

1. What do you notice?

2. What do you wonder?

3. What mathematical questions do you have?

4. How many plastic beverage bottles, in total, do you think are in this picture?

5. Do you think this number represents how many plastic beverage bottles are used in the US per:
 - a. 5 years
 - b. 5 months
 - c. 5 days
 - d. 5 hours
 - e. 5 minutes
 - f. 5 seconds

6. What did you think about when making your estimates?

7. How accurate were your two estimates? Who in the class is the closest to the actual numbers?

Explore 1

- Rank the families from the **least usage** to the **most usage** of plastic water bottles.
 - Draw a picture to help you.
- Discuss with your group, and then record your answer on your whiteboard.



Family A	Family B	Family C	Family D
2 weeks 3 cases of water	1 week 4 cases of water	4 weeks 8 cases of water	3 weeks 5 cases of water

- Which family is the most “eco-friendly”? Explain how you know, using math language. (Write down your response.)
- What are some possible reasons why this family might use so many plastic bottles?
 - Discuss with your group some situations where a plastic bottle might be a better choice for this family than tap water.

Explore 2

- What are some things you are wondering about?
- Where is plastic bottle usage a bigger problem?
 - Explain what information matters here in order to figure this out.
 - Make a prediction, based on what you know, as to where it is a bigger problem. Justify your reasoning using math.

Middletown High School	Middletown Middle School	Central Academy	Rosa Parks Elementary
2,500 plastic bottles	1,000 plastic bottles	200 plastic bottles	500 plastic bottles

Closing Discussion

- You are in the midst of the plastic bottle waste audit, and your principal wants your recommendation on how to proceed in order to actually & effectively measure the school's plastic bottle waste. What is your recommendation?

Exit Ticket

*Make a prediction for the ratio of **plastic bottles in the recycle bin** to the **number of students in the classroom**.*