

UNIT TWO - ECONOMY

# How do we value our watershed?



**KEY WORDS:**

HOLDING, STORE, ECONOMY, ACCOUNTING, COST, BENEFITS

**THEME:**

“TEND THE GARDEN”

**LEARNING OBJECTIVE:**

In this unit students explore the concepts of renewable and non-renewable resources-gifts of the watershed. Students develop an understanding of the definitions for cost and benefit, learning that these terms are the basis for our economy and the survival of our community.

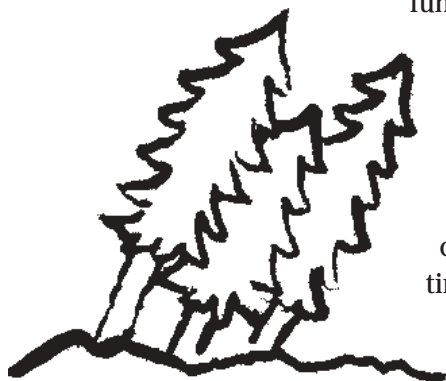
“A healthy watershed is truly an intergenerational gift.”

**TEACHER NOTES:**

In thinking about the economic resources-gifts of a watershed, consider how the watershed waters flow through different landforms and hold onto water in various life forms and landforms. Also consider how we share in the benefits of these resources-gifts as they support and nourish us. Food. Water. Shelter. Recreation. These resources-gifts are the basis for our economy and our community, each having multiple costs associated with their use.

This study approach requires a different perspective on a watershed. Watersheds have been gathering places for civilizations throughout all of history. The natural resources of the watershed have sustained many civilizations, cycling in and out of existence, in the same location, for hundreds of generations.

There are many living gifts in our watershed. Human beings are part and parcel of these living gifts. The life cycles of trees, humans, plants, animals, as well as, the timelessness of a mountain or lake are all interrelated. Understanding that natural resources-gifts are part and parcel of the systemic functions of our region helps us to understand our responses and responsibilities to the watershed.



When we approach our watershed in this manner, we recognize that trees, plants, animals (including us) and fresh, clear, pure life-giving and sustaining water are all gifts. These gifts are an intergenerational legacy for our children, our grandchildren, and the children of our grandchildren. With care these resources-gifts are timeless. Cyclical. Ever restorative. Sustainable.



Of course...for every gift there is a thank you...for every benefit...a cost. There is an old saying that “the gift must go on,” meaning that the “thanks-giving” of any gift is the giving back of a gift of equal or greater value. In this way appreciation is shown, friendships grow, and equity flourishes, whether in the backyard garden or in the community at large.

In this unit students explore the concepts of renewable and non-renewable, along with recyclable resources and gifts, while developing skill sets for dialoguing and debating how best to nurture the region, and considering the costs and benefits of different behaviors and attitudes.

**TOOLS:****DAY ONE**

*Book:* “The Giving Tree” by Shel Silverstein (not in teacher’s kit)

*Transparencies:*

1. Definition: Renewable/Non-renewable/Recyclable (page 23)
2. Definition: Economy (page 24)
3. Definition: Cost/Benefit Analysis (page 25)

**DAY TWO**

*Cards:* Human Environmental Interaction (HEI) Cards (pages 26-27)

*Hand-Outs:* One copy of each Human Environmental Interaction (HEI) Poster for each team (page 28)

**DAY ONE LESSON:**

**RENEWABLE and NON-RENEWABLE RESOURCES-GIFTS**

Read “The Giving Tree” by Shel Silverstein to students.

Have students record a personal reaction to the story in their journals.

Review the Three E’s (Ecology, Economy, Equity) Word Web Sample from Unit One (page 12).

*Ask the Students:* What resources-gifts come from a watershed? Which of the watershed’s gifts are renewable? Which of the watershed’s gifts are non-renewable? Recyclable?

*Display:* Place the transparency definition “Renewable/Non-renewable/Recyclable” on the overhead. Definitions:

Renewable: Resources-gifts that are produced as part of nature’s dynamic cycle of change.

Non-renewable: Non-renewable resources-gifts are those that take millions of years to create.

Recyclable: Any product, natural or human made, that can be used again, either in its present form or through restructuring.

**JOURNAL:**

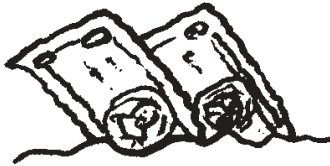
On an empty page in your journal, create three columns, with the headings Renewable, Non-Renewable and Recyclable. Returning to the word web that you previously copied into your journal, separate the resources-gifts into the three columns. (Be wise! Some of the gifts may end up in two columns.)



