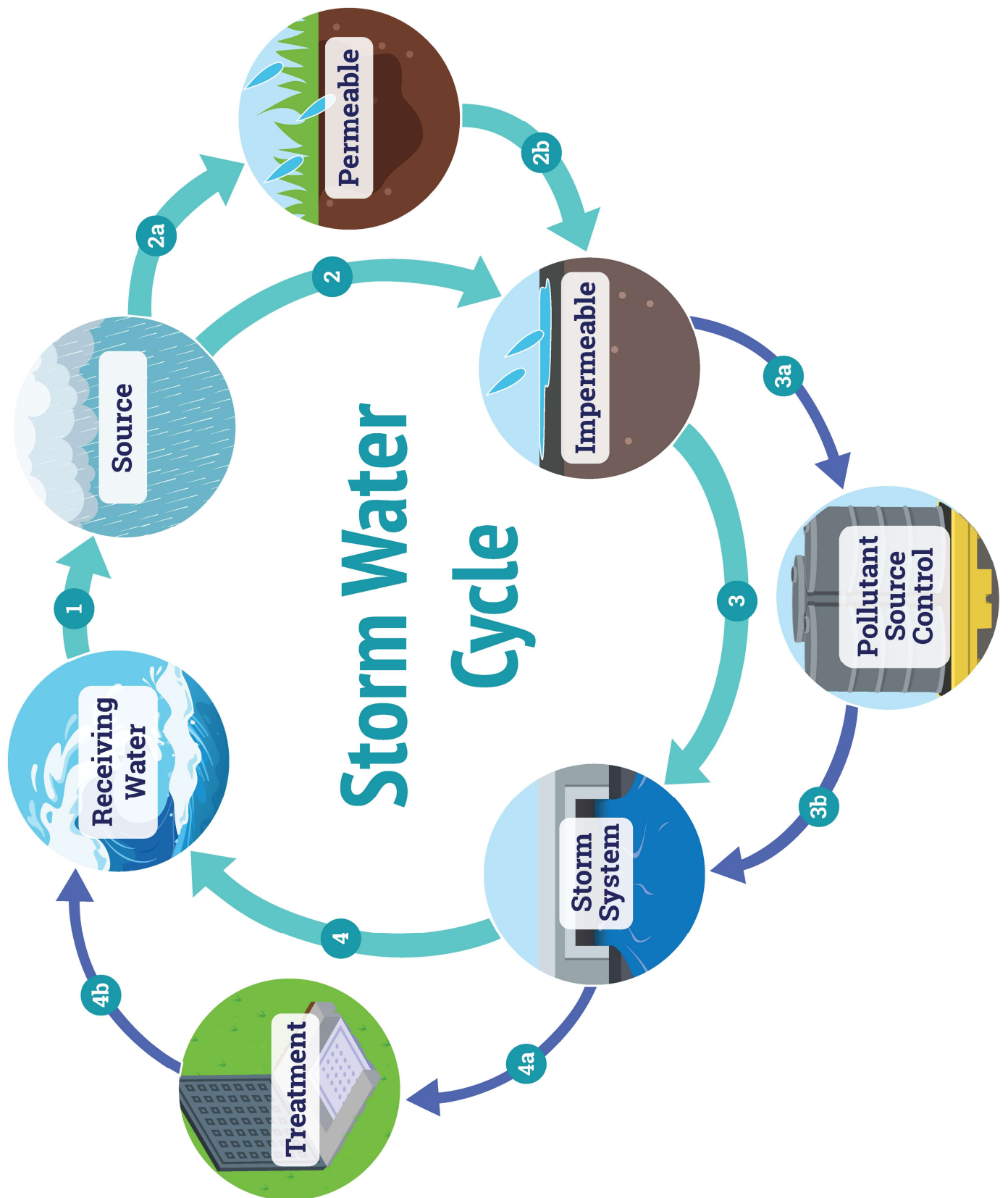


Storm Water Cycle Diagram



Storm Water Cycle Steps

- 1 Water evaporates from water bodies, such as the ocean, rivers, and streams, into the atmosphere and then precipitates back onto land as rainfall, the **source** of storm water.
- 2 Where precipitation falls on **impermeable** surfaces, such as asphalt and concrete, it cannot soak into the ground and instead runs off as storm water.
 - 2a Where precipitation falls on **permeable** surfaces, such as vegetated areas, gravel, or turf, it can soak into the ground and recharge groundwater aquifers.
 - 2b Permeable surfaces have different infiltration rates, meaning that they can only soak in a specific volume of water at one time. Any rainwater that cannot be soaked in runs off onto **impermeable** surfaces as storm water.
- 3 Storm water flows over impermeable surfaces, collecting pollutants like oil, heavy metals, and debris, and eventually enters the **storm system** through storm drains.
 - 3a A smaller portion of storm water, as indicated by the narrow arrow, will flow through areas of enhanced pollutant risk. These areas typically employ **pollutant source controls**, such as secondary containment for hazardous liquids like oil and chemicals, to reduce the pollutants that storm water can come into contact with.
 - 3b Runoff, when combined with pollutant source control, enters the **storm system** as storm water with minimized additional pollutant levels.
- 4 Most storm water is not treated and instead flows through the pipes of the storm system and eventually is discharged through outfalls to a **receiving water**, such as a stream or the ocean.
 - 4a Once storm water has entered the storm system, a portion, as indicated by the narrow arrow, may encounter various **treatment** systems, such as an inlet filter, which help to filter out and reduce pollutants.
 - 4b Treated storm water is eventually discharged to a **receiving water**, such as a stream or ocean.

Storm Water Career Cards: Front Page 1

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PLANNER Environmental Policy Analyst A person who analyzes environmental laws and regulations to assess their potential impacts and provide recommendations. They may advise policymakers on laws that impact allowable storm water discharges and pollutant levels. Professional Requirements: You will typically need at least a bachelor's degree in environmental science, environmental policy, or a related field.	SCIENTIST Hydrologist A scientist who studies the properties, distribution, and movement of water to understand how storm water flows within natural and urban environments. Professional Requirements: You will typically need at least a bachelor's degree in hydrology, geology, or a related field.	PLANNER Emergency Response Manager A person who plans and directs procedures for responding to disasters and crises, including natural disasters such as floods from extreme rain events. Professional Requirements: You will need a bachelor's degree in emergency management, public health, or a related field. You may also need training or certifications, such as a Certified Emergency Manager certification.
