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Please enjoy this complimentary excerpt from *Cultivating Mathematical Hearts*.

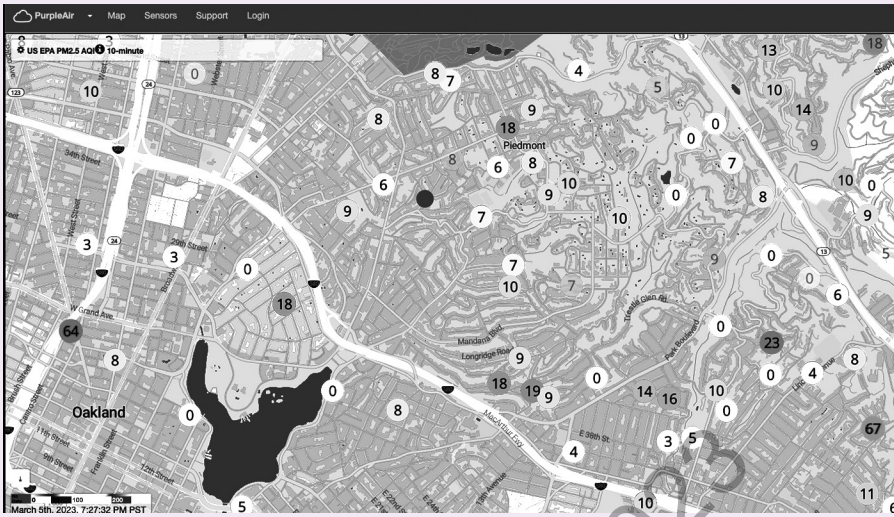
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ACTIVITY: Mathematizing the World

Mathematizing in its simplest form means seeing mathematics in everyday activities or real-world situations. There are a variety of ways that teachers can start mathematizing with their students. We encourage teachers to build on what they learned by engaging in the activity from Chapter 3 Dimension 1 and expand it to include looking for the mathematics in a situation, image, or video with students as a teaching activity:

- **Take a picture or a video from around the neighborhood and engage in problem posing.** This could be because of a significant event taking place (e.g., state fair, Ferris wheel, or swap meet), a beloved location in the community (e.g., pumpkin patch, water park, or library), a fantastical image (e.g., giant crocodile, whale, or tree), or because you were struck by something mathematically intriguing. For example, during the Black Lives Matter demonstrations in the summer of 2020, a teacher in Seattle engaged her students in mathematizing with a picture of a large crowd facing police officers. The invitation to the students was to “notice, wonder, and connect” with what was going on in the photo. The teacher then captured students’ math questions on poster paper, and as a class they decided which ones to generate solutions for. With such an example, students might be curious about how many people are in the crowd. They might wonder about the ratio of people to police officers. Or, they might wonder how much area is covered by the crowd. All of these questions connect with rich mathematical concepts that can be explored together. See www.eqstemm.org for a mathematizing the world planning guide.
- **Read an illustrated book with your class and engage in mathematical noticing.** Pause as you read and invite children to tell you what they see in the pictures, what quantities they hear, and what they wonder about that can be answered with mathematics. Maria has written about mathematizing children’s books as a way to engage in discussions of racism and to develop quantitative reasoning alongside students’ sense of social justice. One suggestion she has is to ask the quantitative questions alongside other wonderings children have and highlight how mathematics can be used to answer some of their questions. As with the previous suggestion, teachers capture children’s questions so you can explore them more deeply later. Read more at <https://mariazavalaphd.com/2020/06/24/talking-race-and-math-with-kids-infusing-quantitative-lenses-into-read-alouds/>
- **Analyze maps with children as a starting point for problem posing.** Maps can be a valuable resource for problem posing. Many kinds of maps can be generated from a variety of websites and even tailored to one’s specific needs. Bringing a map into a classroom can be as easy as taking a screenshot from a mapping resource or as complex as building a custom data map (see for example, National Geographic’s Mapmaker: <https://mapmaker.nationalgeographic.org/>). For example, maps from purpleair.com came in handy for problem posing with kindergartners during the wildfires in California. By looking at a map of their local area, children became curious about air quality and about what different numbers on the map meant (see Figure 4.3; Zavala, 2023). There’s no limit to the work you can do with maps—pick a map and invite children to get curious about what the data on the map mean.

An Air Quality Map Used for Mathematizing With Young Children



SOURCE: purpleair.com

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