



# How Much Water Do You Use?

A Thinkified Lesson

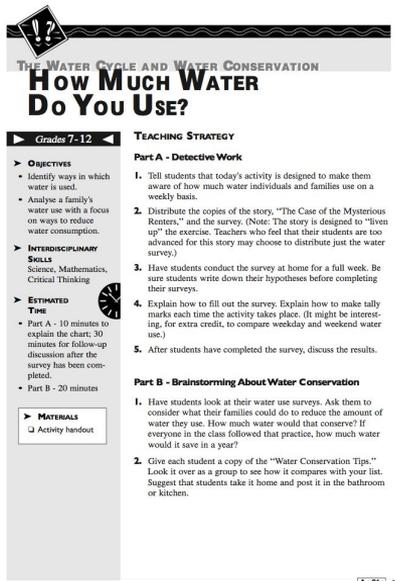
# About ThinkWater

ThinkWater is a national project sponsored by the USDA and designed by educators, scientists and activists based on research that shows that thinking (metacognition) is a critical and missing component in education. Our vision is a nation of Water Thinkers. Our work in water education includes (1) training formal and informal educators to integrate thinking skills into lessons as a means to increase engagement and deep understanding in water topics and (2) modifying existing water education lessons into “thinkified” lessons. To “Thinkify” a lesson means to add meaningful structure to the information (dsrp) and use research-proven pedagogical techniques (MAC).

Learn more about ThinkWater at: [thinkwater.cabrera-research.org](http://thinkwater.cabrera-research.org) or contact: Laura Cabrera, PhD [lac19@cornell.edu](mailto:lac19@cornell.edu)

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# How Much Water Do You Use?: Original



**THE WATER CYCLE AND WATER CONSERVATION**  
**How Much Water Do You Use?**

**Grades 7-12**

**TEACHING STRATEGY**

**OBJECTIVES**

- Identify ways in which water is used.
- Analyze a family's water use with a focus on ways to reduce water consumption.

**INTERDISCIPLINARY SKILLS**  
Science, Mathematics, Critical Thinking

**ESTIMATED TIME**

- Part A - 10 minutes to explain the chart, 30 minutes for follow-up discussion after the survey has been completed.
- Part B - 20 minutes

**MATERIALS**  
Activity handout

**Part A - Detective Work**

- Tell students that today's activity is designed to make them aware of how much water individuals and families use on a weekly basis.
- Distribute the copies of the story, "The Case of the Mysterious Renters," and the survey. (Note: The story is designed to "give up" the exercise. Teachers who feel that their students are too advanced for this story may choose to distribute just the water survey.)
- Have students conduct the survey at home for a full week. Be sure students write down their hypotheses before completing their surveys.
- Explain how to fill out the survey. Explain how to make tally marks each time the activity takes place. (It might be interesting, for extra credit, to compare weekday and weekend water use.)
- After students have completed the survey, discuss the results.

**Part B - Brainstorming About Water Conservation**

- Have students look at their water use surveys. Ask them to consider what their families could do to reduce the amount of water they use. How much water would that conserve? If everyone in the class followed that practice, how much water would it save in a year?
- Give each student a copy of the "Water Conservation Tips." Lock it over as a group to see how it compares with your list. Suggest that students take it home and post it in the bathroom or kitchen.

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The following slides present a modified version of this lesson that incorporates all of the content knowledge and learning objectives but infuses thinking skills (dsrp) throughout and uses research-proven pedagogical approaches (MAC). For your reference, you can download the [old lesson](#) but it is not necessary. All the information you need is provided in the following slides.

Access an interactive version of this "Thinkified Lesson" at: <http://thinkideas.cabreraresearch.com/maps/1482>

# Overview of MAC LessonBook

MAC stands for

- **Map** the concepts you want students to know
- **Activate** these concepts using a variety of experiential, visual, tactile approaches
- **Check** that the activities led to deep understanding of the concepts in the map

# MAP IT

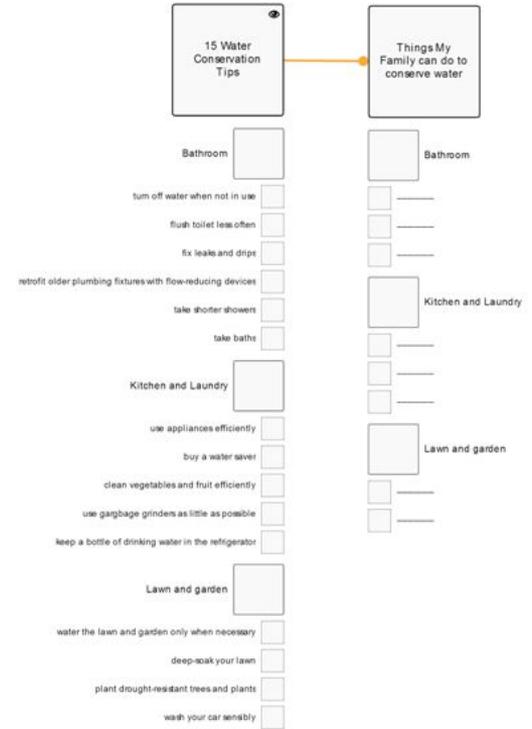
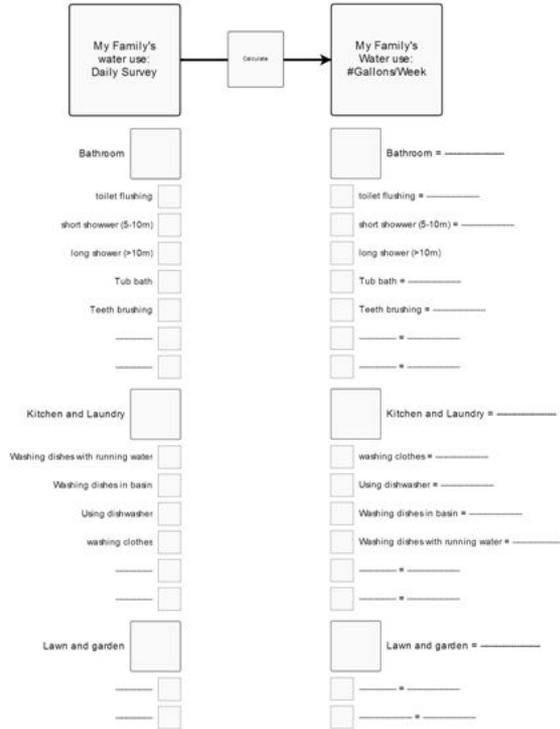
( K = I × T )

