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Landscape is everything around you—the ground, plants, animals, buildings, hills, valleys, rivers, roads, parking lots, power lines, fences, beaches, fields. **Everything.** It can be a garden, a coastline, a forest, or the side of the road. It’s all landscape.
WHAT IS ARCHITECTURE?

OMA/MIA LEHRER + ASSOCIATES

Dallas Connected Cities, Dallas, TX
Landscape architecture is the work of making specific kinds of places outdoors. It could be designing a town square or a playground—even a whole city. It could be designing a pond to make it better for frogs, turtles, fish, and birds. Some kinds of landscape architecture are easy to see, like a park. Other kinds may look completely wild, like a meadow or a mountainside. Landscape architecture is dedicated to the design of healthy environments and communities, and to protecting the health, safety, and welfare of people.
Landscapes are made of many different materials. They include natural materials such as soil, plants, and water, as well as stone, wood, and mulch. They may also include human-made materials like concrete, steel, glass, and even fabrics. Some materials are used to build landscapes and give them shape and support. Others, like paving or lighting, help make landscapes easier or safer for people to use.
Plants keep us alive as food and fuel. They turn sunlight and carbon dioxide in the air into energy, and pump oxygen into the atmosphere for us to breathe. All kinds of plants, from mosses and grasses to shrubs and trees, are important for landscape architects. Plants feed and shelter animals. They determine how a landscape works—by making it shady or helping it soak up water, for example—as well as how it looks and feels to us.

Water covers 70 percent of the Earth’s surface, so it is an important part of most landscapes, whether in the form of oceans, lakes, rivers, or creeks. There is also a lot of water, known as groundwater, stored deep in the Earth where we can’t see it. Water helps nourish the land and is required for nearly all forms of life.

Animals, from the smallest worm to the biggest elephant, depend on landscapes for life. The places where animals (and plants) live are called habitats. When landscape architects design landscapes, they consider how their changes will affect the insects, fish, birds, and mammals that live in a particular habitat.

Soil sustains life on land. It may be sandy like a beach or hard like clay. It contains minerals, water, and gases, and organic matter that feeds plants through their roots. Soil also holds billions of tiny organisms, like bacteria and fungi, that build a complex web of life under the surface. Worms and bugs crawl around in the soil, eating and moving nutrients around.

Plants keep us alive as food and fuel. They turn sunlight and carbon dioxide in the air into energy, and pump oxygen into the atmosphere for us to breathe. All kinds of plants, from mosses and grasses to shrubs and trees, are important for landscape architects. Plants feed and shelter animals. They determine how a landscape works—by making it shady or helping it soak up water, for example—as well as how it looks and feels to us.
WHAT DO LANDSCAPE ARCHITECTS DO?

Research is important to landscape architects. In designing a landscape, they use information they know about a piece of land to try to find out what they don’t know. This work may involve scientific study of water or air quality, or choosing the right plants for a site. It may mean researching a community’s population data and interviewing its residents. Economic research can help find out how a design might affect individuals or businesses near a site. Research can tell landscape architects what has happened on the site in the past and predict what may happen in the future.
Landscape architects work with a variety of other experts: horticulturists, ecologists, biologists, architects, engineers, city planners, construction managers, geologists, agronomists (soil scientists), hydrologists (water scientists), archaeologists, foresters, and marine scientists. They also work with people who live in the communities where they are designing landscapes, as well as their elected representatives, to build agreement about what a landscape should become.

For landscape architects, design is the job of creating a landscape to look and work a certain way. Design is much like art, but it also involves science and technology to make sure that all the parts—soils, plants, construction materials, and even the sun, rain, and wind—work well together to last for years. Landscape architecture involves a lot of STEM knowledge, as it needs a mix of science, math, engineering, and technology to achieve its goals.

Landscape architects often build models of the landscape designs they work on. Sometimes these models are physical—they provide a miniature view of how a design will look when the design is completed. Often, the models are made by using a computer program. Computer models can help landscape architects figure out how the sun will shine on a site, what happens if the site were to flood, or where trees should be planted to provide shade. Making models helps answer a lot of questions before construction of a landscape even begins.

