



Grade: 9-12

Duration: Prep 30 min, activity 50 minutes

Objective: Students will 1) recognize reasons why managing water resources can create dilemmas. 2) Analyze, identify and select actions related to water resources issues.

Materials: Dilemma cards, which can be glued to note cards.

People face dilemmas on a daily basis, and must routinely weigh the pros and cons of issues to make a decision and take action. Students may be familiar with some water resources issues such as sewage overflow, soil erosion, wetland draining and water shortages. As students investigate problems involving people and water resources, they will recognize the complexity involved in managing and protecting water resources.

Background: A dilemma is a problematic situation that requires a person to choose from two or more alternatives each of which can produce desirable or undesirable outcomes. Managing water resources often creates a dilemma. Water resources management can often create a situation where conflict arise between what a person wants to do verses what a person feels should be done. For example, taking a long hot shower is more relaxing than a short warm shower which conserves resources, walking your lunch wrappers to a garbage can take more time than throwing your trash out the car window. Sorting your trash into recycling bins reduces the energy input into future packaging and saves landfill space rather than simply throwing it in one bag to put out for the trash.

People use different approaches when confronted with a dilemma. You can flip a coin or attend lengthy meetings before taking action. A practical method consists of listening to alternatives while weighing the pros and cons of each and projecting possible outcomes. Factors to consider include monetary, environmental, time, energy, persons likely affected, personal values, and consequences. Emotions and instincts also influence which alternative is chosen.

Developing strong decision making skills, problem solving techniques, and critical thinking ability prepare individuals to become active members of their community.

Procedure:

Warm Up

Provide students with the following scenario: Your friend invites you to go boating with them for the weekend. You get to the dock and ask for your life jacket and are informed that they forgot to pack them. They packed early this morning and forgot to include the jackets. You are not a very strong swimmer but don't want to miss out on a fun day of waterskiing, swimming, and fishing. Ask students to list reasons why this is a dilemma.

Ask students to describe ways they have handled dilemmas in the past. What are other situations involving water and people that can cause a dilemma? Tell the students they are going to be introduced to a few water related dilemmas and test their skills at addressing them.

Activity:

- 1) Divide students into small groups and give each group one Dilemma Card. Provide the group with the following instructions.
 - One member of the group is the reader and reads the card aloud. Group members discuss the dilemma presented and identify reasons why this situation is a dilemma.
 - The reader presents a list of options to the group. Group members discuss the situation and decide what to do and why. They must select one of the options listed or identify a reasonable alternative. One option is to rank each option 0-10. “0” being total disagreement and “10” being total agreement. A ranking of “5” indicates no opinion or needs more information.
- 2) Wrap up: Instruct students to pick one member of the group to report the dilemma to the class. Students should include why it is a dilemma and the course of action adopted by the group. Students should describe the process they used to identify the appropriate action. Ask the class to evaluate the option selected and if appropriate suggest alternatives which might be better.

Evaluation:

Ask students to identify a water related dilemma in their community and at least two possible actions including the pros and cons of the possible actions.

Dilemma Card 1

You are the mayor of a city that has an area known to flood. A developer wants to build houses on the flood plain. These houses will have a great riverfront view, are conveniently located to the business district, and will draw prosperous people to your struggling community. You must make a final decision on the developer request.

Which option will you choose?

- 1) Inform the developer that no development is allowed.
- 2) Let the developer build in the flood area.
- 3) Insist the developer elevate the houses on piles of gravel in hopes of avoiding flood damage.
- 4) Instruct the developer to find an alternative building area.
- 5) Other options?

Dilemma Card 2

You are a city council member for a community located adjacent to a large privately owned vernal pool. This area is home to rare wildlife. Some research indicated that vernal pools and other wetlands help control surface run off, release water slowly, and can reduce flooding. The owner has decided to sell the land and move to a new location. The land is in an area surrounded by lucrative businesses, where land prices are high and parking is an issue. What should you encourage the council to do?

- 1) Provide tax incentives to a local development consortium to help them purchase the land around the wetlands and seek permits to develop it for business.
- 2) Launch an initiative to have the city purchase the land. This will require new taxes to preserve the wetlands forever.
- 3) Apply for a permit to fill the vernal pool with soil from a local hill, developing the vernal pool into a parking garage and community park.
- 4) Leave the fate of the vernal pool to the desires of community special interest groups.
- 5) Wait to see who buys the wetland and then decide what to do.
- 6) Other?

Dilemma Card 3

You are a taxpayer who lives near Lake Erie. The area was once a vast near shore wetland. Through generations of engineering the area has been drained to provide flood protection and open the area up for development and agriculture. These actions have eliminated the natural filtering capacity of the wetlands, but have saved lives and improved the lives of many residents. However, populations of some organisms have been severely impacted, such as the spotted salamander, Chorus frog, Wild lupine and purplish copper butterfly. Drinking water contamination has become an issue in recent years, from field runoff, sewage overflowing into streams, and increased flash flooding events. There is a proposal to restore the historic water flow pattern in some of these areas. This action will increase your taxes.

What should you do?

- 1) Vote down the tax; you pay enough in taxes already.
- 2) Vote for the tax; a restored, healthy ecosystem is good for everyone.
- 3) Vote down the tax because communities will be flooded.
- 4) Vote for the tax because your best friend says you should.
- 5) Other?

Dilemma Card 4

You moved into a rapidly growing community that values its parks and green space. Your housing development borders a patch of woods containing a creek and several vernal pools where you enjoy walking your dog. However, a development firm is proposing to buy the wooded area to put in another housing development. The regional planning office is having a meeting next week to discuss the proposal.

What do you do?

- 1) Do nothing. It is not your property so you don't get a say.
- 2) Attend the meeting and get a better understanding of the proposal.
- 3) Talk to your neighbors about the proposal.
- 4) Contact your local soil and water district/conservation authority for suggestions.
- 5) Other?