good steward of creation.
3. What are two important themes in Pope Francis's encyclical on caring for creation?
4. According to "On Care for Our Common Home," who is most at risk of being adversely impacted when creation suffers?
5. Name three ecosystem services that are essential for life.

Creation as Gift

Phil is a high school senior, an amateur photographer, and an outdoor enthusiast. After high school, he wants to pursue a career as a nature photographer. Phil has always believed that creation is a precious gift. He wants to ensure the natural world is cared for and treated respectfully. Through his photography, Phil wants to show what it looks like when people live in harmony with creation, and what happens to creation when that harmony is absent.

Recently, Phil won first place in a photo contest sponsored by a nature conservation society in the "People and Nature" category. The judges said that Phil's photo powerfully illustrated how people and nature depend on each

other for survival. "This is exactly what I want to convey in my photographs," Phil told the audience at the award ceremony. "If people take nature for granted and don't see it as a gift, it won't survive, and neither will we. We have to take care of nature for nature to take care of us."

Phil's photography articulates how nature brings sustenance, enjoyment, and meaning to our lives. The sacred balance between humans and nature must be respected. Creation is an incredible gift that requires our care.

> "The sacred balance between humans and nature must be respected."

Pope Francis teaches the same message in "On Care for Our Common Home":

> Once we start to think about the kind of world we are leaving to future generations, we look at things differently; we realize that the world is a gift which we have freely received and must share with others. . . . The world we have received also belongs to those who will follow us. (159)

Pope Francis begins his encyclical by describing the natural world as "our Sister, Mother Earth, who sustains and governs us" (1) but who also suffers from sickness. He describes the root causes of our planet's environmental problems as a result of years of irresponsible use and abuse of nature. That can change, but only if everyone works together.

Threats to the Environment Are Threats to Humankind

Unfortunately, we are realizing that humanity has taken the natural world for granted. Our lifestyles and our methods of production and consumption have disrupted, impaired, and severely threatened our planet's ecosystems. Nature can be plentiful and provide everything we need to survive, but we must find ways to live more harmoniously with God's creation by using and sharing the goods of the earth more responsibly in order to pass on a more sustainable legacy to future generations. The chart on the following page identifies some of the threats jeopardizing our common home.

> "We must find ways to live more harmoniously with God's creation by using and sharing the goods of the earth more responsibly in order to pass on a more sustainable legacy to future generations."

Environmental Problem	Impact on Humans
Climate change	Seventeen of the nineteen warmest years in the 136-year record have occurred since 2000. Global warming affects people's ability to grow sufficient crops.
Deforestation	**Rainforests** once covered 14 percent of the earth's surface. Now they cover approximately 6 percent. The loss of rainforests and their **biodiversity** disrupts the natural systems needed to create essential resources, such as food and medicine.
Dying coral reefs	Pollution and warming oceans have destroyed 27 percent of the world's coral reefs. Coral reefs are considered the medicine cabinets of the twenty-first century. As coral reefs die, humanity loses possibilities of treating diseases.
Melting glaciers and ice caps	In 1910, there were 150 glaciers in Glacier National Park. As of 2017, just 37 remained. As temperatures rise, glaciers and ice caps melt, and the oceans expand. Compared to the average rate of the past two to three thousand years, global sea level is rising more rapidly and putting the world's coastline communities at risk.
Declining biodiversity	Researchers predict a significant decline in marine biodiversity before 2050. An estimated one billion people, largely in low-income countries, rely on seafood that is disappearing.
Endangered species	The Great Pacific Garbage Patch has formed from bits of plastic bags, bottle caps, water bottles, and foam cups. Sea life ingests the plastic or gets tangled in the ocean debris. The improper disposal and accumulation of plastics causes the deaths of hundreds of thousands of animals in the food web, making seafood less available.
Water stress	In many parts of the world, undertreated sewage flows into the ocean. The waste from inadequate or nonexistent sewage systems endangers the lives of people who swim and fish in the ocean or consume the tainted seafood.
Air pollution	**Fossil fuels** are the primary source of energy in the United States. Burning fossil fuels releases toxic gases into the atmosphere, leading to serious health problems.

rainforests The earth's oldest living ecosystem, which consists of dense forests rich in biodiversity.

biodiversity The existence of many different forms of life in an environment.

fossil fuels Fuels (such as coal, oil, or natural gas) formed from dead plants or animals by natural processes.

Even though years of human choices and activities have caused this complicated environmental crisis, there is still time and opportunities to turn things around. It will require us to come together to work in unity toward those solutions, policies, and actions that will build a more sustainable future.

Nature Can't Wait

Did you know we are in the midst of a mass **extinction** of plants and animals? In fact, it has been estimated that there are some one million plant and animal species currently threatened ("UN Report: Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating'"). The International Union for Conservation of Nature (IUCN) established a Red List, which is the world's most comprehensive assessment of the **conservation** status of animal and plant species. The main purpose of the Red List is to catalog and highlight plants and animals that face a higher risk of global extinction. An important reason to be concerned about **endangered species** is that the loss of species reduces biodiversity. Ecosystems depend on biodiversity to ensure that all the necessary functions sustaining ecosystem health are carried out. The loss of biodiversity risks the collapse of an ecosystem.

For example, in 2017, the red-legged fire millipede entered the Red

The Great Pacific Garbage Patch

The Great Pacific Garbage Patch is a vortex of debris in the North Pacific Ocean estimated to be twice the size of Texas. It consists of billions of pieces of plastic, from large to microscopic in size, which are carriers of toxic pollutants that endanger marine life. About 80 percent of the debris comes from plastic waste thrown away on land that ends up in waterways. The remaining 20 percent is waste from oil rigs, fishing boats, and cargo ships.

Boyan Slat was just a teenager when he discovered that there was more plastic than fish in the water where he was diving in Greece. Boyan was so inspired that he came up with a plan to clean up half the garbage patch in the Pacific Ocean within ten years. He designed and built a system called Ocean Cleanup. It is a 1.2-mile-long system that uses the ocean's natural current to trap plastic trash. It doesn't use nets, so sea life can go underneath the barrier. Plastics lighter than water get caught in the top and are trapped by the barrier. Boyan's method doesn't generate any carbon dioxide pollutants and works 7,900 times faster than any previous methods! All the collected garbage is recycled to use as an alternative energy source.

Boyan turned his one-time diving experience into a lifelong mission to clean up the ocean. How might Boyan's commitment inspire you to be a better steward of creation?

extinction The dying out or permanent loss of a species.

conservation The act of preserving, protecting, or restoring the natural environment, ecosystems, vegetation, and wildlife.

endangered species Any species that is in serious danger of extinction.

What if you were no longer able to benefit from the natural world due to damage caused by human activities? How would your life be affected?

List as critically endangered. Its forest habitat continues to decline due to logging for timber and clear-cutting to convert forests into rice fields. This millipede provides supporting ecosystem services in the Madagascar rainforest. Madagascar is among the world's poorest countries. Many people's survival depends on the biodiversity of the rainforests, and the survival of this species depends on habitat protection.

The good news is that we have proof that conservation works. For example, the status of the Rodrigues flying fox (a fruit bat) moved from critically endangered to endangered thanks to conservation efforts. It is vital to protect these bats as they are important pollinators. To do this, we must step up efforts to prevent the **deforestation** of mature fruit trees and root trees. Another example of the success of conservation efforts is the status of loggerhead sea turtles. They were moved from an endangered species to a **vulnerable species** in 2015 due to steps taken to protect their habitats. These highly migratory turtles rely on a variety of separated habitats during their lifetimes. When

> "The good news is that we have proof that conservation works."

deforestation The intentional removal of an area of trees to convert the land to non-forest use, such as farming, industry, or housing.

vulnerable species Any species on the path to becoming an endangered species in the near future.

Loggerhead sea turtles are on the list of vulnerable species.

supported by healthy ecosystems, they have a life expectancy of fifty years or more. The main threat to loggerhead turtles is accidental capture in fishing nets. They can become entangled in fishing line, and pieces of net can become wrapped around their flippers. Development of beaches where they nest is also a threat, not just from the disturbance of their nests in the sand, but because artificial lights can direct the hatchlings to migrate toward the light instead of the ocean. Conservation efforts, such as designating habitat areas to protect nests, as well as researching and developing changes to fishing gear and practices to minimize the accidental trapping of the turtles have made a difference.

For Review

1. How does the loss of rainforests negatively impact humans?
2. How has the pollution of oceans with undertreated sewage affected humans?
3. What is the primary source of energy in the United States, and how does this affect the environment?
4. In what way do ecosystems depend on biodiversity?

Our Environmental Responsibility

The Book of Genesis emphasizes not one, but two tasks that God entrusts to humankind in relationship to the environment: cultivation and caring. "The Lord God then took the man and settled him in the garden of Eden, to cultivate and care for it" (Genesis 2:15). Our right to cultivate the earth comes with the responsibility to care for the earth.

From the day of his inauguration, Pope Francis has called all humanity to work toward a sustainable future in which the earth and all its inhabitants live in harmony, where cultivation and caring for the earth are seen in balance. In the homily at his inauguration in 2013, he addressed the importance of care for creation by reminding us that being a protector is not something

involving Christians alone. He explained that caring for God's creation involves everyone:

> Please, I would like to ask all those who have positions of responsibility in economic, political and social life, and all men and women of goodwill: let us be "protectors" of creation, protectors of God's plan inscribed in nature, protectors of one another and of the environment.

Pope Francis furthered his call to action in an address in Africa in November 2015:

> The grave environmental crisis facing our world demands an ever greater sensitivity to the relationship between human beings and nature. We have a responsibility to pass on the beauty of nature in its integrity to future generations, and an obligation to exercise a just stewardship of the gifts we have received.