Designing a landscape involves a lot of drawing to figure out how its parts will fit together on a site. It begins with simple sketches. Then the landscape architect begins to draw the site in detail, relying on measurements and other information about what is already on the site, which may be trees, streets, buildings, or utility lines. Most drawing eventually takes place on a computer, which helps the landscape architect precisely draw the kinds of plants that will be included, where pathways will go, and what kinds of construction materials will be used. These computer drawings are used by the builders, who put the pieces together to make the design become real.

Designing landscapes always involves discovering new things. As a landscape architect, you learn about all the different plants and animals on your site—even rare ones, or those you can see only with a microscope. You discover how water moves across and underneath the site, and whether it is clean or polluted. You discover the history of the site—who has lived there, how the land was used, and how it has changed. You’ll study weather patterns and how they shape the land. You may study the site’s rock formations or fossils. These discoveries will build your knowledge about how land, nature, and people all interact to shape landscapes over time.
WHAT ARE THE GOALS OF LANDSCAPE ARCHITECTURE?
Humans have placed enormous pressure on the world’s plants and animals. Many species have gone extinct, and more are in danger of disappearing. At the same time, people over the years have moved many plants and animals around the world, and sometimes these newcomers take over, or become invasive. Landscape architects work to welcome friendly species to landscapes. Examples include pollinator gardens to support native insects, birds, and other animals, and land bridges over highways to let creatures that need lots of room, such as bears, elk, or moose, cross safely.

**BIODIVERSITY**

Parks, gardens, plazas, whole cities, and wilderness are among the places landscape architects design with people in mind, to bring them together or give them places to spend time alone. Landscape architects make public spaces for people to enjoy the outdoors, to play, to walk or bicycle, or to hike and experience nature. The goal is to make these places in ways that help improve the environment and promote the health of people over time.

**CLEAN WATER**

When it rains in cities and suburbs, rainwater may carry pollution from roads to sewers, and it often flows right into our creeks and rivers. Pavement often prevents water from soaking into the ground where it can replenish natural groundwater supplies. Landscape architects work on ways to prevent these problems by providing rain gardens and bioswales where water can soak back underground and filter out pollution by using soil and plants. Designs also may use tanks called cisterns to catch and store rainfall under streets, so it can be pumped back out to water plants.

**ADDRESSING CLIMATE CHANGE**

The ways we use landscapes have a big effect on global climate change. Many types of development may contribute to climate change and worsen the impact of the extreme storms or droughts it causes. Roads and parking lots, and communities that spread across a lot of land, are all related to our warming climate and contribute to flooding, erosion, and wasting water. They may generate pollution (especially carbon dioxide) and urban heat. Carefully designed landscapes can help counter climate change by adding trees that provide shade, cool the air, and stabilize crumbling riverbanks. They also help conserve natural resources by encouraging people to walk or bicycle rather than drive cars.

**MAKING PLACES FOR PEOPLE**

Big, blank, or dirty streets can make a person feel isolated and unsafe. Busier streets with trees, sidewalks, restaurants, stores, and lots of people can make us feel more connected and protected. Landscape architects design streets to accommodate all kinds of people—those on foot, on bikes, in wheelchairs, waiting for the bus, and even in cars. Designers of streets usually include healthy trees for shade and beauty, lighting, and even hidden systems that can handle thousands of gallons of rainwater without sending it to the sewers.

**BETTER NEIGHBORHOODS**

Landscape architects can help make sure that parks, playgrounds, schools, and stores are a pleasant walk from home, that there are plenty of trees, that water is not wasted, and that wildlife is safe.

**HEALTH AND SAFETY**

Healthy landscapes promote the health of people. They provide places to walk, to sit, to play, to exercise, to explore, and to look at the stars. Landscape architects design these places to be safe and accessible to all people. They also help communities prepare for disasters with designs that reduce flooding during storms.
Parks are a kind of place landscape architects design frequently. This is Washington Canal Park in Washington, DC. Until just a few years ago, this park was a dirty, scrubby parking lot for parking school buses. Now it’s a place where you can ice skate in the winter and splash in water jets in the summer. All through the year, people come to Canal Park to sit on benches, lie on the lawn, and watch people.

FROM SKATING TO SPLASHING

During the winter, Canal Park has an ice skating rink. In the summer, you can’t even tell! When the weather gets warm, part of the rink turns into a big splash pad with water jets to cool you off.