| Knowledge is equal to  | Information and   | Thinking (structure)  |
|--|---|---|
| <p>The focus of all learning is to create a change in Knowledge (K). In order to build knowledge learners must use the processes of thinking (T) to meaningfully structure content information (I). There are four universal ways knowledge is structured.</p> | <p><b>The information required in this lesson is autogenerated from your IdeaMap. It includes the following:</b> 15 Water Conservation Tips, Bathroom, Bathroom, Calculate, Kitchen and Laundry, Kitchen and Laundry, Lawn and garden, Lawn and garden, My Family's Water use: #Gallons/Week, My Family's water use: Daily Survey, Teeth brushing, Teeth brushing, Things My Family can do to conserve water, Tub bath, Tub bath, Using dishwasher, Using dishwasher, Washing dishes in basin, Washing dishes in basin, Washing dishes with running water, Washing dishes with running water, buy a water saver, clean vegetables and fruit efficiently, deep-soak your lawn, fix leaks and drips, flush toilet less often, keep a bottle of drinking water in the refrigerator, long shower (&gt;10m), plant drought-resistant trees and plants, retrofit older plumbing fixtures with flow-reducing devices, short showwer (5-10m), short showwer (5-10m), take baths, take shorter showers, toilet flushing, toilet flushing, turn off water when not in use, use appliances efficiently, use gargbage grinders as little as possible, wash your car sensibly, washing clothes, washing clothes, water the lawn and garden only when necessary</p> | <p><b>The thinking skills required in this lesson are autogenerated from your IdeaMap. It includes the following thinking skills:</b> 70 Distinctions, 16 Systems, 1 Relationship, 1 Perspective, 1 Relationship Idea, 1 Perspective System</p> |

## Common Core Standards

No standards selected

# MAP IT



To interact with these maps in a presentation mode in ThinkIdeas, click the following [link](#).

[X] I plan to make this map explicit to students

# ACTIVATE IT

## Activity 1: How Much Water Does Your Family Use Survey

- Students review what activities in their homes use water. Make a list during the discussion.
- Have students distinguish which area of the home these activities occur in.
- Hand out [worksheet #1](#), Water Use Survey.
- Discuss with the students that they are going to use the survey to follow their water use at home to distinguish where the most water is used and to compare it to other houses' water use. They will survey for 1 week.

My Family's water use: Daily Survey

Bathroom

toilet flushing

short shower (5-10m)

long shower (>10m)

Tub bath

Teeth brushing

Kitchen and Laundry

Washing dishes with running water

Washing dishes in basin

Using dishwasher

washing clothes

Lawn and garden

# ACTIVATE IT

## Activity 2:

### Calculate use in #gallons/week

- Using their surveys and [worksheet #2](#) students will calculate how many gallons of water their house uses on a weekly basis in each of the areas of their homes.
- Students will compare with others their water uses.
- Facilitate a conversation about where the most water is used and why there could be differences of use across families.



# ACTIVATE IT

## Activity 3: Ways to Reduce Water Consumption

- Discuss with students different ways that households can reduce their water use. Have students offer suggestions.
- Have students reflect on their families' water use and identify ways that they can begin to conserve water. Have them make notes on [worksheet #3](#).

**15 Water Conservation Tips**

**Bathroom**

- turn off water when not in use
- flush toilet less often
- fix leaks and drips
- retrofit older plumbing fixtures with flow-reducing devices
- take shorter showers
- take baths

**Kitchen and Laundry**

- use appliances efficiently
- buy a water saver
- clean vegetables and fruit efficiently
- use garbage grinders as little as possible
- keep a bottle of drinking water in the refrigerator

**Lawn and garden**

- water the lawn and garden only when necessary
- deep-soak your lawn
- plant drought-resistant trees and plants
- wash your car sensibly

**Things My Family can do to conserve water**

**Bathroom**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Kitchen and Laundry**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Lawn and garden**

- \_\_\_\_\_
- \_\_\_\_\_

# CHECK IT

| Activity                             | Look Fors   |
|--------------------------------------|---|
| How much water does your family use? | <ul style="list-style-type: none"><li>• Students should be able to identify what activities in their homes use water and in which areas these activities take place.</li><li>• Students should be able to demonstrate the ability to calculate their water use in gallons.</li></ul>  |
| Ways to Reduce Water Consumption     | <ul style="list-style-type: none"><li>• Students should be able to distinguish ways to conserve water in different areas of their homes.</li><li>• Students should be able to look at their water use and determine which areas they need to reduce this use.</li><li>• Students should be able to relate conservation tips to their daily lives.</li></ul> |