ARCHITECT Landscape Architect An architect who designs outdoor spaces, often incorporating storm water infrastructure, to create functional, aesthetically pleasing, and safe green spaces. Professional Requirements: You will typically need a master's degree in landscape architecture, as well as a professional license, depending on what state you work in.	ARCHITECT Plant Specialist A professional who uses their extensive knowledge of plant life and natural ecosystems to recommend appropriate vegetation to utilize in storm water-friendly greenspaces, landscaping, and infrastructure. Professional Requirements: You will typically need an undergraduate degree in botany, plant biology, environmental science, or a related field.	SCIENTIST Conservation Biologist A scientist who focuses on protecting and restoring natural ecosystems, habitats, and wildlife to reduce humanity's impact on nature. They may study how storm water pollution negatively affects local aquatic ecosystems. Professional Requirements: You will typically need a bachelor's degree in conservation biology, natural resources, or a related field.
PLANNER Geographic Information System (GIS) Specialist A person who manages databases of geospatial information and analyzes that data through mapping. They might maintain data on the locations of storm water infrastructure, such as pipes. Professional Requirements: You will need a bachelor's degree in geography, geology, or related field. Experience with GIS software, like ArcGIS, is also important.	SCIENTIST Environmental Scientist A scientist that studies the environment through activities such as field monitoring or site inspections to identify and address environmental problems. Professional Requirements: You will typically need a bachelor's degree in environmental science, environmental studies, biology, or a related field.	ENGINEER Facilities Maintenance A person responsible for conducting the cleaning, repair, and inspection of storm water infrastructure, such as drains, inlets, and pipes, to ensure that they are properly maintained. Professional Requirements: You will typically need a high school diploma and vocational or technical training. Obtaining experience and specialized skills and licenses will help advance your career.

Storm Water Career Cards: Back Page 1

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PLANNER



An Emergency Response Manager plans for emergencies.



SCIENTIST



A Hydrologist studies the science of water.