WATER COLLECTION

Canal Park collects rainwater from the pavement and the roofs of its buildings and stores it in underground tanks. The water is filtered through rain gardens filled with plants, cleaned and stored underground, and then pumped back up to supply the fountains, pools, and the splash pad.
MEET THE DESIGNER

Canal Park was designed by the landscape architect David Rubin and the firm OLIN.

ENERGY SAVING

The park includes 28 geothermal wells that control the temperature within the park’s indoor spaces. There are charging stations for electric cars. The pavement is designed not to increase urban heat during the day. And because it uses its own water, it saves energy needed to pump water from public supplies.

NATIVE PLANTS

The plants in Canal Park are mostly native to the Washington, DC, area, and help feed insects, birds, and other animals in the city.

FESTIVALS, MOVIES, AND CONCERTS

Throughout the year, Canal Park holds various celebrations. And at night when the weather is warm, people flock to watch movies or attend concerts.
Cities need plenty of places outdoors for people to gather and relax in the fresh air. A landscape architect made this public space, the Blake Hobbs Play-Za, in New York City. It’s a plaza where you can play. It’s in East Harlem, surrounded by streets with a lot of schools and housing. It used to be about a half acre of asphalt, and it didn’t get a lot of visitors. The landscape architect brought in colorful pavement, equipment to play on, and water to play in.

**MADE BY COMMUNITY**

People in the neighborhood took part in the process of deciding what the old park would turn into. The outer edges of the park have been redesigned to welcome in neighbors from three sides.

**PLATFORM**

A big wooden platform stretches out beneath the trees, giving people a stage to hold a band or just a place to relax and listen to the trees overhead in the wind.

**BIG BEAUTIFUL TREES**

Several sycamore trees tower over the site, bringing shade and color to the Play-Za. Sycamores are tough, and can thrive in almost any city setting.
These tough wood structures are great to climb on, jump around, and test your physical skill.

Plants along the outer edges of the park help rain soak into the ground.

The pavement has become bright blue and yellow in bold shapes, which looks exciting in sunlight.

THE BLAKE HOBBS PLAY-ZA WAS DESIGNED BY THE LANDSCAPE ARCHITECT KATE ORFF AND HER FIRM, SCAPE LANDSCAPE ARCHITECTURE, IN NEW YORK CITY.
The Gorilla Rainforest reflects the landscape of the Lake Tele Community Reserve in the Republic of the Congo in central Africa. It has areas of grassland, forest, and marshy river habitat. All of these areas were specifically designed by landscape architects who worked with the zoo managers to make the habitat right, based on years of observation of what gorillas in the wild prefer.

The gorillas in Dublin practically have their own island. A big moat keeps the gorillas safe in their area but lets them move about freely with plenty of space and room, and wide views of their surroundings. A holding area allows the zookeepers to give the gorillas the care they need up close.

The Dublin Zoo is home to seven gorillas. They include Lena, who is about 33 years old and has a baby born in 2016, Mayani, Kambiri, Kafi, Vana, and Tebogo. The zoo's goal is to have a troop of 12 to 15 gorillas in all.

Zoos are fun. They are also the best hope many animal species have of survival, as zoologists work hard to protect their populations and study how endangered species might be helped. This is the Gorilla Rainforest at the Dublin Zoo in Ireland, where western lowland gorillas native to Africa can romp, climb, or just hang out on more than an acre of wild-looking land.
References to the cultures that coexist with wild animals are becoming common in many zoo habitats. The designer of this gorilla habitat also designed one for Asian elephants that relates elephants’ long relationship with people. This helps promote respect and familiarity with what we might only see as exotic creatures.

CULTURE COUNTS

ANIMALS ARE HOME. PEOPLE ARE VISITORS.

Landscape architects who design zoos are working to immerse the animals in environments much like the ones they would have in nature. Old zoos consisted mainly of bare cages. These new animal enclosures put the animals’ needs first. This gives visitors a better experience, too, because they can see how the animals interact with nature.

THE DUBLIN ZOO’S GORILLA RAINFOREST WAS DESIGNED BY THE LANDSCAPE ARCHITECT AND ARCHITECT MARIO CAMPOS OF JONES & JONES ARCHITECTS AND LANDSCAPE ARCHITECTS IN SEATTLE, WASHINGTON.

