



## Water Water Everywhere: Designing Water Filters

### Lesson 1

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### Title: Elapsed Time

Grade Level: 2

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Prep Time: Under 15min  
Lesson Time (1): 15 Minutes  
Lesson Time (2): None

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#### Lesson Description:

Practice calculating elapsed time, as that is one criteria to judge the success of the water filter design

#### Strands:

- Measurement and Data
- Operations and Algebraic Thinking
- Mathematical Practices

#### Standards:

- Work with time and money
- Represent and solve problems involving addition and subtraction
- Model with mathematics
- Make sense of problems and persevere in solving them

#### Objective:

Students improve their ability to calculate elapsed time.

#### Materials:

- Each group:
  - Worksheet
- Class:
  - Optional: Demonstration clock

#### Lesson Plan:

1. Explain why elapsed time is an important criteria for their filter design.
2. Do one or two examples together as a class. Then distribute the worksheet to each student, and have the design teams work on completing them together.

#### Reflections:

Elapsed time is a difficult concept for second graders. This is a real life application. Ask students: **Why do you think was an important activity?**

**Assessment:**

Go over the activity together in class. Make sure each group can do it!

## How long did it take? (Elapsed Time)

One of the criteria we use to determine the success of our water filter is to figure out how long it takes to collect a quarter cup of filtered water. The number of seconds is added to the score of the design. Students try to have the lowest score to show their design's efficiency and success.

Susie and Joe need to test their newly-designed and built filter by adding the contaminated water to their filtration system. Before they begin, they must record the time that they start by reading the classroom clock. After they collect a quarter cup, they read and record the time on the clock again. Help Susie and Joe figure out how much time the water filter used to allow a quarter cup of water to pass through. Remember, each minute equals 60 seconds.

1. Start time: 1:05:00 (five minutes past one, no seconds)

End time: 1:05:45 (five minutes past one, and 45 seconds)

Total time: \_\_\_\_\_ seconds.

2. Start time: 9:10:30 (ten minutes past nine, 30 seconds)

End time: 9:10:55 (ten minutes past nine, and 55 seconds)

Total time: \_\_\_\_\_ seconds.

3. Start time: 10:35:00 (thirty-five minutes past ten, no seconds)

End time: 10:37:25 (thirty-seven minutes past ten, and 25 seconds)

Total time: \_\_\_\_\_ seconds.

4. Start time: 1:05:00 (five minutes past one, no seconds)

End time: 1:06:05 (six minutes past one, and 5 seconds)

Total time: \_\_\_\_\_ seconds.