*Display:* Place the definition of economy on the overhead. Study the definition of the word/concept economy. Definition:

Economy is the management and use of resources-gifts to meet household and community needs.

*Ask the students:* How do we determine if our needs are being met in a balanced manner?



*Display:* Place the definition of cost/benefit analysis on the overhead.

A cost/benefit analysis is the process of comparing what you give or pay (cost) to what you receive or get (benefit).

Example:

- 1) You study two hours for a test. You receive an A. If your parents pay you by the grade, was it worth it? What is the cost and what is the benefit? Is there more than one benefit? Cost?
- 2) You lose your temper in class and spend 3 hours in detention? What is the cost? Is there a benefit?
- 3) You raise tomatoes in a green house for sale in the local market. You pay for the seed, water, heating and delivery. You sell them for less than you pay to grow them. Is there a benefit? Why or why not?

**JOURNAL:**

Ask students to create and record a personal cost/benefit scenario for their journals.

**DAY TWO LESSON:**

**RESOURCES – GIFTS of the WATERSHED**

How do we, as a community, “measure, honor, utilize and balance” the costs/benefits of our watershed’s resources-gifts?

*Note to Teacher:* This lesson contains two assessment models (see pages 30 and 31-32). Familiarization with each model prior to teaching the lesson is recommended. Use Human Environmental Interaction Score Sheet on page 30 for a general assessment; pgs. 31-32 for an in depth assessment (following more thoroughly developed/researched group presentations).

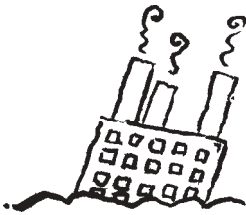
STEP 1: Gather students into groups, each representing just one of the six gifts of the watershed. Hand out an Human Environmental Interaction (HEI) card (representing a gift) with definition (pages 26-27) to each group (Example: Group One receives “Clean Water”... Group Two receives “Minerals/ Mining” ... etc.). Each group studies the HEI card they have received, discussing the “costs” and “benefits” of their assigned gift to the community. Using ideas from the discussion, each team creates an HEI poster (see page 28) which details the following information from the perspective of their resource-gift.



- 1) If I represent the resource of \_\_\_\_\_, what are the Ecological Gifts that I bring to my community?
- 2) If I represent the resource of \_\_\_\_\_, what are the Economical Gifts that I bring to my community?
- 3) If I represent the resource of \_\_\_\_\_, what are the Gifts of Equity that I bring to my community?
- 4) How can the “resource–gift” be shared so that Ecology, Economy, and Equity are maximized?

*Note to Teacher:* Example poster found on page 29.

Groups hang their posters where other student groups can see them. Group members rotate from poster to poster to study group information.



STEP 2: After reviewing the other teams’ completed HEI posters, each group decides how well the individual gifts are contributing to a better Lake Roosevelt region “for everyone” by ranking the resources–gifts from greatest to least value

(Example: 1 - Recreation, 2 - Food/Farming, etc.). This ranked listing, recorded on a 3x5 card, will represent the group’s perspective on which is the *most important gift* in the watershed, which is the *next most important* and so on down to the last gift. Groups prepare to verbally justify this ranking to full classroom.

STEP 3: Each group selects a spokesperson (who will report for group) and a gift representative (who will represent the group’s resource–gift). Gift representatives from *each* of the six groups stand at the front of classroom, holding their resource–gift name tags. Teacher distributes HEI Score Sheets (page 30–only one per class member) *OR* Persuasive Presentation Scoring Guides (pages 31-32 – each group needs five complete scoring guides). The spokesperson from each group takes h/her turn “arranging gifts” in the rank order selected by their group members (from most to least value). Spokesperson explains the reasoning behind the ranking from his/her group perspective.

**STEP 4: The Interview**

Immediately following each spokesperson’s presentation, the teacher or spokesperson polls the “gifts”, asking each gift how it “feels” to be positioned, or ranked, in this order. Responses are shared from the perspective of the “gift” itself.

*Note to Teacher:* Pause after each group presentation to allow time for the completion of the Assessment Model selected for use with this lesson (follow directions on either Scoring Guide).