We can look to many individuals as examples of good stewardship of creation. One of those people was Gaylord Nelson. He served as governor and senator of Wisconsin for nearly thirty years, where he created national hiking trails and helped author crucial environmental protection laws, such as the Wilderness Act.

However, his greatest contribution was the establishment of **Earth Day**. Nelson envisioned Earth Day as a **teach-in** that would create a national movement to raise awareness of environmental issues. Over one

Earth Day A worldwide event started in 1970 that supports environmental protection. It is celebrated every year on April 22.

teach-in An informal gathering in which a topic is introduced and discussed to raise awareness. It is usually centered on a current social or political issue.

million people participated in the first Earth Day on April 22, 1970. By the end of the year, Nelson's efforts led to the creation of the United States Environmental Protection Agency and the Clean Air, Clean Water, and Endangered Species Acts. Earth Day has since grown to include over 170 countries with over one billion participants. Nelson reminded us to consider what kind of world we leave for future generations when he challenged participants at Earth Day's twentieth anniversary:

> I don't want to have to come limping back here twenty years from now on the 40th anniversary of Earth Day . . . and have the embarrassing responsibility of telling your sons and daughters that you didn't do your duty—that you didn't become the conservation generation that we hoped for.

What do you think Nelson would think were he alive today? Did we fulfill his great hope, or do we still have more work to do? Are we doing a sufficient job as stewards of creation, leaving the world in a better condition for future generations? Gaylord Nelson committed his life to preserving the wonders of nature and the sacredness of the earth for generations to come. We are called to do the same. The call of stewardship is to provide for the common good in a way that preserves creation's integrity and the many

Do some research to investigate positive changes that have come about since the creation of the United States Environmental Protection Agency or the Clean Air, Water, and Endangered Species Acts.

interdependent relationships that sustain the community of life and make it whole. To do this, we must simply begin with respect for the natural world.

Our Choices Matter

The struggle for environmental justice is both a moral and a spiritual task. We are in a battle against personal sin and social sin for the common good. We come up against the effects of personal sin when we see such things as recyclables that are simply thrown away, water that is used with no concern for conservation, or electronics that are not disposed of in environmentally friendly ways. We face social sin when we see how the collective effect of sin over time has led to social structures that allow for the abuse of the gift of creation.

> "When the common good is our focus, we become more willing to sacrifice our personal comfort for the good of another."

We know we are called to live a moral life and work for the common good because we see ourselves in relationship with God, with one another, and with creation. When the common good is our focus, we become more willing to sacrifice our personal comfort for the good of another. We are then able to combine our creative energies to find solutions that will heal the earth.

God desires that we all live as one family and treat one another as brothers and sisters. We are called to love our neighbor. How we treat ourselves, others, and our planet really matters.

The environmental crisis is both an ecological and social crisis. When we are out of touch with the gift of nature or the people whose health and livelihoods are threatened by environmental degradation, we can become unaware, even apathetic, about prevailing concerns, needs, and sufferings. The love of neighbor we are called to is inclusive of all created things—the environment as well as the people who rely on the environment for life.

Reflect on a time when you became aware of an environmental crisis, suffering, or need. What was your initial reaction? What type of action were you compelled to take?

New Habits

Because nature is vast and incredible, our choices about how we interact with nature can seem limitless. And yet, we are learning from history that this is not our reality. Humanity can no longer think and act as if the natural environment is unlimited with an infinite pool of resources. Nor can we continue to assume that the ecosystem services we depend on will indefinitely support lifestyle choices that harm the ecosystems providing these services. When we open our eyes to the realities of waste, pollution, climate change, and the loss of biodiversity, we can see that our planet can't recover as quickly as we produce, consume, and dispose of materials.

Composted waste turns into composted, nutrient-rich soil.

Saint Kateri Tekakwitha:

Champion of Conservation

Saint Kateri Tekakwitha was the first Native American canonized as a saint. Kateri encountered God through the gifts of creation. She often retreated to natural spaces as holy places to pray and be open to God's guidance in her heart. Today, people of faith who love nature and work for conservation look to Saint Kateri as their patroness for the protection of our planet.

Tekakwitha means "one who places things in order." One way Saint Kateri Tekakwitha placed things in proper order was by not taking nature for granted. As a champion of creation, Kateri viewed God's gifts in nature with eyes of appreciation. For Kateri, the diversity and interconnectedness of nature were reflections of God's sacramental or spiritual presence in this world.

Saint Kateri was known as the Lily of the Mohawks. In the Christian tradition, the Easter lily blooms, dies, and reblooms, making it a powerful symbol of hope and new life through Jesus' Resurrection. Saint Kateri Tekakwitha experienced many Christlike dyings and risings throughout her short life. Her name reminds us that the path to healing and protecting the earth is about placing things in their proper order. Because the environmental crisis is driven by a culture of convenience, consumption, and waste, we must choose to create alternative, countercultural ways of thinking and living. Kateri's Christ-centered life can be our inspiration for change. The motto that guided her life was, "Who can tell me what is most pleasing to God that I may do it?"

Think of something that took you time to learn, like how to tie your shoes or how to ride a bike. At first, this was difficult and required a lot of mental energy. Eventually, this activity became much easier because it became a routine . . . habitual. Now you no longer concentrate as much because the process has become hardwired in your brain. In this way, habits are very efficient.

It takes time, patience, and a lot of willpower to replace an old bad habit with a new healthy one. This is why it is illogical to think that we can solve the earth's environmental crisis in a short amount of time with the same detrimental habits, attitudes, and behaviors that have brought us to where we are today.

Learning from the Past

Before we choose to develop new habits, we must first identify our attitudes and actions that are problematic. To do that, we must look to the past. For example, one reason the environment suffers is because the things we purchase eventually get thrown away. All this unwanted material ends up in a landfill, incinerated, or exported to offshore barges. These waste disposal methods pollute the earth, air, and water, and change the climate. Consider the number of paper products that end up in a landfill. As that paper slowly decomposes with all the other materials in the landfill, this **biodegradation** generates high levels of methane, a

biodegradation The process of decomposition by bacteria, fungi, worms, and other living organisms.

powerful **greenhouse gas** that contributes to climate change. This rotting and decaying also leach toxic liquid, or **leachate**, that can contaminate soil and groundwater.

Our planet can't recover as quickly as we produce, consume, and dispose of materials. In a throwaway culture, landfills are the norm. This doesn't have to be our reality. We can make better lifestyle choices that move our society toward a more sustainable future.

Brainstorm a list of attitudes, actions, products, and practices that were commonplace in the past, and the new habits, attitudes, and products that have replaced them as we strive toward responsible stewardship.

For Review

1. What is considered Gaylord Nelson's greatest contribution as a steward of the environment?
2. Name at least one law that was a result of Gaylord Nelson's effort to raise awareness of environmental issues.
3. When the common good is our focus, what might we be willing to do to protect the earth and one another?
4. What are greenhouse gases?
5. According to the text, who is the patron saint for the protection of our planet?
6. Where can we find the teachings about the two tasks God has entrusted to humankind regarding the earth, and what are those two tasks?

greenhouse gas A gas such as carbon dioxide, water vapor, methane, and nitrous oxide that pollutes the air and causes the warming of the earth's atmosphere.

leachate A toxic liquid that drains or leaches from a landfill and can contaminate soil and groundwater.

Make a Difference

Real actions make real progress. In higher-income nations, renewable energy is meant to reduce dependence on fossil fuels that damage the environment. In lower-income countries, however, renewable energy may also provide electricity to people who currently have no access.

William Kamkwamba, a teenager from Malawi, in southeastern Africa, saw an image of a wind turbine in a library book. Thinking that free electricity could help his village irrigate crops, William used scraps from a junkyard and built a working turbine modeled after the picture in his library book. His family now enjoys lights and radio powered by his makeshift wind turbine. In fact, William's entire village benefits from his ingenuity. His original windmill was extended to catch wind from above the trees. Another windmill pumps gray water for irrigation.

William earned a scholarship to Dartmouth College. Since his graduation, he has continued to work on projects to benefit his village, as well as his home country. The story of how William's persistence and creativity saved his village became a film called *The Boy Who Harnessed the Wind,* based on William's memoir. William is proof that anyone can harness sustainable energy.

You Have the Power

You can make a real difference in the struggle against **environmental injustices** by sharing your God-given interests and talents. These diverse interests and talents can also be described as charisms. Here are some examples of charisms that serve the common good. Consider which charisms you possess.

- writing
- teaching
- speaking
- making music
- leading
- sharing knowledge
- being hospitable
- healing
- creating art
- encouraging others
- planning and organizing
- being generous
- sharing faith
- being compassionate
- peacemaking

Personal power is a gift every human being possesses. Each of us has the ability to make a difference when it comes to the environment. When we combine our passions, talents, knowledge, and actions in solidarity with other people, we amplify everyone's ability to make a difference.

See, Judge, Act

The environmental crisis is a moral and spiritual crisis of conscience. Fortunately, Catholic social teaching gives us a decision-making process to help us in-form our conscience and make good, moral decisions. This process is called the **See, Judge, Act** method of decision-making. It is both practical and spiritual and can be thought of as a way of listening to the voice of God.

In the See, Judge, Act process, we are called first to *see*. We must recognize a situation and understand what is involved to the degree possible. We can evaluate such things as what is happening, who is involved, and what the effects of this situation may be. Second, we must *judge*. This is a time to reflect on how we think and feel about the situation. What do we think should happen? What does our faith say about this situation? Third, we must *act*. In this stage, we are called to assess what we are going to do and who we might involve, and then proceed with action. Let's walk through the See, Judge, Act process by analyzing a real-life situation that involves the environment.

environmental injustices Actions that degrade the natural environment, harming ecosystems and living things, including human beings.

See, Judge, Act A decision-making process introduced in Catholic social teaching that is both practical and spiritual in nature. It can be thought of as a way of listening to God.