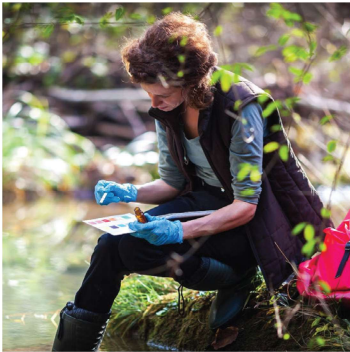
PLANNER



A Policy Analyst's work impacts the planning of communities.



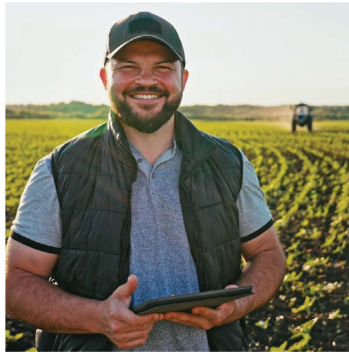
SCIENTIST



A Conservation Biologist works in the natural sciences.



ARCHITECT



A Plant Specialist's work supports landscape architecture.



ARCHITECT



A Landscape Architect creates architectural designs.



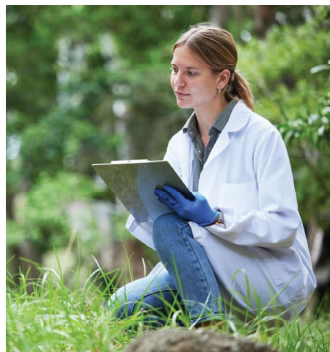
ENGINEER



Facilities Maintenance helps maintain engineering infrastructure.



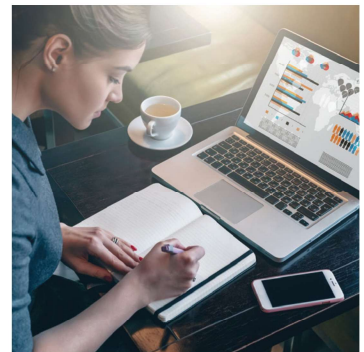
SCIENTIST



An Environmental Scientist studies the science of the environment.



PLANNER



A GIS Specialist's work aids in planning efforts.

Storm Water Career Cards: Front Page 2

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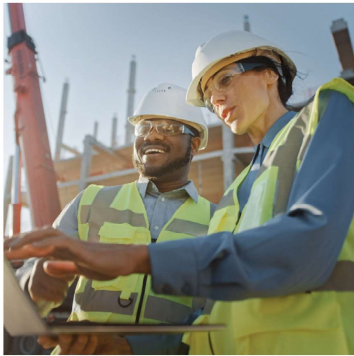
 SCIENTIST	 PLANNER	 ENGINEER
Meteorologist A scientist who studies Earth's atmosphere and its physical properties to forecast weather conditions, identifying rainfall events and patterns that may contribute to storm water. Professional Requirements: You will typically need at least a bachelor's degree in meteorology or atmospheric sciences.	Environmental Planner A person who utilizes community needs, environmental policy, and engineering principles to create plans for the development of cities and urban areas, which include storm water infrastructure and drainage systems. Professional Requirements: You will typically need a graduate degree in planning, or a related field. In most states, you will also need a license or certification.	Civil Engineer An engineer who plans and designs infrastructure projects such as roads, bridges, and storm water drainage. Professional Requirements: You will need at least a bachelor's degree in civil engineering. You might also need a Professional Engineer license or a specific certification, depending on your sphere of work.
 ARCHITECT	 ENGINEER	 ENGINEER
Landscape Maintenance A person who performs routine mowing, pruning, debris removal, and other maintenance activities on outdoor spaces. They may remove debris from storm water infrastructure to promote efficient storm water flow and infiltration. Professional Requirements: You will need landscaping experience and a landscaping license, depending on your state. A degree in landscaping may be beneficial.	Environmental Engineer An engineer that designs and implements projects to address environmental problems with sustainable solutions. They may be involved in pollution control and treatment or catchment systems for storm water. Professional Requirements: You will need a bachelor's degree in environmental engineering. You might also need a Professional Engineer license.	Equipment Operator A person who handles heavy machinery or equipment, such as cranes or bulldozers when constructing storm water systems, or street sweepers when clearing rubbish off of streets and drains. Professional Requirements: You will typically need a high school diploma and vocational training. You may also need a commercial driver's license, or special licenses for specific vehicles.
 SCIENTIST	 SCIENTIST	 SCIENTIST
Chemist A scientist who analyzes water to determine its quality and pollutant load. They may analyze storm water discharge to determine if its pollutant levels exceed state and federal regulations. Professional Requirements: You will typically need at least a bachelor's degree in chemistry or another science field. You may also benefit from a graduate degree in a specific scientific specialization.	Fisheries Biologist A scientist who studies fish and their aquatic habitats to determine how humans may impact the water quality of receiving waters. Professional Requirements: You will typically need a bachelor's degree in biological science, with a focus on aquatic and zoological subjects.	Monitoring Specialist A person who conducts environmental monitoring and evaluates results through activities such as storm water sampling and research to identify environmental problems. Professional Requirements: You will typically need a high school diploma and vocational or technical training. Obtaining experience and specialized skills and licenses will help advance your career.