STEP 5: Assessment

Prior to presenting this lesson, the teacher selects *one* of the following assessment models to provide feedback to students from peers. *If the Persuasive Presentation Scoring Guide is selected, the group’s spokesperson and gift representative should be advised to prepare more formal and detailed presentations.*

**JOURNAL:**

Upon completion of the 5-step lesson outlined above, students respond to the following questions in their journals.

- 1) In my personal opinion, the resources-gifts belong in this order:
- 2) What would I do to protect-assure that these resources-gifts are available to me, and to my children, in the future?

*Note to Teacher:* There is no right or wrong ranking order for this activity. The group is successful if their team engages in a thoughtful, meaningful consideration of the value of their assigned “gift” with regard to ECOLOGY, ECONOMY and EQUITY.

**CLASS DISCUSSION:**

OPTIONAL: At this point in the lesson, teacher may wish to lead “all” students to “agree” upon a final rank order of “the gifts.” Additionally, this lesson could become a lead in to a variety of whole class or group projects/ debates surrounding the protection of our watershed.

**WEB SITES TO CHECK OUT:**  
**Have students visit the following site to discover more about water use patterns of the United States:**  
[water.usgs.gov/watuse](http://water.usgs.gov/watuse)

**See Water Ways Website at:**  
[www.lsw.org/scd](http://www.lsw.org/scd)

Overhead Transparency  
**Definition**



**Renewable:**

Resources-gifts that are produced as part of nature’s dynamic cycle of change. These can be weather related, like solar, wind, and wave power, or water power with the help of gravity. Weather also affects seasonal growing patterns which are responsible for renewable crops, for food and fiber and includes trees. Earth changes such as plate tectonics produce geothermal heat which is also renewable.

**Non-Renewable:**

Non-renewable resources-gifts are those that take millions of years to create. Examples of these would be precious metals such as gold and silver, minerals, coal, oil, natural gas and nuclear energy.

**Recyclable:**

Any product, natural or human made, that can be used again, either in its present form or through restructuring.

Overhead Transparency  
**Definition**

.....

**Economy:**  
The management and use  
of resources-gifts to meet  
household and community  
needs.

Overhead Transparency

**Definition**

.....

**Cost/Benefit Analysis:**

The process of comparing what you give (the cost) with what you receive (the benefit).

Overhead Transparency or Hand-Out

## Human Environmental Interaction Cards



Directions: Copy onto cardstock, cut into individual cards, distribute one card to each student team

# LAND DEVELOPMENT

the process of making natural regions available and usable to the community

# FOOD/FARMING

setting aside a tract of land on which crops or animals are raised to provide nourishment for humans, etc.

# MINERALS/ MINING

the excavation of ore and other minerals for use in industry and household consumption

Overhead Transparency or Hand-Out

## Human Environmental Interaction Cards

.....

# RECREATION

involvement in activities that amuse  
or refresh one's mind or body

# TREE/FOREST

a dense growth of trees, plants and underbrush  
covering a large area of land;  
home to ecological communities

# CLEAN WATER

a clear, colorless, odorless, and tasteless liquid,  
H<sub>2</sub>O, essential for most plant and animal life

# Human Environmental Interaction Poster

.....

**Directions:** Following your group’s discussion of the HEI card assigned, list the “gifts” that your particular resource provides in the appropriate columns below.

*Note: Remember to speak from your "gift's perspective" while completing this assignment.*

RESOURCE-GIFT	ECOLOGY	ECONOMY	EQUITY
<p><i>If I represent the resource of _____,</i></p> <p><i>what are the gifts I bring to my community?</i></p> <p><i>How can the “resource-gift” be shared so that Ecology, Economy, and Equity are maximized?</i></p>			

Teacher Example

**Human Environmental Interaction Poster**



**Directions:** Following your group’s discussion of the HEI card assigned, list the “gifts” that your particular resource provides in the appropriate columns below.

*Note: Remember to speak from your "gift's perspective" while completing this assignment.*

RESOURCE-GIFT	ECOLOGY	ECONOMY	EQUITY
<p><i>If I represent the resource of <u>CLEAN WATER</u>, what are the gifts I bring to my community?</i></p> <p><i>How can the “resource-gift” be shared so that Ecology, Economy, and Equity are maximized?</i></p>	<p>I provide water to humans for drinking, bathing, watering plants, and recreating.</p> <p>I provide habitats for fish, birds, and forest animals.</p> <p>I offer esthetic beauty for all to enjoy.</p>	<p>I pass through dams to provide hydroelectric power to millions of families.</p> <p>I am the main source of attraction/recreation for boaters, fishermen, swimmers, sunbathers, etc. These activities all provide for manufactured goods.</p> <p>Many manufacturers use me in the “bottled water” frenzy of today’s culture.</p>	<p>Clean water is essential for the continuation of all life forms.</p> <p>Economically, I must remain pure if I am to satisfy the purchaser of my resource.</p> <p>Ecologically, when I am pure, I will please the pleasure seeker, as well as the environmentalist. Everyone wins!</p>