Meet the Kellers

Warren and Tish Keller had always dreamed of living close to the beach. Now that they were retired, they could. Their realtor found the perfect condo, which was under construction. When the Kellers visited the site, they could see that workers had dredged up a large amount of sand to lay the foundation. It concerned them that the condos were being built so close to the ocean. They also discovered that the area of construction was in a nesting habitat for the leatherback sea turtle. When they asked the realtor and contractor about beach erosion and the sea turtles, they seemed to not know or care about these situations. It was clear that the developer was going to go ahead with the building project whether the Kellers bought a unit or not.

Imagine yourself as a champion of creation. Which environmental injustice would you choose to act on to create a better future, and why?

Using the See, Judge, Act decision-making process, the Kellers were called to first *see* the situation for what it was—the condo they were looking at was being constructed in a place where the environment was being affected. In this case, it appeared as if the developers cared more about making money from

the lucrative beach condos than beach erosion or habitat protection. The Kellers then needed to use their hearts and conscience to *judge* how they felt about the situation and whether their actions might contribute to the injustice. The developer would build regardless of the Keller's decision to purchase, but the Kellers could judge whether they would be contributing to harming the environment by purchasing this retirement home. They determined that their care for the environment would be at odds with purchasing this property. Now the Kellers had to *act*. They committed to rejecting the condo purchase, finding other properties that wouldn't endanger species, habitat, or biodiversity, and educating other potential buyers about the situation. If other prospective buyers were aware of the dangers to the environment, perhaps they would also refuse to purchase. Difficulty in selling units and bad press could influence the builder to consider making some changes to protect the beach and sea turtle habitat.

For Review

1. What different effects can renewable energy have in higher-income versus lower-income nations?
2. Explain each step of the See, Judge, Act method of decision-making.
3. What is a charism, and how might it be used to support the common good?

Dr. Jane Goodall.

Quotable Stewards

Review the following quotes from stewards of the environment. Consider which one speaks to you.

- "Earth has enough to satisfy every man's need, but not every man's greed." (Mahatma Gandhi)
- "The greatest danger to our future is apathy." (Dr. Jane Goodall, "The Power of One")
- "One who loves does not sit in an easy chair looking on, waiting for the advent of a better world, but gets up and goes with enthusiasm and simplicity." (Pope Francis, "Address to the Vincentian Family")
- "Creation is a gift from God. We're asked to steward it. The Book of Genesis asks us to keep and till the natural world. And sadly, we've done a very good job of tilling it, but not such a great job keeping it." (Fr. James Martin, *America)*
- "Everyone needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to the body and soul alike." (John Muir, *The Yosemite*)
- "Humankind is placed in the Garden by the Creator to 'till it and keep it' (Genesis 2:15). These concepts of 'tilling' and 'keeping' involve a vital and reciprocal relationship between humanity and the created world. They involve humankind . . . a sacred duty to draw from the goodness of the earth, and at the same time to care for the earth in a way that ensures its continued fruitfulness for future generations." (Cardinal Peter Turkson, "Trócaire Lenten Lecture")

- Replace incandescent light bulbs with more energy-efficient and money-saving LED bulbs. Conserve energy by turning off and unplugging lights, electronics, and appliances when not in use. Use rechargeable batteries.
- Buy used instead of new, and save lots of money in the process. Used-clothing stores, for instance, often have like-new clothes. Rather than throwing away an old computer or couch, try selling it or giving it to someone who could use it.
- Educate yourself about what can and cannot be recycled. If your community does not have a recycling program, lobby your city or county government for one. Buy recycled products so that companies have an incentive to reuse recycled waste.
- Get together with friends, neighbors, or siblings and see what you can share so that each person doesn't have to buy the same thing. Lawn mowers, cars, clothes, and tools are all possibilities.
- Limit driving by carpooling, using public transportation, biking, and walking.
- Designate a week to record food that gets thrown away to become more aware of which types tend to be wasted. Participate in a food-composting program or start a kitchen compost system in your home.
- Volunteer to pick up trash on a beach, in a park, or on the roadside.

Chapter 9
Respect for the Earth: Caring for God's Creation

This chapter focuses on the earth—our common home. Years of human choices and activities have caused a complicated environmental crisis, but it's not too late to turn things around. To see creation as a gift from God and acknowledge that we cannot survive without the natural world is the first step in making a personal investment in caring for our planet. Pope Francis speaks clearly in his encyclical "On Care for Our Common Home" ("Laudato Sí") and urges us to take seriously the responsibility for caring for the environment. This chapter encourages us to be stewards of all creation by embracing solidarity with all living things through interdependent relationships. We can participate in stewardship in many ways, and in this chapter, we explore the stories and solutions of individuals whose efforts serve as an example for us.

At a Glance

Section	Student Book Pages	Learning Objective
Our Common Home	262–270	To see ourselves as intimately connected with nature and to understand our role as stewards of God's creation.
Creation as Gift	270–275	To understand that creation needs our care to survive and that we cannot survive without creation—we are interdependent.
Our Environmental Responsibility	275–281	To explore the stories and solutions of individuals who serve as inspiration for us to be good stewards of creation.
Make a Difference	282–287	To explore how we can make a real difference against environmental injustice by sharing our God-given interests and talents.

To access additional resources for this chapter, including a digital chapter overview presentation, a reading guide, and links to videos and articles, go www.smp.org/ljpresources.

Our Common Home


9 262 Respect for the Earth

Our Common Home

Molly Burhans never imagined meeting the pope. In fact, when she was growing up, she wanted to be a ballerina. After years of training, Molly was sidelined by a debilitating foot injury and returned home. During this time, she began to take classes at Canisius University, where her mother was a professor. It was at Canisius that she experienced a spiritual awakening. Eventually, Molly spent a week on a service retreat at a monastery in northwestern Pennsylvania. Molly realized that the resident religious sisters could be doing much more with the monastery property, which was located on a vast amount of land.

"There were many acres of forest, but, at that time, there was no forest plan, no erosion plan, no invasive-species plan," she said. "And I thought, wow, this could be done better. They could be doing sustainable forest management and earning revenue, or they could implement a permaculture farming system and actually feed people." (David Owen, "How a Young Activist Is Helping Pope Francis Battle Climate Change")

This revelation was the beginning of Molly's mission to document the global landholdings of the Catholic Church. Molly understood that the Church has the means to address climate issues directly through strong land management and, by doing so, can contribute to the protection of populations that are vulnerable to the consequences of global warming. Molly believes the Catholic Church must proactively engage with its own lands and property if climate change is to be addressed in any sort of timely manner.

Molly is creating land-use maps like this one to help the Catholic Church record their global landholdings and usage.

The Church has the means to address climate issues directly through strong land management and can contribute to the protection of populations vulnerable to the consequences of global warming. Pope Francis has made the care of our planet one of his primary concerns. He consistently reminds us that this living planet is our common home and that we are all interconnected and interdependent. Human choices and activities have caused a complicated environmental crisis, and it is our responsibility to understand our role as stewards of God's creation.

Activities

All of God's Creation (20 minutes)

Objective: To use a relay game to begin considering the human role in the care of creation.

Materials Needed

- ☐ four sheets of newsprint and four markers *(optional)*
- ☐ a timer

9

1. **Arrange** the students into four teams. Explain that each team will be assigned a different category and must list words associated with that category on the board or on a sheet of newsprint. They will have exactly 5 minutes to complete this task.
2. **Direct** the teams to form their own line. The first person from each team will go up to the board (or posted sheet of newsprint) and list an item from the team's category that starts with the first letter of the alphabet. Each successive team member will then go up and list an item from the team's category that starts with the next letter of the alphabet. Helping one's teammates is allowed by giving answers if they are stuck. Explain that if a team goes through the whole alphabet before time is up, they should start again from the beginning without repeating items.

3. **Assign** the teams the following categories:
   - Team 1: mammals
   - Team 2: birds and insects
   - Team 3: plants and crops
   - Team 4: fish, reptiles, and amphibians
4. **Give** the signal to begin, and invite the teams to cheer for their members. Set a timer for 5 minutes, and let the activity continue until the time ends. Invite the teams to sit back down.
5. **Discuss** the activity using these or similar questions:
   - ➢ What was the most challenging part of this activity?
   - ➢ Did you receive help from your teammates? In what ways is collaborating helpful in completing challenging tasks?
   - ➢ What is the common theme for all the categories?
   - ➢ Do you think we have a responsibility to care for all the living things that are listed? What is the role of humans in the care of creation?

Living as a Steward of Creation (60 minutes)

Objective: To investigate and reflect on what it means to live as a steward of creation.

Materials Needed

- ☐ internet access
- ☐ copies of the handout "Living as a Steward of Creation," on page 282, one for each student
- ☐ one copy of the handout "Living as a Steward of Creation Answer Key," on pages 283–284

1. **Ensure** that each student has access to the internet to find and read these documents:
   - "The Ecological Crisis: A Common Responsibility" (1990): Pope John Paul II's World Day of Peace Message
   - "Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching"(1991): US bishops' statement
   - "Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good" (2001): US bishops' statement
   - "If You Want to Cultivate Peace, Protect Creation" (2010): Pope Benedict XVI's World Day of Peace Message

2. **Distribute** the handout "Living as a Steward of Creation." Tell the students to review the section "Everything Is Connected" on pages 268–269 in the student book before reading the documents online.
3. **Direct** the students to read the four documents in class and to fill in the handout based on their reading. Encourage the students to scan the documents for key ideas and terms such as *Genesis* and *steward*.
4. **Use** the handout "Living as a Steward of Creation Answer Key" to review the students' responses as a class.
5. **Arrange** the students into small groups of three or four. Ask the groups to brainstorm ways they can make conscious choices to live as true stewards of creation in their daily lives.
6. **Invite** the small groups to share their ideas with the class, and as they are doing so, record these ideas where everyone can see them. Direct the students to choose one of these ideas to try over the next few days.
7. **Assign** a short reflection paragraph in which the students answer the following questions after several days of trying their idea for living as a true steward of creation:
   - What idea did you try?
   - Would you try this again? Why or why not?
   - What were the easiest and most difficult parts of living this way and why?

