

## Stormwater Management

# Rain Barrels

### Overview

Students will gain an understanding of rain barrel function and benefits

### Grade Level

3 - 5

### Science Standards

MD 5.A.2, MD 7.F.1, 5-ESS3-1, HS-ESS3-4

### Time

60 mins

### Teacher Difficulty



### Group Size

3 - 4 Students

### Materials

- Handouts (one per student): KWL Chart, Vocabulary, and Questions
- Foam strips, construction paper, glue, tape
- Journal or notebook for recording observations
- Sticky notes
- Colored pencils, markers, or crayons

### Objectives

- Learn what a rain barrel is and why it's important
- Understand the benefits of a rain barrel
- Learn how to construct and install a rain barrel

### Warm Up Activity (5 mins)

#### Evaluate prior knowledge of rain barrels by completing a "What I Know, What I Want to Know, and What I Learned" (KWL) Chart

Hand out the KWL Chart and allow table groups (3-4 students) about two minutes to come up with as many things they know or wonder about rain barrels. Each table group will share with the class at least two things they discussed.

#### *Suggested questions to ignite brainstorm activity:*

1. What is a rain barrel?
2. What is the purpose of a rain barrel?
3. What materials are used to build a rain barrel?
4. Where can a rain barrel be used?

### Introductory Activity (7 mins)

#### Introduce vocabulary and discuss rain barrel elements

Hand out the Rain Barrel Vocabulary Sheet and review it with the students. Use the diagram on the next page to aid understanding.

## PROCEDURE CONTINUED

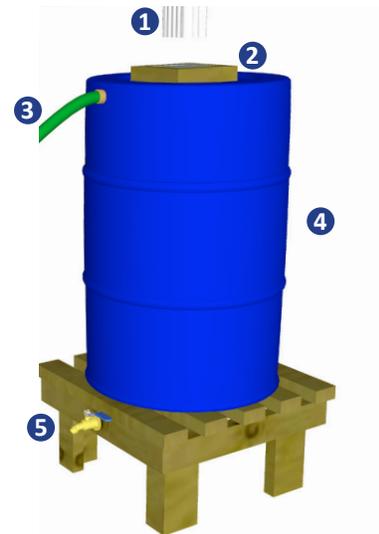
### Developmental Activity (8 mins)

Show pictures of different kinds of rain barrels to the students.

Have students analyze what they observe, and record their observations in journals or on paper.

### Rain Barrel Components

- ① Downspout
- ② Mosquito Screen
- ③ Sump hose
- ④ Rain barrel
- ⑤ Spigot



### Guided Practice Activity (10 mins)

As a group, have students answer the following questions:

1. *What are the benefits of a rain barrel?*
  - a. Reduce stormwater runoff which reduces the amount of sediment and other pollutants that would be washed away with the runoff into storm drains and local streams.
  - b. Healthy water for plants. (Rainwater is naturally soft unlike treated water.)
  - c. Conserve water/groundwater recharge. The slow release of the water allows it to soak into the ground, which supplies water to local streams in between storms.
  - d. Save money; rain barrel water can be used for irrigation.
2. *What are the steps to install a rain barrel?*
  - a. Place bricks, concrete blocks, or pressure treated wood under the barrel to elevate it to create a platform (a higher barrel equals higher water pressure).
  - b. Cut off part of the downspout. Leave space to reattach the downspout end piece.
  - c. Put the rain barrel in place beneath the downspout with the top ring and mosquito screening on top to collect rain water from the roof.
  - d. Reattach the curved down spout end piece to the down spout.
  - e. Connect at least 10 ft of 1 ¼ inch of sump hose to the overflow hole.

## PROCEDURE CONTINUED

### Independent Task Activity (18 mins)

#### Have students work in groups to build a rain barrel model

Provide each group with “rain barrel” materials (plastic bottle, foam strips, construction paper, glue and tape). Allow students to construct a rain barrel and its components and then design the outside of their rain barrels. Students can incorporate positive messages into their designs as well as label the different pieces.

### Assessment Activity (7 mins)

#### Have students reflect on their new knowledge of rain barrels

Have students display individual rain barrels and discuss what the students learned. Students should complete the Rain Barrels Questions Sheet then glue or tape the paper into their interactive science journals.

### Closing (5 mins)

#### Summarize the lesson and reiterate the benefits of rain barrels.

Connect discussion back to stormwater and the different types of stormwater BMPs. Have students fill out “What I learned” part of KWL

### Extension Activity

#### Expand knowledge of rain barrels with activities out of the classroom:

- Students can work with parents to build a rain barrel at home
- Students can work together to create a choreographed song and dance about rain barrels

## HELPFUL HINTS

Review individual rain barrel components to ensure students understand the rain barrel installation process

Sticky notes may be replaced with regular paper if needed



**Landscape Architecture**  
DEPARTMENT OF PLANT SCIENCE AND LANDSCAPE ARCHITECTURE

**Stormwater  
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# Rain Barrels KWL Sheet

**What I Know**

**What I Want to Know**

**What I Learned**

# Rain Barrels Vocabulary

**Downspout**

A pipe that carries rainwater from a roof to a drain or rain barrel.

**Mosquito screen**

A mesh netting that prevents mosquitos from breeding in the rain barrel water.

**Rain barrel**

A barrel that collects and stores rainwater from a roof. It is installed at the base of a downspout coming off the roof.

**Spigot**

A device used to control the flow of water out of the rain barrel.

**Stormwater runoff**

Water that originates during precipitation events and flows over the land. It can pick up sediment, pollutants, and debris as it moves.

**Sump hose**

A hose used to direct overflow water out of the rain barrel.

# Rain Barrels Questions

Fill out answers in the space below the questions

**Question 1**

**What is the purpose of a rain barrel?**

**Question 2**

**What is one benefit of a rain barrel that you learned about today?**

**Question 3**

**Name one part of a rain barrel and its purpose.**