MEET THE DESIGNER

THE DUBLIN ZOO’S GORILLA RAINFOREST WAS DESIGNED BY THE LANDSCAPE ARCHITECT AND ARCHITECT MARIO CAMPOS OF JONES & JONES ARCHITECTS AND LANDSCAPE ARCHITECTS IN SEATTLE, WASHINGTON.

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Rivers and creeks in many cities were buried in years past, channeled through drainage pipes to make way for development. Nowadays, landscape architects are helping some of these cities bring their streams back to the surface. This project, ChonGae Canal Park in Seoul, South Korea, is a beautiful example of a city that has reopened a stream along a seven-mile path through town.
SCULPTURE AND SYMBOLS

Water splashes over the smooth-carved stones that surround the stream in what is called the Sunken Stone Garden. The stones were donated by the provinces of North Korea and South Korea, to symbolize unity. They have been shaped and arranged to allow people to step right down to the water and wet their feet. Upstream, a dramatic waterfall lights up at night.

UNIFYING THE CITY

Highways divide many cities, as the highway that once covered this stream did in Seoul. Streams, however, bring people together. People love to gather by the canal, particularly at the Sunken Stone Garden, just to listen to the water, splash, and watch people. Millions of people have visited the canal, and the park is able to host events such as festivals, concerts, and political rallies. The reopened stream also welcomes wildlife, including more than 200 species of birds, fish, and other creatures.

FLOODING ALLOWED

The ChonGae Canal’s landscape design is meant to handle seasonal flooding. Water levels can change by the hour or by the time of year, with the heaviest storms occurring during the monsoon season. Most days, as many as 22,000 gallons of water are pumped into the ChonGae River from storm drains and the subway system.

NO MORE HIGHWAY

By the 1960s, the Cheonggyecheon Stream in Seoul was polluted, and a four-lane elevated highway was built to fly over it. But in the early 2000s, the city’s mayor, Lee Myung-bak, made it his mission to tear down the highway and restore the stream’s presence through town.

COOLER TEMPS

After the stream reopened, air temperatures in the crowded downtown area of Seoul fell by three to four degrees compared to temperatures on streets nearby. Breezes are now able to blow through the stream zone, which also helps clean the air.

MEET THE DESIGNER

THE CHONGAE CANAL PARK WAS DESIGNED BY THE LANDSCAPE ARCHITECT MIKYOUNG KIM AND HER FIRM, MIKYOUNG KIM DESIGN IN BOSTON, MASSACHUSETTS.
Vegetable gardens are popping up in public places all over—not just in backyards anymore. Gardeners are using land that sits empty or squeezing plants into small, leftover open spaces. Landscape architects often help design community food gardens, especially in cities. A lot of schools and churches have started vegetable gardens. This one is at Miller Creek Middle School in San Rafael, California.
This garden was the idea of a sixth grader at the school. The student, named Gabby, wrote up the idea and shared it with her parents and her principal, and then was asked to present it to school district leaders. Gabby worked to raise money to start the garden. Community residents, local businesspeople, and even a Marin County supervisor volunteered to help build it.

The garden is totally organic, which means it doesn’t involve the use of pesticides or harmful chemicals. Natural fertilizers, like compost, help the crops grow.

Many community vegetable gardens are quite small. The Miller Creek garden is 4,200 square feet, or less than one-tenth of an acre. It has a greenhouse for sprouting seeds, a shed, an outdoor kitchen, compost bins, and a storage cistern that can hold 3,000 gallons of rainwater. The garden needs about 4,100 gallons of water a year to support its crops, so unless there is a drought, most of this water comes from the sky.

A lot of the food we eat comes from far away, hauled many miles by truck, train, or airplane, which means it contributes to pollution that contributes to climate change. Food gardens like Miller Creek supply people with food that is grown close to where it is eaten. This promotes cleaner air, cuts waste, and, most important, makes the food taste fresher!

