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MODULE
18

Water Efficiency and Quality

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Water conservation is crucial for sustainability and environmental stewardship. This guide focuses on faucets and toilets in classroom settings, providing insights into their design, functionality, and efficiency standards. Faucets are rated by their flow rate, which can contribute to water waste.

Learning Objectives

- Green school buildings are dynamic learning environments.
- Operations and Maintenance for Whole School Sustainability
- Meaningful, purposeful, and engaging learning
- Sustainable Grounds & Transportation
- Indoor Environment—Air Quality
- Smart Cleaning & Integrative Pest Management
- Indoor Environment—Acoustics
- Water Efficiency and Quality
- Energy Efficiency—Lighting
- Plug Loads & HVAC Systems
- Materials and Resources
- Innovation & Conclusion
- Summary and Resources / GCP Quiz

INTRODUCTION

- Water efficiency refers to sustainable management of water resources to minimize waste and optimize utility.
- Implementation of systems and practices that reduce water consumption while maintaining functionality and comfort is crucial.
- Water Use Assessment: Measures the volume of water used across different school facilities and identifies high-consumption areas.
- Installation of water-efficient fixtures and appliances: Low-flow faucets, dual-flush toilets, and waterless urinals can significantly decrease water use in restrooms.
- Smart Irrigation Systems: Adjust watering schedules based on weather conditions and soil moisture levels to reduce water waste.
- Rainwater Harvesting: Allows schools to collect and store rainwater for non-potable uses, reducing dependence on municipal water supplies and mitigating stormwater runoff.
- Water conservation is crucial for sustainability and environmental stewardship.
- The guide focuses on faucets and toilets as key components of water efficiency in classrooms.



WATER EFFICIENCY IN FAUCETS



- Faucets are rated by their flow rate, measured in gallons per minute (gpm).
- Older faucets can have a flow rate as high as 3.5 gpm, contributing to water waste.
- Aerators can reduce water flow without compromising performance by introducing air into the water stream.
- Automatic shutoff valves prevent water waste during handwashing or when the faucet is left running.
- The WaterSense certification by the Environmental Protection Agency (EPA) requires high-efficiency faucets to operate at 1.5 gpm or less.

WATER EFFICIENCY IN TOILETS

- Toilets are another significant source of water usage in educational facilities.
- Older models can use up to 3.5 gpf, leading to substantial water waste over time.
- High-efficiency toilets (HET) are designed to use less water per flush while maintaining effective waste removal.
- Dual-flush toilets allow users to select a lower flush volume for liquid waste and a higher volume for solid waste.





ACTIONABLE STEPS FOR EDUCATORS

- Incorporate lessons on water conservation into the curriculum.
- Check for leaks and drips promptly.
- Establish a protocol for reporting maintenance issues related to water fixtures.
- Advocate for high-efficiency fixtures and encourage school administrations to invest in them.
- Promote water-efficient landscaping practices around school properties.





WATER QUALITY IN SCHOOL BUILDINGS

- Source Protection: Protects the sources of water supply from potential contaminants.
- Filtration and Treatment Systems: Installs appropriate filtration and treatment systems to ensure water is free from harmful pathogens and contaminants.
- Regular Testing and Maintenance: Establishes routine maintenance schedules for plumbing and water systems to prevent leaks and the growth of harmful microorganisms.
- Educational Programs: Incorporates water quality education into the curriculum to raise awareness among students about the importance of water conservation and safety.

