Teacher Preparation Lesson Plan

Subject Area: Science
Unit Title: Watershed Management and Community Involvement in Water Resource Protection
Grade Level: 5
Lesson Number: 1 of 5

Duration: 60 minutes
Date: March 10, 2024
Teacher: Ms. Johnson
Room: 205

Curriculum Standards Alignment

Content Standards:

- 5-PS3-1: Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.
- 5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Skills Standards:

- Scientific and Technical Knowledge
- Scientific Inquiry and Critical Thinking

Cross-Curricular Links:

- Mathematics: Data Analysis and Graphing
- Language Arts: Technical Writing and Communication

Essential Questions & Big Ideas

Essential Questions:

- What is a watershed and why is it important?
- How do human activities impact water quality?
- What role can individuals play in protecting water resources?

Enduring Understandings:

- Watersheds are essential for maintaining healthy ecosystems and providing clean water for human consumption.
- Human activities can significantly impact water quality and the health of watersheds.
- Individuals can make a positive impact on water resource protection through simple actions and community involvement.

Student Context Analysis

Class Profile:

- Total Students: 25
- ELL Students: 5
- IEP/504 Plans: 3

Learning Styles Distribution:

- Visual: 40%
- Auditory: 30%
- Kinesthetic: 30%

- Gifted: 2

Pre-Lesson Preparation

Room Setup:

- Arrange desks in a U-shape to facilitate group discussion.
- Set up a projector and screen for presentations.

Technology Needs:

- Computer with internet access.
- Projector and screen.

Materials Preparation:

- Whiteboard markers.
- Printed copies of the lesson plan and handouts.

Safety Considerations:

- Ensure the room is well-ventilated.
- Keep emergency contact information readily available.

Detailed Lesson Flow

Pre-Class Setup (15 mins before)

- Set up the room and technology.
- Prepare materials and handouts.

Bell Work / Entry Task (5-7 mins)

- Have students write down what they know about watersheds.
- Ask students to share their thoughts with a partner.

Opening/Hook (10 mins)

- Show a video about the importance of watersheds.
- Ask students to consider how their daily actions impact water quality.

> **Engagement Strategies:**
>
> - Think-pair-share to encourage discussion.
> - Use visual aids to illustrate key concepts.

Direct Instruction (20-25 mins)

- Define what a watershed is and explain its importance.
- Discuss how human activities impact water quality.

> **Checking for Understanding:**
>
> - Ask questions throughout the presentation.
> - Use a graphic organizer to guide note-taking.

Guided Practice (25-30 mins)

- Have students work in pairs to match pictures of human activities with their potential impacts on water quality.
- Circulate around the room to provide guidance and feedback.

> **Scaffolding Strategies:**
>
> - Provide sentence stems for students to use when discussing their thoughts.
> - Offer one-on-one support as needed.

Independent Practice (20-25 mins)

- Have students brainstorm and write down simple actions they can take to contribute to watershed management.
- Allow students to work independently and provide guidance and feedback as needed.

Closure (10 mins)

- Review the key concepts covered in the lesson.
- Ask students to share their ideas for protecting the watershed.

Differentiation & Support Strategies

For Struggling Learners:

- Provide additional support and scaffolding during guided practice.
- Offer one-on-one instruction as needed.

For Advanced Learners:

- Provide additional challenges and extensions during independent practice.
- Encourage students to research and present on a topic related to watershed management.

ELL Support Strategies:

- Provide visual aids and graphic organizers to support understanding.
- Offer sentence stems and vocabulary support during discussions.

Social-Emotional Learning Integration:

- Encourage empathy and self-awareness through discussions and reflections.
- Model and teach effective communication and collaboration skills.

Assessment & Feedback Plan

Formative Assessment Strategies:

- Observations during group work and discussions.
- Review of student work and participation.

Success Criteria:

- Students can define what a watershed is and explain its importance.
- Students can describe the impact of human activities on water quality.

Feedback Methods:

- Verbal feedback during lessons.
- Written feedback on assignments and assessments.

Homework & Extension Activities

Homework Assignment:

Have students research and write a short report on a local watershed and its importance.

Extension Activities:

- Have students create a public service announcement about the importance of watershed management.
- Invite a guest speaker to talk to the class about watershed management and conservation efforts.

Parent/Guardian Connection:

Send a letter home to parents/guardians explaining the importance of watershed management and ways they can get involved.

Teacher Reflection Space

Pre-Lesson Reflection:

- What challenges do I anticipate?
- Which students might need extra support?
- What backup plans should I have ready?

Post-Lesson Reflection:

- What went well?
- What would I change?
- Next steps for instruction?

What is a Watershed?

A watershed is an area of land that drains all the streams and rainfall to a common outlet such as a river, lake, or ocean. Watersheds are essential for maintaining healthy ecosystems and providing clean water for human consumption.

Importance of Watersheds

- Watersheds provide habitat for a diverse range of plants and animals.
- Watersheds help to filter and purify water, making it safe for human consumption.
- Watersheds play a critical role in regulating the water cycle and preventing flooding.

Point Source Pollution

Point source pollution comes from a single source, such as a pipe or a factory, and can include pollutants such as chemicals, heavy metals, and bacteria.

Non-Point Source Pollution

Non-point source pollution comes from a wide area, such as agricultural runoff or urban runoff, and can include pollutants such as sediment, nutrients, and pesticides.

Community Involvement in Water Resource Protection

Individual Actions

- Reduce water usage by taking shorter showers and fixing leaks.
- Use public transportation, walk, or bike instead of driving.
- Recycle and compost to reduce waste.

Community Initiatives

- Participate in local clean-up events and conservation efforts.
- Support organizations that work to protect water resources.
- Advocate for policies that promote water conservation and protection.

Conclusion

In conclusion, watershed management and community involvement in water resource protection are crucial for maintaining healthy ecosystems and providing clean water for human consumption. By understanding the importance of watersheds and taking individual and collective action, we can help protect our water resources for future generations.

Next Steps

- Continue to learn about watershed management and water resource protection.
- Take action in your community to protect water resources.
- Share what you have learned with others and encourage them to get involved.