



## MATH ACTIVITIES

# Water

### CAREER CONNECTION

Do you like estimating? If so, you may be interested in a career as a cost estimator, a process engineer, or an industrial engineer. These jobs require you to understand numbers and data. Or maybe you enjoy ensuring everyone has access to fresh water. You may be interested in civil engineering and working to build and maintain our pipelines.

How many days of your life will you spend washing your hands?

**Fermi problems** require you to make a quick estimate of a quantity that seems difficult or impossible to determine precisely. They were named after Enrico Fermi, the Italian physicist who used this problem solving method to predict how atoms would work long before scientists had the technology to actually see atoms. Fermi problems emphasize the **process** of solving problems over getting the exact answer.

### STEPS IN SOLVING THESE PROBLEMS

1. What is the question asking you to do?
2. Make a wild guess!
3. Make an educated guess using a line of reasoning and calculations based on your experiences and estimations.
4. Gather data to help you make a better educated guess. This includes performing experiments, measuring, and searching for data to help your make a more precise estimate.
5. Write a conclusion. State your final answer with possible sources of error. List facts your learned and other questions you still have.