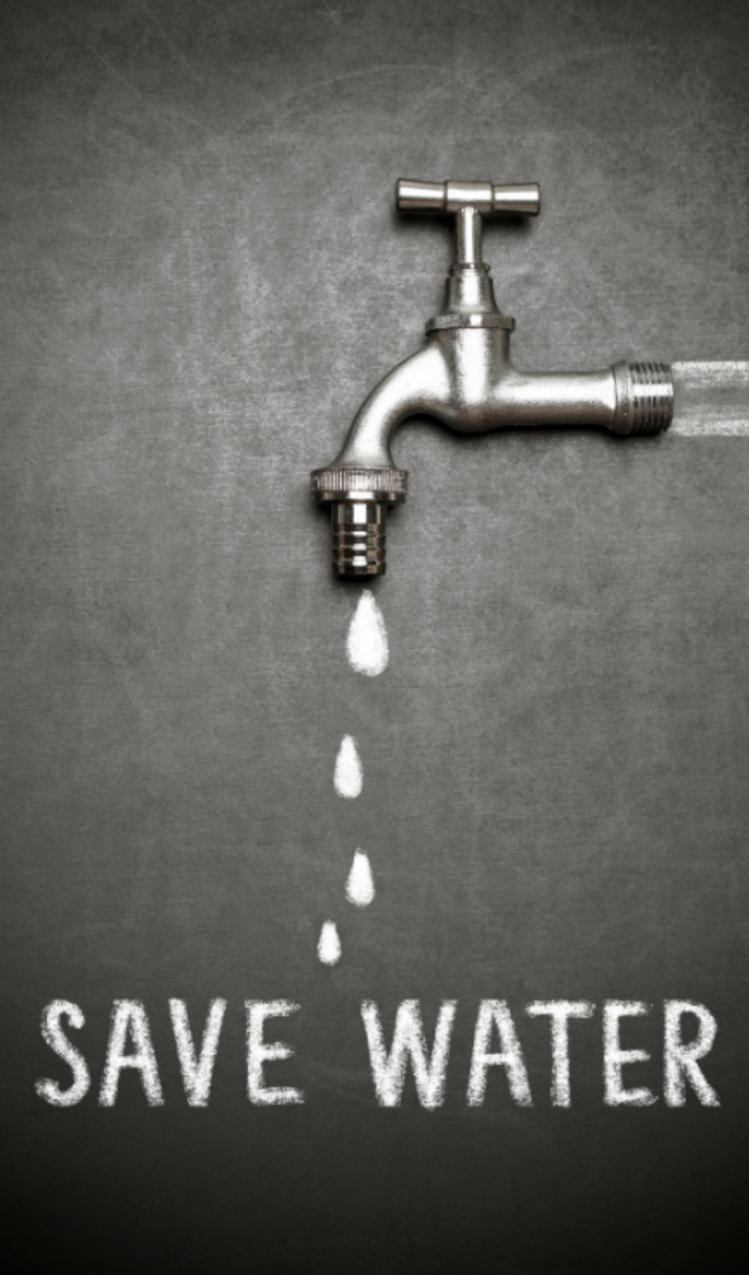


PROBLEMATIC WATER INDICATORS

- Solids: Presence of suspended solids in water may indicate contamination from soil erosion, runoff, or improper waste disposal.
- Odor: An unusual or foul odor from water sources can suggest the presence of organic matter or chemical contaminants.
- Discoloration: Water that appears discolored can be a sign of chemical contamination, sediment influx, or biological growth.



IMPORTANCE OF REPORTING WATER LEAKS



- Water leaks can lead to mold growth, structural deterioration, and pest infestations.
- Establishing a culture of vigilance regarding water leaks is essential for maintaining a safe, healthy, and efficient school environment.

REPORTING WASTEFUL WATER SITUATIONS

- Running toilets, irrigation overuse, and leaky faucets are common scenarios that can waste water.
- Encouraging staff and students to report these situations fosters a collective responsibility for water conservation.

Promoting Water-Efficient Strategies and Fixtures

- Low-flow fixtures, rainwater harvesting, xeriscaping principles in school landscaping, and education and engagement can be implemented to maximize resource use while minimizing environmental impact.



IMPORTANCE OF WATER QUALITY AND REDUCTION



- Green schools prioritize the health and well-being of students and staff.
- High-quality water is essential for maintaining hydration, supporting sanitation efforts, and ensuring overall school community health.
- Water reduction is critical in the context of sustainability.
- Green schools adopt a holistic approach that includes resource conservation, energy efficiency, and waste reduction.



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