Storm Water Career Cards: Back Page 2

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ENGINEER



A Civil Engineer works in engineering.



PLANNER



A Planner designs and plans communities.



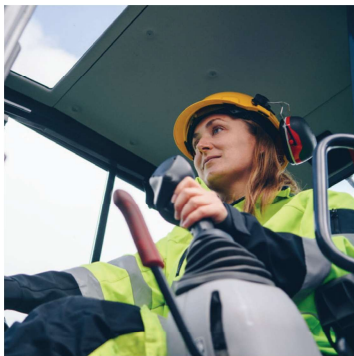
SCIENTIST



A Meteorologist studies the science of the atmosphere.



ENGINEER



An Equipment Operator works on construction overseen by engineers.



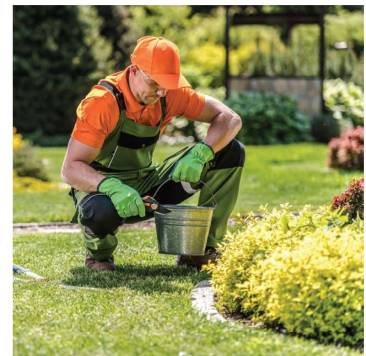
ENGINEER



An Environmental Engineer works in engineering.



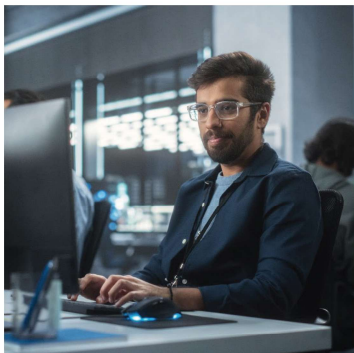
ARCHITECT



Landscape Maintenance maintains work done by a Landscape Architect.



SCIENTIST



A Monitoring Specialist works in environmental science.



SCIENTIST



A Fisheries Biologist works in natural sciences.



SCIENTIST



A chemist works in the natural and physical sciences.

Storm Water Career Cards: Front Page 3

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 PLANNER	 ENGINEER	 ARCHITECT
Outreach Specialist A person responsible for engaging with the public to increase awareness on storm water-related issues through events and activities. Professional Requirements: You will typically need a bachelor's degree in the fields of science, education, or communication. Additional cross training or education will be beneficial to succeed in this career.	Structural Engineer A specialized civil engineer that designs structures to ensure their safety and stability. Relevant structures they may work on include storm drain systems to ensure that they will not collapse under pressure. Professional Requirements: You will need at least a bachelor's degree in civil engineering and typically, a graduate degree in structural engineering. You might also need a Professional Engineer license.	Soil Specialist A professional that utilizes their knowledge on the characteristics of soils to advise the development of storm water-friendly landscaping and infrastructure. They may conduct assessments on infiltration rates, load bearing capacity, and erosion rates. Professional Requirements: You will typically need a bachelor's degree in soil science or a related field. You might also need a certification or license, depending on your state.

Storm Water Career Cards: Back Page3

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ARCHITECT



A Soil Specialist's work supports the Landscape Architect.



ENGINEER



A Structural Engineer works in engineering.



PLANNER



An Outreach Specialist plans how to bolster the public's awareness.