

California Math & YOU: Bringing Mathematics to Life Through Data & Discourse

The 2023 California Mathematics Framework highlights data science and mathematical discourse as key to student engagement and understanding. *California Math & YOU* integrates these principles throughout the program, helping students develop problem-solving skills, mathematical reasoning, and communication abilities for real-world applications.

Mathematical Discourse

A classroom rich in discourse allows students to explore concepts, justify their reasoning, and engage with their peers' mathematical ideas. *California Math & YOU* fosters these discussions through **Math Talks**, **Data Talks**, **Talk About Its**, **Turn and Talks**, and **Language Routines**, fostering communication, confidence, and deeper mathematical understanding.

Data Talk

? "What information is given in the table?" the heights of the tallest mountains in California

? "What is the tallest mountain in the table?" Mount Whitney "What is the shortest mountain in the table?" Mount Shasta

Talk About It

? SMPs "What tool or model can help you solve Exercise 22?" Select three students to share their tool or model and their strategy for solving. Discuss each different strategy as a class.

21. You pilot a plane to an elevation of 6,400 feet. Then you increase your elevation 70 times. Each time, you increase your elevation by 80 feet. What is your final elevation? Are you now higher than every mountain in the table?

Yes ☒ No


12,000 feet

22. You pilot a plane to an elevation of 5,050 feet. Then you increase your elevation 80 times. Each time, you increase your elevation by 90 feet. What is your final elevation? Are you now higher than the shortest mountain in the table?

Yes ☒ No

12,250 feet

Tallest Mountains in California	
Mount Whitney	14,505 ft
Mount Williamson	14,379 ft
White Mountain Peak	14,252 ft
North Palisade	14,248 ft
Mount Shasta	14,179 ft



11 Performance Task ZOOM IN

Some of the largest threats to the health of living organisms are microscopic. Typically, particles that are 10 micrometers (µm) or less can reach the lower regions of the respiratory tract. One way that viruses are spread is through respiratory droplets released by an infected person.

Approximate Sizes of Particles
1 µm = 1 × 10⁻⁶ m

- Red Blood Cell: 7.5 × 10⁻⁶ m
- Grain of Beach Sand: 9 × 10⁻⁴ m
- Coronavirus: 1 × 10⁻⁶ m
- Bacterium: 3 × 10⁻⁶ m
- Respiratory Droplet: 5–10 µm
- Zika Virus: 4.5 × 10⁻⁶ m
- Human Hair: 70 µm
- White Blood Cell: 1.8 × 10⁻⁵ m
- Volcanic Ash: 0.4–0.7 µm

Grain of sand
1.3 × 10⁻⁴ m

1 Explain what is shown in the display. What do you notice? What do you wonder?

2 Which particles could reach the lower parts of the respiratory tract?

3 What is the size of a red blood cell in millimeters?

4 About how many times the size of a particle of ash is a grain of beach sand?

RESEARCH PROJECT
You are studying to be a cellular biologist. You know that red blood cells make up 84% of the cells in the human body.

- Research at least four other cell types in your body that interest you and describe the function of each type.
- Record the size, volume, density, mass, and number of cells in the human body for each cell type. Use scientific notation where appropriate.
- Create a data display that shows the total masses of these five cell types in the human body. Do the total masses make sense? Explain your reasoning.

RESEARCH PROJECT
Microscopic organisms that mosquitoes carry can cause sickness. Want to dig deeper into how mosquito populations are managed?

An interactive data set is available online.

Empowering Students with Data Science

As data becomes more prevalent, data literacy is essential. *California Math & YOU* builds this skill through **Connect to Data** and **Interpreting Data** questions, which help students critically evaluate and apply data in meaningful ways. **Performance Tasks** further enhance their understanding by connecting math to real-world data.

Interactive data sets offer hands-on analysis as students explore patterns, test ideas, and draw conclusions.



Learn more!
NGL.Cengage.com/BIL-CA-Math