Teacher Note
You may eliminate step 7 if you prefer to have the students reflect as part of a class discussion.

9

Student Book Activities

The activities provided in the student book, reprinted here along with page numbers where they appear, can be used in class or as homework. See the introduction of this guide (pages 7–8) for suggestions of ways to use them, such as paired exchanges, small-group discussions, role-plays, fishbowl discussions, journal or essay writing, or test questions.

Page 263 If you could champion one area of social action within the Church, what would it be? What are some of the steps you might take toward accomplishing your goals?

Page 264 What is the purpose of Molly Burhans's work of attempting to document the global landholdings of the Catholic Church?

Page 266 What is something you intentionally do or avoid doing on a regular basis that impacts the environment in a positive way?

Page 267 Think of places in your school or community where there is space for an urban garden. What tools and supplies would be needed to set up and sustain this type of project? Who would benefit from an urban garden in your area? Can you think of any negative aspects of establishing an urban garden? If so, what might they be and how could they be addressed?

For Review

1. *Define* ecosystem.

   An ecosystem is a community of living organisms that interact, and the environment they share.

2. *Give an example from the text of how to be a good steward of creation.*

   Answers will vary but may include:

   - Plant trees to minimize soil erosion.
   - Protect natural spaces and species.
   - Practice urban gardening.
   - Be thankful for the gift of creation by cultivating and caring for nature.

3. *What are two important themes in Pope Francis's encyclical on caring for creation?*

   Answers will vary but should include two of the following:

   - Be thankful for the gift of creation by cultivating and caring for nature.
   - By treating the earth as if it has an unlimited supply of resources, humanity is damaging our common home.
   - Everything is interconnected.
   - Science can inform faith, and faith should also inform science.
   - Apathy and selfishness make environmental problems worse.
   - When creation suffers, people in poverty or vulnerable populations are most at risk of being adversely affected.
   - Less is more.
   - Being created in God's image with dominion over the earth does not justify human activities that destroy nature.
   - Young people demand and deserve a sustainable future.
   - Each person can make a difference given their culture, experience, involvement, and talents.

4. *According to" On Care for Our Common Home," who is most at risk of being adversely impacted when creation suffers?*

   Those who are most at risk are people in poverty and vulnerable populations.

5. *Name three ecosystem services that are essential for life.*

   Answers will vary and may include three of the following:

   - Microorganisms in the water and the soil of wetlands, streams, rivers, and forests filter and improve water quality for wildlife habitats and for our recreation.
   - Green plants absorb carbon dioxide and produce the oxygen we need to breathe.
   - Animals, birds, and insects transfer pollen grains to fertilize crops that produce the nuts, fruits, and vegetables we eat.
   - Plants and animals provide the fibers we use to make textiles, food, clothing, and shelter.
   - Beautiful, scenic places like natural landmarks and nature trails inspire us to pray, reflect, or meditate to maintain our spiritual well-being.
   - Earthworms decompose animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil for growing crops we depend on for food.
   - Trees and forests minimize soil erosion and control flooding to protect our farmlands and communities.
   - Green spaces are open areas of grass, trees, and vegetation in urban environments that we depend on for recreation, education, public art, history, beauty, and health improvement.
   - Coral reefs are crucial fish nursery habitats that also protect shorelines from erosion and provide tourism and recreational opportunities.

Creation as Gift


9 270 Respect for the Earth

For Review

1. Define ecosystem.
2. Give an example from the text of how to be a good steward of creation.
3. What are two important themes in Pope Francis's encyclical on caring for creation?
4. According to "On Care for Our Common Home," who is most at risk of being adversely impacted when creation suffers?
5. Name three ecosystem services that are essential for life.

Creation as Gift

Phil is a high school senior, an amateur photographer, and an outdoor enthusiast. After high school, he wants to pursue a career as a nature photographer. Phil has always believed that creation is a precious gift. He wants to ensure the natural world is cared for and treated respectfully. Through his photography, Phil wants to show what it looks like when people live in harmony with creation, and what happens to creation when that harmony is absent.

Recently, Phil won first place in a photo contest sponsored by a nature conservation society in the "People and Nature" category. The judges said that Phil's photo powerfully illustrated how people and nature depend on each

Creation is a gift and can provide everything we need to survive, but we must find ways to live more harmoniously with nature by using and sharing the goods of the earth more responsibly. If we do not respect and nurture this gift we have been given, future generations will be left with a host of environmental problems that directly impact life on earth. Due greatly to human action, we are in the midst of an extinction crisis. It is crucial that we take immediate steps to protect the gift of creation and find solutions to the environmental issues that already exist.

Activities

Think-Pair-Share: The Natural World (20 minutes)

Objective: To consider the many ways our daily life is supported by the natural world.

Materials Needed

none

1. **Tell** the students to think about ten ways their daily life is supported by the natural world and to write down their thoughts on a sheet of paper.
2. **Arrange** the students into pairs. Ask the pairs to share their ideas with each other and then to work together to create a list of their best ten.
3. **Invite** each pair to take turns sharing their list of ten with the class. Everyone should then work together to create a class list of the top ten ways daily life is supported by the natural world.
4. **Examine** the class list. Direct the students to select the top three that they rely on daily, and invite them to reflect on which ones they most take for granted.
5. **Encourage** the students to share one way they can show respect for nature on a daily basis. Inquire if there are other ideas that could be added to this list of ways our daily life is supported by the natural world.

Environmental Issues and the Impact on Humans (25 minutes)

Objective: To get a sense of how much our environment is in crisis.

Materials Needed

☐ copies of the handout "Environmental Issues and the Impact on Humans," on page 285, one for each student

1. **Distribute** the handout "Environmental Issues and the Impact on Humans." Instruct the students to complete the handout by matching the statistics on different aspects of the environment with the way they negatively affect humans.
2. **Check** the students' responses by going over the answers as a class. (*Answers:* 1.b, 2. f, 3. h, 4. e 5. c, 6. d, 7. g, 8. a)
3. **Conclude** by asking the following discussion questions:
   - Which environmental crisis in this activity are you most familiar with? How did you gain that familiarity?
   - Which issue most affects you and the region you live in?
   - How are people responding to this crisis?
   - How do the facts in this activity make you feel?
   - Which environmental issue mentioned in this activity concerns you the most?

Student Book Activities

The activities provided in the student book, reprinted here along with page numbers where they appear, can be used in class or as homework. See the introduction of this guide (pages 7–8) for suggestions of ways to use them, such as paired exchanges, small-group discussions, role-plays, fishbowl discussions, journal or essay writing, or test questions.

Page 274 What if you were no longer able to benefit from the natural world due to damage caused by human activities? How would your life be affected?

For Review

1. *How does the loss of rainforests negatively impact humans?*

   The loss of rainforests and their biodiversity disrupts the natural systems needed to create essential resources, such as food and medicine.

2. *How has the pollution of oceans with undertreated sewage affected humans?*

   The waste from undertreated sewage flows into the ocean. The waste from inadequate or nonexistent sewage systems endangers the lives of people who swim and fish in the ocean or consume tainted seafood.

3. *What is the primary source of energy in the United States, and how does this affect the environment?*

   Fossil fuels are the primary source of energy in the US. Burning fossil fuels releases toxic gases into the atmosphere, which can lead to serious health problems.

4. *In what way do ecosystems depend on biodiversity?*

   Ecosystems depend on biodiversity to ensure that all necessary functions sustaining ecosystem health are carried out. The loss of biodiversity risks the collapse of an ecosystem.

Our Environmental Responsibility


Our Environmental Responsibility 275 9

supported by healthy ecosystems, they have a life expectancy of fifty years or more. The main threat to loggerhead turtles is accidental capture in fishing nets. They can become entangled in fishing line, and pieces of net can become wrapped around their flippers. Development of beaches where they nest is also a threat, not just from the disturbance of their nests in the sand, but because artificial lights can direct the hatchlings to migrate toward the light instead of the ocean. Conservation efforts, such as designating habitat areas to protect nests, as well as researching and developing changes to fishing gear and practices to minimize the accidental trapping of the turtles have made a difference.

For Review

1. How does the loss of rainforests negatively impact humans?
2. How has the pollution of oceans with undertreated sewage affected humans?
3. What is the primary source of energy in the United States, and how does this affect the environment?
4. In what way do ecosystems depend on biodiversity?

Our Environmental Responsibility

The Book of Genesis emphasizes not one, but two tasks that God entrusts to humankind in relationship to the environment: cultivation and caring. "The Lord God then took the man and settled him in the garden of Eden, to cultivate and care for it" (Genesis 2:15). Our right to cultivate the earth comes with the responsibility to care for the earth.

From the day of his inauguration, Pope Francis has called all humanity to work toward a sustainable future in which the earth and all its inhabitants live in harmony, where cultivation and caring for the earth are seen in balance. In the homily at his inauguration in 2013, he addressed the importance of care for creation by reminding us that being a protector is not something

9

We have long been entrusted with the care and cultivation of the environment. The Book of Genesis speaks not only of the gift of creation but also clearly focuses on the responsibility that we have to care for it. We have many champions of creation to look to as an example and for guidance, but action to protect the environment must be taken by each of us. Our individual and societal choices matter in learning from the past and implementing new habits to change for the better.

Activities

After the First Earth Day (45 minutes)

Objective: To arrange the events following the first Earth Day in the correct chronological order to review the significance of issues that affect climate change.