The garden has 25 planter boxes in which people grow a feast of different kinds of vegetables and fruits. It also has an orchard of nine fruit trees (including lemon, plum, pear, two kinds of apple, and fig) and a planter for tasty herbs.
Wetlands are ecological areas that are mostly covered by water all or part of the time. They include swamps, marshes, and bogs. Because they are generally (but not always) waterlogged, they have developed their own complex webs of life over time. They host aquatic plant species and attract animals that thrive in or near water. Wetlands can be anywhere, in wild areas or in cities and suburbs. They can be vast or very small. This is the Sankofa Nature Trail and Wetland Park under construction on a 1.5-acre piece of land in New Orleans, Louisiana. The new design, when completed, will invite people in and help promote the health of this miniature ecosystem.
Besides welcoming people to enjoy nature up close, a major goal of the Sankofa wetland is to help manage excess water in times of heavy rain and potential flooding. New Orleans hopes to manage flooding across the city by relying on landscape designs like this that hold water and let it soak into the ground rather than run off and damage streets and homes.

**Lessons for the City**

The Sankofa Wetland Park will have a nature trail to let people explore the site. It will also serve as a place to educate people about the benefits of wetlands. Birds, for instance, depend on wetlands as places to stop and find food.

**Nature up close**

The Sankofa Wetland Park will have pond areas as deep as four feet, deep and shallow marsh areas, mature wet forest areas, and “upland” areas that sit up on slopes and are drier. These variations create a great diversity of plants and the animals they attract.

**Diverse Plant Communities**

The plant and animal populations of a wetland can change every few feet, depending on how low or high the ground is. The Sankofa wetland will have pond areas as deep as four feet, deep and shallow marsh areas, mature wet forest areas, and “upland” areas that sit up on slopes and are drier. These variations create a great diversity of plants and the animals they attract.

**Lush with Plants**

More than three-fourths of the park will be teeming with plants. There are a lot of existing trees that will stay—elm, hickory, willow, mulberry, and rain trees, among others. The park will have bald cypress, water tupelo, and swamp chestnut oak trees. There will be shrubs such as holly, palmetto, and butterfly bush, loads of perennial plants like black-eyed Susan, cardinal flower, and joe-pye weed, and water plants, too: lizard’s tail, fanwort, and coontail. This abundance of plants will help soak up water, prevent erosion, and manage flooding in the park.

**Water Flows**

The Sankofa wetland will help handle large amounts of water that fall during heavy rains, which are frequent in New Orleans. The landscape architect has studied how water moves across the site, according to the height of the land and drainage patterns. When the park is completed, about 48 percent of the site will hold water—up to four feet deep.
Since the first skatepark was built in the 1960s in the United States, there have been hundreds more built, especially in the past decade. And who better to design a skatepark than a landscape architect—especially one like Mike McIntyre, who is a former sponsored skateboarder and BMX racer? The Lynch Family Skatepark in Cambridge, Massachusetts, across the Charles River from Boston, is one of the newest. It has 76,000 square feet of competition-level skating under a highway underpass. It’s also popular among BMXers and in-line skaters. And it’s all legal!
The Lynch Family Skatepark is said to be the largest skatepark on the East Coast. If someone elsewhere makes a bigger one, that just means more skating!

BIG—REAL BIG

McIntyre and his team worked in meetings with the community—including more than 400 skaters—to find out what they would like in the skatepark. These kinds of meetings are called charrettes, and their goal is to find out what a large group of people wants in a public landscape and make it come true in a design. The skaters told McIntyre about their favorite places to skate in Boston, and he worked to include similar features at the Lynch skatepark. (There is an area for beginners, too.)

SKATER SOURCED

The skater’s design includes artwork, materials, and features familiar to Boston skaters that make it uniquely part of the city’s life. And the plants—yes, even in a skatepark—are familiar to the Boston region, too, such as birch trees and sea oats, and can take the tough winter weather.

MAKE IT BOSTON

The Lynch Family Skatepark is said to be the largest skatepark on the East Coast. If someone elsewhere makes a bigger one, that just means more skating!

ONE BIG PUZZLE

Because of the unusual location under highway ramps, the landscape architect had to figure out how to fit the park’s skate features between huge concrete columns while keeping skaters moving. His team had to figure out how to fit a 12-foot-deep bowl and areas for rainwater drainage below the surface.

