Activity

Dredging:

Sediment, gravel, sand, and silt is deposited naturally in a harbor or river channel when a river slows down. Accumulated sediment reduces the channel depth and can make the waterway unsafe for navigation. Dredging is the process of removing this accumulated sediment and deepening the channel to allow safe navigation. The procedure is performed by using various vehicles and equipment.

Locks and Dams:

Locks are built on rivers and canals to help ships and boats move between different levels of water. A lock consists of a gate that can be opened to allow a ship or boat to pass through the lock. The lock is then filled or drained to adjust the water level on either side of the lock.

Procedures:

1. Locks are first filled or drained to the proper level.
2. The gate is opened, and the lock is filled or drained to the proper level.
3. The gate is closed, and the lock is filled or drained to the proper level.
4. The gate is opened, and the lock is filled or drained to the proper level.
5. The gate is closed, and the lock is filled or drained to the proper level.

River Profile

The most common way of transporting products on rivers is by TOWING. A towboat operates on or against the current. TOWING locks different kinds of barges, depending on the cargo. This includes barges carrying load, fuel, water, and other materials. The towboat is capable of pulling or pushing the barges against the current.

Procedure:

1. The towboat approaches the lock and stops.
2. The gate is opened, and the lock is filled or drained to the proper level.
3. The gate is closed, and the lock is filled or drained to the proper level.
4. The gate is opened, and the lock is filled or drained to the proper level.
5. The gate is closed, and the lock is filled or drained to the proper level.

Activity

DIFFERENT MODAL TRANSPORTATION

Introduction

Transportation of domestic cargo by barge is relatively new, but it is efficient and cost-effective for long-distance transport. The transportation industry has seen a significant increase in the demand for large-capacity barges. The barge industry has grown rapidly in the past few years, with many new facilities and services being opened.

Objective

Students will:

- Explain the advantages and disadvantages of barge transportation
- Understand the role of the barge industry in the transportation sector

Materials

- Chart: Disadvantages of Barge Transportation
- Chart: Advantages of Barge Transportation
- Video: Barge Transportation

Activity

BIOLOGICAL COMMUNITIES

Introduction

The reach of the river is divided into segments for the purpose of analyzing the biological communities. Each segment is characterized by its own set of environmental conditions, such as water temperature, pH, and dissolved oxygen. The data collected within each segment is used to develop a comprehensive understanding of the river's ecological health.

Objective

Students will:

- Describe the different biological communities found in the river
- Understand the factors that influence the distribution of biological communities

Materials

- Charts: Biological Communities in the River
- Video: Biological Communities in the River

Activity

DREDGING:

Sediment, gravel, sand, and silt is deposited naturally in a harbor or river channel when a river slows down. Accumulated sediment reduces the channel depth and can make the waterway unsafe for navigation. Dredging is the process of removing this accumulated sediment and deepening the channel to allow safe navigation. The procedure is performed by using various vehicles and equipment.

Procedure:

1. Identify the location of the accumulation of sediment.
2. Determine the depth of the water required for safe navigation.
3. Plan the dredging operations to ensure that the sediment is removed effectively.
4. Implement the dredging operations using appropriate equipment.
5. Monitor the effectiveness of the dredging operations to ensure that the required depth is achieved.

Activity

Sediment and Barge

Sediment and barge transportation are significant modes of transportation in the river. Sediment is transported by natural processes, such as erosion and deposition, while barge transportation is used for the movement of goods and materials.

Objective

Students will:

- Understand the role of sediment and barge transportation in the river
- Compare the efficiency and environmental impact of sediment and barge transportation

Materials

- Chart: Sediment and Barge Transportation
- Video: Sediment and Barge Transportation

Activity

Purpose

The purpose of this activity is to understand the factors that influence the distribution of biological communities in the river. This includes analyzing the environmental conditions and identifying the species present in each segment.

Definitions

- Sediment: The fine particles of soil, sand, and mud that settle at the bottom of a body of water.
- Barge: A large vessel for transporting goods or materials.

Activity

Water Quality

The river's water quality is determined by various factors, such as pollution, climate, and natural processes. The pH level, hardness, and dissolved oxygen content are critical factors in assessing the water quality.

Objective

Students will:

- Describe the factors that influence the water quality in the river
- Analyze the water quality data using appropriate tools

Materials

- Charts: Water Quality Data
- Video: Water Quality Data

Activity

River Systems

The river systems are divided into different segments for easier management and analysis. Each segment is characterized by its own set of environmental conditions, such as water temperature, pH, and dissolved oxygen. The data collected within each segment is used to develop a comprehensive understanding of the river's ecological health.

Objective

Students will:

- Identify the different segments of the river systems
- Understand the factors that influence the distribution of biological communities in each segment

Materials

- Charts: River Systems
- Video: River Systems