Materials Needed

- ☐ internet access
- ☐ copies of the handout "After the First Earth Day," on pages 286–287, one for each student

1. **Distribute** the handout "After the First Earth Day." Instruct the students to read the events that have happened since the first Earth Day, which raised awareness and called for our urgent response to the issue of climate change. Tell them to work with a partner to arrange the events on the handout in the correct chronological order.
2. **Invite** several volunteers to share their answers, and have the class correct their handouts as needed. (*Answers:* 6, 5, 9, 4, 7, 10, 2, 1, 3, 8)
3. **Moderate** a class discussion using the following questions:
   - ➢ Based on the events you just learned about, how well do you think the world is responding to a planet in crisis? Have we progressed adequately since the first Earth Day in 1970?
   - ➢ What gets in the way of making greater strides to reverse climate change?
   - ➢ Most environmental leaders are calling for a dramatic change in the way residents of higher-income nations live. What kinds of changes would this entail?
   - ➢ What do you think "radical solidarity" between humanity and creation would look like? What actions might be involved?
4. **Brainstorm** slogans that might bring attention to the urgency of climate change.

> **Teacher Note**
> If you would like to extend this activity, instruct the students to make posters of their slogans to post around the classroom or in preapproved spaces in the school.

Our Choices Matter (40 minutes)

Objective: To recognize several types of environmental injustice and accept our role in caring for the earth and reversing the harm humans are causing.

Materials Needed

- ☐ copies of the handout "Our Choices Matter," on pages 288–290, one for each small group of three or four

1. **Arrange** the students into small groups of three or four, and distribute the handout "Our Choices Matter." Instruct the groups to complete the handout about teens and young adults who not only saw the earth in crisis but were motivated to act and become champions for the environment.
2. **Check** the students' responses before continuing. (*Answers:* 1. d, 2. c, 3. a, 4. b, 5. b, 6. c, 7. c, 8. a, 9. d, 10. d)
3. **Moderate** a class discussion based on the activity using the following questions:
   - ➢ If you were going to join one of the project teams in this activity, which one would you join? Why?
   - ➢ How did the teens' youthfulness help them accomplish so much?
   - ➢ What ideals or characteristics most helped this person or group succeed?
   - ➢ What do you find most inspirational about this person or group and their efforts?

Student Book Activities

The activities provided in the student book, reprinted here along with page numbers where they appear, can be used in class or as homework. See the introduction of this guide (pages 7–8) for suggestions of ways to use them, such as paired exchanges, small-group discussions, role-plays, fishbowl discussions, journal or essay writing, or test questions.

Page 277 Do some research to investigate positive changes that have come about since the creation of the United States Environmental Protection Agency or the Clean Air, Water, and Endangered Species Acts.

Page 279 Reflect on a time when you became aware of an environmental crisis, suffering, or need. What was your initial reaction? What type of action were you compelled to take?

Page 281 Brainstorm a list of attitudes, actions, products, and practices that were commonplace in the past, and the new habits, attitudes, and products that have replaced them as we strive toward responsible stewardship.

For Review

1. *What is considered Gaylord Nelson's greatest contribution as a steward of the environment?*

   Gaylord Nelson's greatest contribution was the establishment of Earth Day.

2. *Name at least one law that was a result of Gaylord Nelson's effort to raise awareness of environmental issues.*

   Nelson's efforts led to the creation of the Clean Air, Clean Water, and Endangered Species Acts.

3. *When the common good is our focus, what might we be willing to do to protect the earth and one another?*

   We become more willing to sacrifice our personal comfort for the good of another. We are then able to combine our creative energies to find solutions that will heal the earth.

4. *What are greenhouse gases?*

   Greenhouse gases are gases such as carbon dioxide, water vapor, methane, and nitrous oxide that pollute the air and cause the warming of the earth's atmosphere.

5. *According to the text, who is the patron saint for the protection of our planet?*

   Saint Kateri Tekakwitha

6. *Where can we find the teachings about the two tasks God has entrusted to humankind regarding the earth, and what are those two tasks?*

   We can find the teachings about the tasks God has entrusted to humankind regarding the earth in the Book of Genesis, and those two tasks are to cultivate and care for the earth.

Make a Difference


9 282 Respect for the Earth

Make a Difference

Real actions make real progress. In higher-income nations, renewable energy is meant to reduce dependence on fossil fuels that damage the environment. In lower-income countries, however, renewable energy may also provide electricity to people who currently have no access.

William Kamkwamba, a teenager from Malawi, in southeastern Africa, saw an image of a wind turbine in a library book. Thinking that free electricity could help his village irrigate crops, William used scraps from a junkyard and built a working turbine modeled after the picture in his library book. His family now enjoys lights and radio powered by his makeshift wind turbine. In fact, William's entire village benefits from his ingenuity. His original windmill was extended to catch wind from above the trees. Another windmill pumps gray water for irrigation.

William earned a scholarship to Dartmouth College. Since his graduation, he has continued to work on projects to benefit his village, as well as his home country. The story of how William's persistence and creativity saved his village became a film called *The Boy Who Harnessed the Wind*, based on William's memoir. William is proof that anyone can harness sustainable energy.

When it comes to caring for creation, real actions make real progress. This can be witnessed in the examples of those who recognize that they have the power to make a difference and then take action to do so. Inspired by others' innovative ideas, grit, and determination, we recognize that we too can make a difference, and we are empowered to act in our daily lives to effect positive change regarding the environment. We recognize that we have many opportunities to make a difference in the area of environmental justice.

Activities

Causes and Consequences (30 minutes)

Objective: To examine the causes and consequences of a throwaway culture by assessing our attitudes and actions.

Materials Needed

- ☐ copies of the handout "Causes and Consequences," on page 291, one for each student

1. **Distribute** the handout "Causes and Consequences." Instruct the students to read the eight events to determine which attitude or action came first, and which are consequences that naturally follow. Tell them to arrange the events on the handout in order of causality.
2. **Check** the students' responses before continuing. (*Answers:* 6, 4, 2, 3, 8, 5, 1, 7)
3. **Moderate** a class conversation based on this activity, using the following questions:
   - ➢ How would this sequencing activity help someone understand that all creation is interconnected?
   - ➢ What is the benefit of faith informing science?
   - ➢ What is the benefit of science informing faith?

- The Catholic Church consistently calls on humanity to care for the poor and vulnerable. How might the natural environment be considered poor and vulnerable?
- This sequencing activity shows that human activity has contributed to a diseased earth. How can our convictions, attitudes, and actions reverse that trend? What actions would help heal the earth?

See, Judge, Act (90–135 minutes)

Objective: To practice the See, Judge, Act method by analyzing several environmental issues.

Materials Needed

- ☐ a copy of the handout "See, Judge, Act Scenarios," on pages 292–293, cut apart as indicated
- ☐ four copies of the handout "See, Judge, Act Group Project," on page 294

1. **Arrange** the students into four numbered groups, and distribute the handouts "See, Judge, Act Scenarios" and "See, Judge, Act Group Project." Invite each group to read their scenario and to complete an analysis of it using the steps outlined on the project handout.
2. **Instruct** the groups to prepare an oral presentation on their scenario, using some insights gained through their See, Judge, Act analysis. Have them take turns giving their presentations to the class.
3. **Discuss** the results of the See, Judge, Act analysis after all the presentations by asking the following questions:
   - How did the See, Judge, Act method help your group better understand the depth and complexity of your scenario?
   - How did you feel when you listened to the personal stories presented in each scenario? Which scenario elicited the strongest response from you? Why?

Student Book Activities

The activities provided in the student book, reprinted here along with page numbers where they appear, can be used in class or as homework. See the introduction of this guide (pages 7–8) for suggestions of ways to use them, such as paired exchanges, small-group discussions, role-plays, fishbowl discussions, journal or essay writing, or test questions.

Page 284 Imagine yourself as a champion of creation. Which environmental injustice would you choose to act on to create a better future, and why?

For Review

1. *What different effects can renewable energy have in higher-income versus lower-income nations?*

   In higher-income nations, renewable energy is meant to reduce dependence on fossil fuels that damage the environment. In lower-income countries, however, renewable energy may also provide electricity to people who currently have no access.

2. *Explain each step of the See, Judge, Act method of decision-making.*
   - *The first step is to "see."* This means to recognize a situation and understand what is involved to the degree possible. We can evaluate what is happening, who is involved, and what the effects of the situation are.
   - *The second step is to "judge."* This is a time to reflect on how we think and feel about the situation. What do we think should happen? What does our faith say about this situation?
   - *The third step is to "act."* In this stage, we are called to assess what we are going to do and who we might involve, and then proceed with action.

3. *What is a charism, and how might it be used to support the common good?*

   Charisms are our God-given interests and talents. Charisms help us serve the common good through our writing, teaching, speaking, making music, leading, sharing knowledge, being hospitable, healing, creating art, encouraging others, planning and organizing, being generous, sharing faith, being compassionate, peacemaking, and so on.

Name: _____

Living as a Steward of Creation

Church Document	Main Ideas	What are the connections to the Genesis Creation account and the call to be a steward of creation?
"The Ecological Crisis: A Common Responsibility" (1990)		
"Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching" (1991)		
"Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good" (2001)		
"If You Want to Cultivate Peace, Protect Creation" (2010)		

Living as a Steward of Creation Answer Key

"The Ecological Crisis: A Common Responsibility" (1990)

Main Ideas

- World peace is threatened by a lack of respect for nature, the plundering of natural resources, and a progressive decline in quality of life.
- Respect for life in all forms should be the ultimate guiding notion for any economic, industrial, or scientific progress.
- The earth is our common heritage as human beings.
- Although we do need more international cooperation on developing an approach to caring for the earth, it is also the responsibility of individual states and countries to tend to their natural surroundings.
- The ecological crisis has revealed an urgent moral need for solidarity.
- The ecological crisis is a moral issue for which we all are responsible.

