

Introduction to the Hydrological Cycle

Read the following introduction and answer the questions:

The hydrological cycle is the journey water takes as it circulates from the Earth to the atmosphere and back again. It is an essential process that sustains life on our planet.

1. What is the hydrological cycle? _____
2. Why is the hydrological cycle important? _____

Stage 1: Evaporation

Answer the following questions:

1. What is evaporation? _____
2. What are the main sources of evaporation? _____
3. Draw a diagram to illustrate the process of evaporation.

Stage 2: Condensation

Answer the following questions:

1. What is condensation? _____
2. What happens to the water vapor in the air when it cools down?

3. Describe the process of cloud formation.

Stage 3: Precipitation

Answer the following questions:

1. What is precipitation? _____
2. What are the different types of precipitation? _____
3. Draw a diagram to illustrate the process of precipitation.

Stage 4: Runoff

Answer the following questions:

1. What is runoff? _____
2. What happens to the water that flows over the land?

3. Describe the process of infiltration.

Geographical and Temporal Variations

Answer the following questions:

1. How does the availability of water vary geographically?

2. What are the factors that affect the temporal variations in water availability?

3. Describe the impact of climate change on the hydrological cycle.

Water Conservation

Answer the following questions:

1. Why is water conservation important? _____
2. What are some ways to conserve water? _____
3. Design a water-saving campaign for your school or community.

Case Study

Read the following case study and answer the questions:

The city of Cape Town in South Africa is facing a severe water crisis due to drought and climate change. The city's water supply is dwindling, and the government has implemented strict water restrictions.

1. What are the causes of the water crisis in Cape Town?

2. What are the effects of the water crisis on the city's residents?

3. What measures can be taken to mitigate the impact of the water crisis?

Conclusion

Answer the following questions:

The hydrological cycle is a vital process that sustains life on Earth. Understanding its stages and significance is crucial for managing water resources effectively. By conserving water and protecting the hydrological cycle, we can ensure a sustainable future for our planet.

1. What is the importance of the hydrological cycle?

2. How can we conserve water and protect the hydrological cycle?

Assessment

Complete the following tasks:

1. Draw a diagram to illustrate the hydrological cycle.
2. Write a short essay on the importance of water conservation.
3. Design a sustainable water management system for a hypothetical community.

Extension Activity

Research and create a presentation on the impact of climate change on the hydrological cycle. Include the following:

- Definition of climate change
- Effects of climate change on precipitation patterns
- Consequences of changes in water availability
- Measures to mitigate the impact of climate change on the hydrological cycle

Glossary

Define the following terms:

- Evaporation
- Condensation
- Precipitation
- Runoff
- Infiltration