MEET THE DESIGNER

THE LYNCH FAMILY SKATEPARK WAS DESIGNED BY THE LANDSCAPE ARCHITECT/SKATEBOARDER MIKE MCINTYRE AND HIS FIRM, STANTEC.
MAKE IT:

GREEN ROOF

American Society of Landscape Architects Headquarters, Washington, DC
Michael Van Valkenburgh Associates
Living roofs, or green roofs, are becoming increasingly common on top of buildings, especially in cities. They have many benefits. Standard roofs are hot and hard, and contribute to making cities hotter. This is the ASLA Green Roof, which sits on top of the headquarters of the American Society of Landscape Architects, the publisher of this magazine, in Washington, DC.

BIG OR SMALL

Green roofs can sit on top of any size building. The ASLA Green Roof sits three stories above the street in the Chinatown neighborhood of Washington.

HOLD THE RAINWATER

One important purpose of green roofs is to capture and hold rainwater. Otherwise, rainwater usually drains off roofs, runs into streets and sewers, and, during big storms, can overwhelm streams and cause pollution and erosion. When erosion occurs, trees may collapse and die, causing even more erosion. Green roofs can stop this cycle of damage. When it rains an inch, this roof and its plants can hold 75 percent of that water. The rest can be stored in an underground tank, or cistern, for later use.

COOLER TEMPERATURES

In the height of summer, when roofs are hot, the ASLA Green Roof keeps things cool—as much as 59 degrees cooler than ordinary black roofs nearby. The roof also acts as insulation in winter. Through the year, this roof reduces heating and cooling costs for the building it covers by as much as 15 percent.

SURPRISE MEADOW

Almost the entire roof is covered with plants. There are two kinds of plantings. The roof has tough, low-growing plants called Sedum that can grow in shallow soil. These plants are covered by steel grates that form the walking surface for the roof. It also has “intensive” plantings that thrive in deeper soils—including sumac trees. Two large mounds or “waves” were constructed to hold meadow plants and cacti that bloom and attract pollinating birds and bees.

CONSTANT MONITORING

A major benefit of the green roof is that it allows ASLA to monitor the amounts of rainfall it captures and holds. These results are taken from rain gauges and sensors that track the flow of water through the roof. Improvements to water quality can also be measured by testing the captured water to find out what substances it keeps from running into the sewers and the watershed, which flows to the Anacostia and Potomac Rivers and eventually to the Chesapeake Bay. So even a small roof helps environmental health.

MEET THE DESIGNER

The ASLA Green Roof was designed by the landscape architect Michael Van Valkenburgh of Michael Van Valkenburgh Associates in Brooklyn, New York.
If you love the outdoors, care about the environment, love working with people, and are creative, you could become a landscape architect.

The road to becoming a landscape architect starts here. Prepare by studying science, art, math, history, and business. Landscape architecture relies on a lot of the STEM skills you are already learning. And be sure to develop your communication skills: Good writing and public speaking are essential to landscape architects in their daily work. Read widely: Social studies, politics, and economics will help. But don’t forget to enjoy literature: novels, nonfiction, essays, and poems. It all contributes to a well-rounded set of design skills.
Almost every community has landscape architects working in it to improve the quality of life. Try to get to know one and pay her or him a visit. Ask what they are working on. You may be surprised at the variety of jobs they have in progress at any given time. You can also contact your nearest local chapter of the American Society of Landscape Architects to ask for more information about careers and design projects in your community.

Get to know the world around you by taking part in community events. Join a cleanup day at your local park or help clean trash from a stream. Visit nature centers, and join in on nature walks through your community—there is a lot of nature to discover wherever you go, even in the middle of a city.

To become a landscape architect, you will first enroll in a landscape architecture program at a college or university. There are many landscape architecture programs at colleges in the United States. Most states have a public university that offers a landscape architecture program. Once you graduate, you will need a license, issued by your state. To get a license, you will need to spend a few years working in a landscape architecture firm and then pass a tough examination to be sure you know what you need to protect the health, safety, and welfare of the public. Then you are on your way to a fulfilling career that holds different discoveries every day.
We wired this smart waste receptacle to know when it’s full. Imagine what we’ll have for you when you become a landscape architect.

We have something in common with you. What we create is limited only by our imaginations. So we imagined a better way for cities to plan, schedule and route waste collection, by creating sensors for our receptacles that can transmit all kinds of data to save money and time. Landscape architects are using Relay to plan spaces because they think smart receptacles is smart thinking. We’re looking forward to working on a cleaner, smarter environment with you, too.