Connections to the Genesis Creation account

- God gave us dominion over the earth so that we might use these resources for the good of humanity, including future generations.
- Our right to use the earth's resources for the common good requires us to be responsible for the cultivation and care of the earth.
- We are called to be stewards of creation just as Adam and Eve were called, and it is our responsibility to care for all creation.

"Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching" (1991)

Main Ideas

- The environmental crisis is a moral challenge.
- To ensure a sustainable economy and a healthy environment, we must also work toward justice within nations and among the international community.
- Our mistreatment of nature contradicts what it means to be human because it reduces our human dignity and sacredness.
- Not only do we suffer from the environmental crisis in the present, but so will generations of human beings in the future.
- A God-centered, sacramental view of the universe, respect for human life, global interdependence, solidarity, an option for the poor, and authentic development are needed in order for us to take responsibility for care of the earth.
- Hope is at the center of the Christian environmental ethic.

Connections to the Genesis Creation account

- Because of Adam and Eve's sin in the Garden of Eden,future generations were afflicted with suffering.
- God created the universe and all things within it. Therefore, we must treat his creation with the utmost respect and dignity.
- Jesus brought hope for the future, just as we must bring hope for the future of our earth.

"Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good" (2001)

Main Ideas

- At its core, global climate change is about the future of God's creation and his one human family.
- In the continuing debate on global climate change, various special interests tend to drown out the common good and the voices of those who suffer injustices.
- The virtue of prudence is crucial to our response to climate change, as we must protect the earth for future generations.
- The issue of global climate change touches many people throughout the world, especially the poor and marginalized.

Connections to the Genesis Creation account

- We are not gods over creation, but we are called to reflect God's care for creation.
- God intends for human beings to benefit from creation as one human family. We are called to use the environment for the common good, not for selfish interests.
- We can show our respect for the sacramental universe by considering the effects of our actions on future generations.
- We are one human family, living under God's creation.

"If You Want to Cultivate Peace, Protect Creation" (2010)

Main Ideas

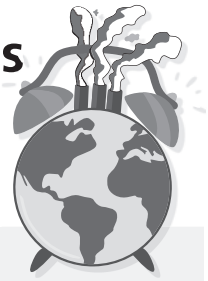
- Respect for creation is paramount, especially because creation is the foundation of all God's works.
- Although the Church does not have scientific authority on this issue, it does have a deep concern and heightened authority in humanity.
- Many people experience hardship due to the negligence or refusal of many others to act as stewards of the environment.
- The way to achieve peace is through the protection of creation.

Connections to the Genesis Creation account

- The Genesis Creation account is the first designation of the relationship between God, human beings, and the created earth.
- Care for the environment is also care for human dignity, because both the earth and humanity are creations of God.
- When Adam and Eve failed to act as stewards, they left a trail of suffering and human strife. Stewardship is part of the recipe for peace in the world.

Name: _____

Environmental Issues and the Impact on Humans



Match the statistics in column A with the way they impact humans in column B.

Column A

_____ **1.** Around the world, forty million tons of electronic waste is produced every year.

_____ **2.** Urban sewage is frequently discharged into the Mediterranean Sea, and 80 percent of it is untreated.

_____ **3**. In a four-year study led by Dr. Boris Worm of Dalhousie University, researchers predict the significant decline of all the marine species we eat before 2050.

_____ **4.** The average household in the United States wastes ten thousand gallons of water per year in preventable leaks.

_____ **5.** Fossil fuels are the primary source of energy in the United States. Americans use about eighteen million barrels of oil every day.

_____ **6.** Rainforests once covered 14 percent of the earth's surface. As of 2022, they covered only 6 percent.

_____ **7.** Twice the size of Texas, the Great Pacific Garbage Patch has an estimated 1.9 million bits of plastic per square mile in the North Pacific Ocean. Most of this debris comes from plastic bags, bottle caps, plastic water bottles, and Styrofoam cups.

_____ **8.** Fully 27 percent of the world's coral reefs have been destroyed. One factor contributing to this destruction is the warming of the ocean, which causes corals to sicken and die.

Column B

a. Coral reefs are considered the medicine cabinets of the twenty-first century. As coral reefs are destroyed, humanity will lose the ability to create new medicines to cure diseases like cancer and arthritis.

b. In 2014, only 11 percent of mobile phones were recycled. Cell phones that are not recycled end up in landfills, where they contaminate the local environment with harmful toxins, including lead, mercury, arsenic, cadmium, chlorine, and bromine.

c. Burning fossil fuels releases harmful gases into the atmosphere, leading to the production of acid rain. Acid rain can cause skin cancer, asthma, and other respiratory diseases.

d. The loss of rainforests and their biodiversity disrupts the natural systems required to create renewable resources, such as food and medicine.

e. Wasting water does more than just raise our water bills. According to the United Nations, one-fifth of the world's population is affected by water scarcity.

f. Improper disposal of wastewater leads to polluted beaches and tainted sea life. The waste from millions of people with inadequate or nonexistent sewage systems empties into the ocean.

g. The improper disposal of plastics causes the deaths of hundreds of thousands of sea turtles and seabirds each year. These seabirds and fish ingest the plastic or get tangled in the ocean debris.

h. An estimated one billion people, largely in low-income countries, rely on seafood as their primary source of animal protein. Without a sufficient supply of fish, their food security will reach crisis levels.

Name: _____

After the First Earth Day

Work with a partner to put the following events in the correct chronological order by writing a number (1–10) in the circle next to the description. Use the internet for assistance.

Critics claim that climate change is a natural phenomenon. James Hansen, a leading expert on climate change with the National Aeronautics and Space Administration (NASA), warns US lawmakers that global warming is caused by burning fossil fuels and by human activities. Hansen explains the greenhouse effect is actually changing climate and weather.

New awareness of the ozone hole motivates nations to sign the first Montreal Protocol, an international treaty agreeing to phase out the production of substances causing ozone depletion in hopes of repairing the hole.

Climate change is affecting habitats at a faster rate than many of the world's species can adapt. The executive director of the United Nations Environment Program (UNEP) warns: "The world is currently facing a sixth wave of extinctions mainly as a result of human impacts. Urgent and accelerated action is needed to ensure a healthy, productive, and functioning planet" (*UN News*).

British Antarctic survey scientists confirm Rowland's, Molina's, and Broecker's concerns about the ozone crisis when they discover a hole in the ozone layer of Antarctica.

The International Panel on Climate Change's (IPCC) First Scientific Assessment of Climate Change concludes that emissions from human activities are substantially increasing the atmospheric concentration of greenhouse gases.

Pope Francis issues the environmental encyclical "On Care for Our Common Home," calling for an international dialogue and changes on a global scale for environmental justice.

Chemists Frank Rowland and Mario Molina publish their discovery that chlorine atoms produced by chlorofluorocarbons are destroying the earth's ozone layer. Ozone molecules in the atmosphere protect life on Earth from the effects of ultraviolet rays.

The US Environmental Protection Agency (EPA) is established just months after the first Earth Day, in response to public concerns and grassroots movements about air, water, and land pollution.

Geologist Wallace Broecker determines that human-made pollutants, such as chlorofluorocarbons, are not only destroying the ozone but also warming the planet. He coins the term *global warming* in a scientific paper about rising carbon dioxide levels caused by fossil fuels.

The Intergovernmental Panel on Climate Change (IPCC) issues the Fourth Scientific Assessment. The IPCC concludes, "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level."

(The first quotation on this handout is from "World's Fastest Animal, in Race for Survival, to Get Added UN-backed Protection, *UN News,* November 28, 2008, at https://news.un.org/story/2008/11/283352. The second quotation is from Yuwei Zhang, "'Warming of 'the Climate System Is Unequivocal': Highlights of the Fourth IPCC Assessment Report," from *Green Our World,* June 2007.)

Name: _____

Our Choices Matter

Read each of the following scenarios and circle the letter of the environmental injustice the young people are transforming.

1. Recycling factories in China and India are recovering e-waste from consumer electronics that are shipped in from all over the world. However, the recycling process is releasing heavy metals and toxic waste into local water supplies, leaving residents without safe drinking water. US teen Perry Alagappan invented a reusable filtration device that can be manufactured for less than $20. He became interested in water purification when he visited his grandparents in India and saw how severely electronic waste contaminated the environment. Which environmental injustice is Perry's invention transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

2. In higher-income nations, renewable energy is meant to reduce dependence on fossil fuels that damage the environment. In lower-income countries, however, renewable energy may also provide electricity to people who currently have no access. William Kamkwamba, a fourteen-year-old from Malawi, in southeastern Africa, saw an image of a wind turbine in a library book. Thinking that free electricity could help his village irrigate crops, William used scraps from a junkyard and built a working wind turbine modeled after the picture in his library book. His village is powered by his makeshift wind turbine. Which environmental injustice is William's invention transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

3. Kudzu is an invasive plant that completely covers other plants and suffocates them. Habitats that other plants and animals depend on are eliminated by kudzu. An estimated seven million acres of land are covered with it. When Jacob Schindler was in sixth grade, he started a project to see what it would take to grow kudzu on Mars. His research led him to discover that drilling helium into the shaft of the kudzu plant kills it without harming other plants around it. Jacob's research goal then became eliminating kudzu in an environmentally friendly way. What environmental injustice is Jacob's discovery transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

4. With a high concentration of industrial facilities, the South Bronx has been nicknamed "Asthma Alley." Teens have stepped up to make a difference for people living in these residential areas. Through an organization called the Center for Urban Pedagogy, teens are empowered to educate their peers on the root causes and impact of asthma. These "teen publishers" educate through text, drawings, and collages that are embedded in interactive digital apps. Although the prevalence of asthma in the South Bronx still exceeds national averages, these teens are raising awareness through education and advocacy. Which environmental injustice are these teens transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

5. Boyan Slat is a Dutch inventor and entrepreneur who left his college studies to begin The Ocean Cleanup, which seeks to rid oceans of plastic. Instead of trying to go after all the plastic floating around the world's oceans, Boyan invented a device that uses ocean currents to draw the plastic together into a central location. This means that ocean cleanup can happen in a few years instead of a few thousand. Which environmental injustice is Boyan's invention transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

6. Starting at age fourteen, Elif Bilgin of Istanbul, Turkey, spent two years trying to find a viable alternative to petroleum-based plastics. At age sixteen, she successfully created a bioplastic from banana peels. Elif is committed to sparing our beautiful planet from the consequences of using petroleum-based plastics that harm the environment and threaten global warming. Elif was the winner of the 2013 Science in Action award. Which environmental injustice does Elif's discovery transform?