**EXAMPLE**

# Human Environmental Interaction Score Sheet

**Directions:** Observe carefully each group’s rank ordering of the “gifts”. Listen to all justifications for the ranking offered by any group member. Then check “very much”, “sort of” or “not much” to score each group’s ranking with respect to the Ecology, Economy and Equity of the community.

*Upon completion of this form, carefully separate the scored boxes and distribute to each group for feedback.*

VERY MUCH  
SORT OF  
NOT MUCH

TEAM #1	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEAM #2	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEAM #3	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEAM #4	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEAM #5	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEAM #6	Do you think this arrangement is Ecological?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Economical?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Do you think this arrangement is Equitable?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

# Group Evaluation

## Persuasive Presentation Scoring Guide Area of concentration: Providing Feedback

**Directions: Following each spokesperson’s (group’s) presentation, each audience group assembles to score the presentation as a means of providing constructive feedback (5-10 minutes).**

### 5 Point Presentation

- |  | YES                      | SORT OF                  | NO                       |
|--|--------------------------|--------------------------|--------------------------|
| Did the presentation have personality? Was the spokesperson and/or gift representative enthusiastic about his/her topic? Did the spokesperson utilize unique presentation techniques that made you “want to listen?” | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did the spokesperson convey the beliefs of her/his group with conviction...even if s/he wasn’t sure if other students would agree?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did you feel as though the presenters were talking directly to you...“willing” you to listen carefully and to consider their points of view?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Was the presentation well prepared? Did the spokesperson launch the presentation in a timely manner, stay on topic throughout presentation, and appear confident?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did the presentation hold your attention? Did you feel drawn into the topic; even beginning to be “persuaded” by the statements/opinions delivered?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

IF YOU ANSWERED YES TO ALL OR MOST OF THESE QUESTIONS, IT WAS A 5 POINT PRESENTATION. IF NOT, READ THE FOLLOWING:

### 3 Point Presentation

- |   | YES                      | SORT OF                  | NO                       |
|---|--------------------------|--------------------------|--------------------------|
| Did the spokesperson and/or gift representative seem sincere, though less than lively or energetic about his/her topic? Did you find your mind wandering, for lack of enthusiasm toward the presentation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did the presenters talk “around” the topic... not appearing to convey true conviction surrounding their group’s ranking of the resources-gifts?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did the presenters offer a few persuasive points, and then ramble off into generalized comments too frequently?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Did the presentation lack organization? Was time wasted setting up the ranking of gifts...or shuffling through note cards during the presentation?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Was it somewhat difficult for you to remain attentive throughout presentation? Did you find yourself dismissing the statements/comments presented, because they appeared to lack merit?                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

IF YOU ANSWERED YES TO ALL OR MOST OF THESE QUESTIONS, IT WAS A 3 POINT PRESENTATION. IF NOT, READ THE QUESTIONS ON THE BACK OF THIS PAGE.

# Group Evaluation

## Persuasive Presentation Scoring Guide Area of concentration: Providing Feedback

**Directions: Following each spokesperson’s (group’s) presentation, each audience group assembles to score the presentation as a means of providing constructive feedback (5-10 minutes).**

### 1 Point Presentation

	YES	SORT OF	NO
Did the spokesperson and/or gift representative lack enthusiasm for his/her topic? Did you feel as though the spokesperson was uncomfortable with h/her presentation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did the spokesperson or gift representative seem to be simply “relaying the opinions of others”, lacking personal conviction for the topic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did you sense that the group, and its spokesperson, had not reached a consensus regarding the ranking of gifts... almost as if they did not understand, or care about, the presentation assignment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was it difficult to follow the presentation? Did the spokesperson’s presentation appear to lack organization? Were there gaps, forcing you to “wait” while the spokesperson gathered his/her thoughts or asked other group members for help?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did the spokesperson or pawn appear uncomfortable with the topic and/or presentation? Were you unable to feel interested in or drawn toward the topic as presented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IF YOU ANSWERED YES TO ALL OR MOST OF THESE QUESTIONS, IT WAS A 1 POINT PRESENTATION.**