A loss of biodiversity
B pollution
C climate change
D water poverty

7. While visiting her family in the Philippines, Ann Makosinski was shocked to see how many Filipinos could not afford adequate electricity. Ann, who lives in Vancouver, British Columbia, set out to find a renewable energy source that would give anyone access to electricity at any time. Ann created a flashlight that generates light from the heat of the human hand. She called it the Hollow Flashlight. What environmental injustice is Ann's discovery transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

8. Aaron Friedman was looking forward to his bar mitzvah ceremony, the Jewish coming-of-age rite for boys. Instead of traditional gifts, Aaron asked family and friends to make donations to the Kakapo Recovery program in New Zealand. The kakapo is one of the rarest parrots in the world. With the introduction of invasive species like cats and rats into the ecosystem, the kakapo population has fallen to less than 150. Aaron raised a total of $2,500 for the endangered kakapo. Which environmental injustice is Aaron's advocacy transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

9. Konstantin Avdienko of San Diego, California, makes water out of thin air, but he doesn't use magic. He uses science. Using supplies from his hardware store, Konstantin created an underground well that produces and captures water. For his prototype, Konstantin was able to produce 1.25 liters of water in a day. Although that's not a lot of water, it came from just one small unit. More units of a larger size would certainly produce significantly more water. The idea came to the young inventor while he was looking at condensation dripping from a water glass. The water glass gave Konstantin the name for his invention: the water condenser. Which environmental injustice is Konstantin's invention transforming?

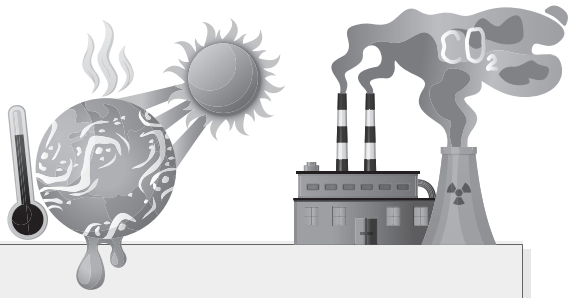
A loss of biodiversity
B pollution
C climate change
D water poverty

10. Deepika Kurup was shocked to see children in India drinking contaminated water. She realized that when a community has a water shortage problem, it doesn't necessarily stem from a lack of water, but a lack of clean water. That's when the New Hampshire resident decided to help find a solution to the global water crisis. To this end, Deepika invented a water purification system powered by solar energy. Deepika invented a system of 3M Petrifilms to purify water. Her invention uses a series of chemical reactions to oxidize organic compounds into carbon dioxide and water. Her invention is more environmentally friendly, cheaper, and more effective than most oxidizing processes. Which environmental injustice is Deepika's invention transforming?

A loss of biodiversity
B pollution
C climate change
D water poverty

Name: _____

Causes and Consequences



Arrange these eight events in order of causality by writing the numbers 1–8 in the circles to the left of each event.

Sea levels rise to dangerous levels.

The ozone layer that protects the earth's atmosphere from the sun's ultraviolet radiation is depleted and global temperatures rise.

Society depends on fossil fuels to power daily living.

Harmful greenhouse gas emissions continue and even increase.

Environmental changes make storms more deadly. Coastal cities and islands are in danger of severe flooding.

Glaciers and polar ice caps melt at rates never before seen in nature.

A culture is created that values economic growth without concern for environmental impact.

Seawater reaches farther inland, threatening water supplies and causing destructive erosion, flooding of wetlands, contamination of aquifers and soils, and loss of habitats.

See, Judge, Act Scenarios

Group 1

John is a fishing guide in drought-stricken California. His livelihood is at stake due to the five-year drought that has caused rivers and streams to dry up, and in turn, has caused extensive ecological damage. Contributing factors include the lack of rain and snow, overconsumption of water, and climate change. Overall, the drought has cost the state of California billions of dollars in agricultural losses and thousands of lost jobs. The drought is also exposing inequalities. The rationing of water has furthered the economic divide between wealthy communities and poorer communities. Wealthy communities tend to guzzle water for their larger, lush lawns; water is a luxury worth paying for.

In contrast, the lawns of the neighboring working-class community just thirty miles away are brown. That community is conserving water by necessity.

Group 2

Dale is a coal miner in West Virginia. His family has lived in the same town for generations, and all the men in his family have been coal miners. Last month, an environmental group came to his small town, lobbying to stop all mining in favor of using alternative energy sources. Based on hard evidence, the group stated that coal mining has damaging effects on local ecosystems and human lives. The town has a high rate of cancer deaths and birth defects, and the sediment in lakes and streams has risen, killing marine life. Coal mining is hard and dangerous work, but it is all Dale knows. If the group shuts down the mines, the major industry of his town is gone. Unemployment will skyrocket, and the town's economy will suffer. The outlook for this town of coal miners is grim since there is little opportunity for a different type of employment.

Group 3

Jodi is a high school student who likes to read and hang out with her friends. Her town is several miles outside Flint, Michigan, and is economically depressed, but she loves it just the same. A large wood-fired power plant in town incinerates wood waste to generate electricity to sell to the town's power station. This power station also generates a lot of pollution that is released through the incinerator's smokestack and into the community, which is already polluted with toxic air from two nearby waste facilities. The community is primarily comprised of people of color and people with low incomes. They are bearing a disproportionate share of the negative environmental consequences. The Department of Environmental Quality did not address several key issues regarding the community when it approved the incinerator's air pollution permit ten years ago.

Jodi and some family members have upper respiratory problems because of the air pollution. Many people want the incinerator removed. Others want it to stay because it employs a majority of the people who live in that community.

Group 4

Randy is the owner of a small but profitable logging company. His company has been hired to clear an area of prime lumber trees, some of which are 150 years old. One of the trees in the group has the fifth-largest diameter of any tree in the state. Another nearby site was clear-cut just a few months ago, and erosion and loss of shrubs have permanently changed that site. Recent legislation has limited where his company can log and what types of trees they can harvest. Clear-cutting is the most efficient way to log, but government policy limits this type of work. Randy realizes the importance of replacing and replanting trees after they are harvested. But it's his job to cut trees, quickly haul them away, sell them, and make money. To continue logging and follow policy, he would need to purchase expensive, specialized equipment and budget part of his profits toward replanting. His company can't afford the new equipment and the cost of replanting. Using the old equipment to log in staggered locations and for different types of trees is not time efficient and can be dangerous. Despite the regulations, he decides to stick with clear-cutting. Environmental groups are protesting the destruction of the area, noting the age of the trees and the significance of the tree with the fifth-largest diameter in the state, not to mention the devastating effects on animals and ecosystems.

See, Judge, Act Group Project

Complete the following analysis of your assigned scenario with as little bias as possible. Recognize injustices and the social systems that support them, and identify root causes.

See

Recognize the situation with as little bias as possible. Recognize injustices and the social systems that support them, and identify root causes.

1. Describe the short- and long-term risks to the environment.
2. Describe how poor and vulnerable populations are affected directly or indirectly by the issue.
3. Identify and describe in depth at least one root cause at the center of this injustice by answering the following questions:
   - How did this begin, and why is it still happening?
   - Have historical events caused or aggravated the injustices associated with this issue?
   - Have prevalent social attitudes or patterns of thinking caused or aggravated the injustices associated with this issue?
   - Have cultural traditions or patterns of behavior caused or aggravated the injustices associated with this issue?

Judge

Decide what can be done on personal, local, and global levels to address the injustice and bring about the justice that serves the common good.

1. Identify and describe a few steps that must happen in this scenario to ensure the common good of humanity and the environment.
2. Search the internet to find an organization that is working to bring about justice for the common good in ways related to this environmental issue. Provide detailed information about the progress they are making.
3. Identify whether this organization is doing actions of charity, justice, or both, and explain why.
4. Identify something an average person could do to become a champion of social change in this scenario.

Act

Reflect on how you think and feel about the injustice you observe. What does your faith say about the injustice?

1. Describe how you feel about this scenario. What are your concerns? What breaks your heart? What gives you hope?
2. Describe how this scenario relates in some way to your life now or in the future.
3. Identify and describe how two teachings from Scripture and/or Catholic Tradition provide guidance for morally and spiritually evaluating this scenario.

Name: _____

Chapter 9 Test

Multiple Choice

Write the letter for the best or most appropriate answer in the space provided before each question.

_____ 1. What is another name for any species on the path to becoming endangered in the near future?
   a. endangered species
   b. extinct species
   c. vulnerable species
   d. biodiverse species

_____ 2. Which step in the See, Judge, Act process involves assessing what we are going to do and who we might involve, and then proceeding with action?
   a. See
   b. Judge
   c. Act
   d. Pray

_____ 3. Which term is defined as “the act of preserving or restoring the natural environment, ecosystems, vegetation, and wildlife”?
   a. conservation
   b. deforestation
   c. endangered species
   d. biodiversity protection

_____ 4. Which term is defined as “the dying out or permanent loss of a species”?
   a. endangered
   b. extinction
   c. vulnerable
   d. none of the above

_____ 5. Which term is defined as “the intentional removal of an area of trees to convert the land to nonforest use, such as farming, industry, or housing”?
   a. conservation
   b. cross-cutting
   c. deforestation
   d. habitat design

_____ 6. What is the worldwide event that started in 1970 that supports environmental protection and is celebrated every year on April 22?
   a. the Environmental Protection Act
   b. Woodstock
   c. National Environmental Observation Day
   d. Earth Day

_____ 7. Which of the following is the process of decomposition by bacteria, fungi, worms, and other living organisms?
   a. biodegradation
   b. conservation
   c. extinction
   d. greenhouse gas release

_____ 8. Which term is defined as “a gas such as carbon dioxide, water vapor, methane, and nitrous oxide that pollutes the air and causes the warming of the earth’s atmosphere”?
   a. leachate
   b. greenhouse gas
   c. fossil fuel
   d. none of the above

_____ 9. Which term is defined as “a toxic liquid that drains from a landfill and can contaminate soil and groundwater”?
   a. leachate
   b. greenhouse gas
   c. fossil fuel
   d. none of the above

_____ 10. Which term is defined as “diverse interests and talents that serve the common good”?
   a. the Beatitudes
   b. volunteering
   c. charisms
   d. none of the above

_____ 11. Which of the following is both spiritual and practical and can be thought of as a way of listening to the voice of God?
   a. See, Judge, Act
   b. charism
   c. adoration
   d. none of the above

_____ 12. Which step in the See, Judge, Act process involves taking time to reflect on how we think and feel about a situation?

a. See
b. Judge
c. Act
d. Prayer

_____ 13. Which step in the See, Judge, Act process involves evaluating what is happening, who is involved, and what the effects of this situation are?

a. See
b. Judge
c. Act
d. Prayer

_____ 14. Which term is defined as "actions that degrade the natural environment, harming ecosystems and living things, including human beings"?

a. See, Judge, Act
b. ecosystem services
c. environmental injustices
d. none of the above

_____ 15. How is urban farming ecologically friendly?

a. Urban farming is sustainable.
b. Urban farming helps with food affordability.
c. Urban farming provides the convenience of access to fruits and vegetables.
d. all of the above

_____ 16. Which of the following reflects Molly Burhans's attitude and actions toward the Catholic Church's landholdings?

a. Molly believed that the Catholic Church should proactively engage with its own lands and property if climate change was to be addressed in any sort of timely manner.
b. Molly founded GoodLands to mobilize the Catholic Church to use its land for good.
c. Molly saw a need and potential opportunity for an erosion plan on monastery property and used GoodLands to map the Church's landholdings to work on that plan on a global scale.
d. all of the above

_____ 17. What does Pope Francis mean when he says, "Hope would have us recognize that there is always a way out, that we can always redirect our steps, that we can always do something to solve our problems" ("On Care for Our Common Home," 61)?

a. Even though human choices and activities have caused a complicated environmental crisis, there is still time and opportunities to turn things around.
b. We can envision and work together toward a more just and sustainable future.
c. both *a* and *b*
d. none of the above

_____ 18. Which of the following statements is *not* expressed in the encyclical "On Care for Our Common Home"?

a. Caring for our planet is an urgent moral and spiritual concern.
b. Human ingenuity exerts enormous power over creation through science and technology.
c. The dangers of human beings abusing power and harming nature are real.
d. Humanity is not responsible for caring for the environment.

_____ 19. How did Pope Francis sound the alarm for our planet in distress?

a. He established GoodLands in an effort to use the Church's landholdings for good.
b. He wrote the encyclical "On Care for Our Common Home" to address concerns about being good stewards of creation.
c. He established Earth Day as a teach-in to create a national movement to raise awareness of environmental issues.
d. He commissioned the building of a wind turbine to show the world the power of renewable energy.

_____ 20. Where does the bulk of the trash in the Great Pacific Garbage Patch come from?

a. plastic waste thrown away on land
b. oil spills from shipping accidents
c. garbage caught in fishing nets
d. untreated wastewater draining into the Pacific Ocean

_____ 21. What ecosystem service do plants and animals provide?

a. absorbing carbon dioxide and producing the oxygen we need to breathe
b. filtering and improving water quality for wildlife habitats and for our recreation
c. providing the fibers we use to make textiles, food, clothing, and shelter
d. decomposing animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil

_____ 22. What ecosystem service do animals, birds, and insects provide?

a. transferring pollen grains to fertilize crops that produce the nuts, fruits, and vegetables we eat
b. filtering and improving water quality for wildlife habitats and for our recreation
c. providing the fibers we use to make textiles, food, clothing, and shelter
d. decomposing animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil

_____ 23. What ecosystem service do earthworms provide?

a. absorbing carbon dioxide and producing the oxygen we need to breathe
b. filtering and improving water quality for wildlife habitats and for our recreation
c. providing the fibers we use to make textiles, food, clothing, and shelter
d. decomposing animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil

_____ 24. What ecosystem service do trees and forests provide?
   a. absorbing carbon dioxide and producing the oxygen we need to breathe
   b. filtering and improving water quality for wildlife habitats and for our recreation
   c. providing the fibers we use to make textiles, food, clothing, and shelter
   d. decomposing animal waste, dead organisms, and plant matter to unlock nutrients that enrich the soil

_____ 25. What ecosystem service do coral reefs provide?
   a. absorbing carbon dioxide and producing the oxygen we need to breathe
   b. filtering and improving water quality for wildlife habitats and for our recreation
   c. providing the fibers we use to make textiles, food, clothing, and shelter
   d. protecting shorelines form erosion and providing tourism and recreational opportunities

Matching

Match each word or phrase in the word bank with its description.

a. cartography
b. ecosystems
c. sustainable
d. ecosystem services
e. environmental degradation
f. habitats
g. stewards
h. biodiversity
i. extinction
j. fossil fuels

_____ 26. Fuels formed from dead plants or animals by natural processes.

_____ 27. The existence of many different forms of life in an environment.

_____ 28. Those responsible for managing or caring for something else.

_____ 29. The science of making and using maps.

_____ 30. The deterioration of the natural environment caused by human activities, such as exploiting and polluting natural resources, destroying habitats, disrupting ecosystems, or depleting biodiversity.

_____ 31. The benefits people obtain from natural environments, including provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as those necessary for the production of all other ecosystem services.

_____ 32. A community of living organisms that interact, and the environment they share.

_____ 33. The natural environments of living things, made up of physical factors, such as soil, moisture, range of temperature, and availability of light, as well as biotic factors, such as the availability of food and the presence of predators.

_____ 34. A method of harvesting or using a resource so that it can be created and maintained without depleting or destroying other things in the process.

_____ 35. The dying out or permanent loss of a species.

True or False

Mark each statement as true (T) or false (F).

_____ 36. The environmental crisis is a moral and spiritual crisis of conscience.

_____ 37. The Church does not have the means to address climate issues directly and therefore cannot contribute to the protection of populations vulnerable to the consequences of global warming.

_____ 38. From humans to invisible organisms, we are all interconnected and interdependent.

_____ 39. Even though years of human choices and activities have caused a complicated environmental crisis, there is still time and opportunity to turn things around.

_____ 40. Humans can survive without the natural world

Essay

Respond to one of the following questions in complete sentences.

A. Why is Molly Burhans's work unique and innovative in regard to her association with the Catholic Church?

B. Name one theme from the encyclical "On Care for Our Common Home," and explain why Pope Francis speaks with such urgency regarding the state of the environment as a global crisis.

C. Explain how both personal sin and social sin affect the struggle for environmental justice.

(The excerpt by Pope Francis on this test is from "On Care for Our Common Home" ["Laudato Si'"], number 61, at www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html. Copyright © LEV.)

Chapter 9 Test Answer Key

Multiple Choice

1. c
2. c
3. a
4. b
5. c
6. d
7. a
8. b
9. a
10. c
11. a
12. b
13. a
14. c
15. d
16. d
17. c
18. d
19. b
20. a
21. c
22. a
23. d
24. b
25. d

Matching

26. d
27. g
28. i
29. f
30. e
31. h
32. c
33. b
34. j
35. a

True or False

36. T
37. F
38. T
39. T
40. F

Essay

A. *Why is Molly Burhans's work unique and innovative in regard to her association with the Catholic Church?*

Molly understands that the Church has the means to address climate issues directly through strong land management and can contribute to the protection of populations vulnerable to the consequences of global warming. No one else has attempted to document and map the Church's landholdings, and certainly not for the purpose of environmental sustainability.

B. *Name one theme from the encyclical "On Care for Our Common Home," and explain why Pope Francis speaks with such urgency regarding the state of the environment as a global crisis.*

Answers will vary. The following ten themes are listed in the text:

1. Be thankful for the gift of creation by cultivating and caring for nature.
2. By treating the earth as if it has an unlimited supply of resources, humanity is damaging our common home.
3. Everything is interconnected.
4. Science can inform faith, and faith should also inform science.
5. Apathy and selfishness make environmental problems worse.
6. When creation suffers, people in poverty or vulnerable populations are most at risk of being adversely affected.
7. Less is more.
8. Being created in God's image with dominion over the earth does not justify human activities that destroy nature.
9. Young people demand and deserve a sustainable future.
10. Each person can make a difference given their culture, experience, involvements, and talents.

Pope Francis speaks with such urgency because he recognizes the gravity of the global crisis called environmental degradation.

C. *Explain how both personal and social sin affect the struggle for environmental justice.*

Answers will vary but should include the following points:

- Personal sin affects environmental injustice when we see things such as recyclables being thrown away, water that is used with no concern for conservation, or electronics that are not disposed of in environmentally friendly ways.
- We see how social sin contributes to environmental injustice when we understand the collective effect of sin creating and perpetuating social structures that allow for the abuse of the gift of creation.