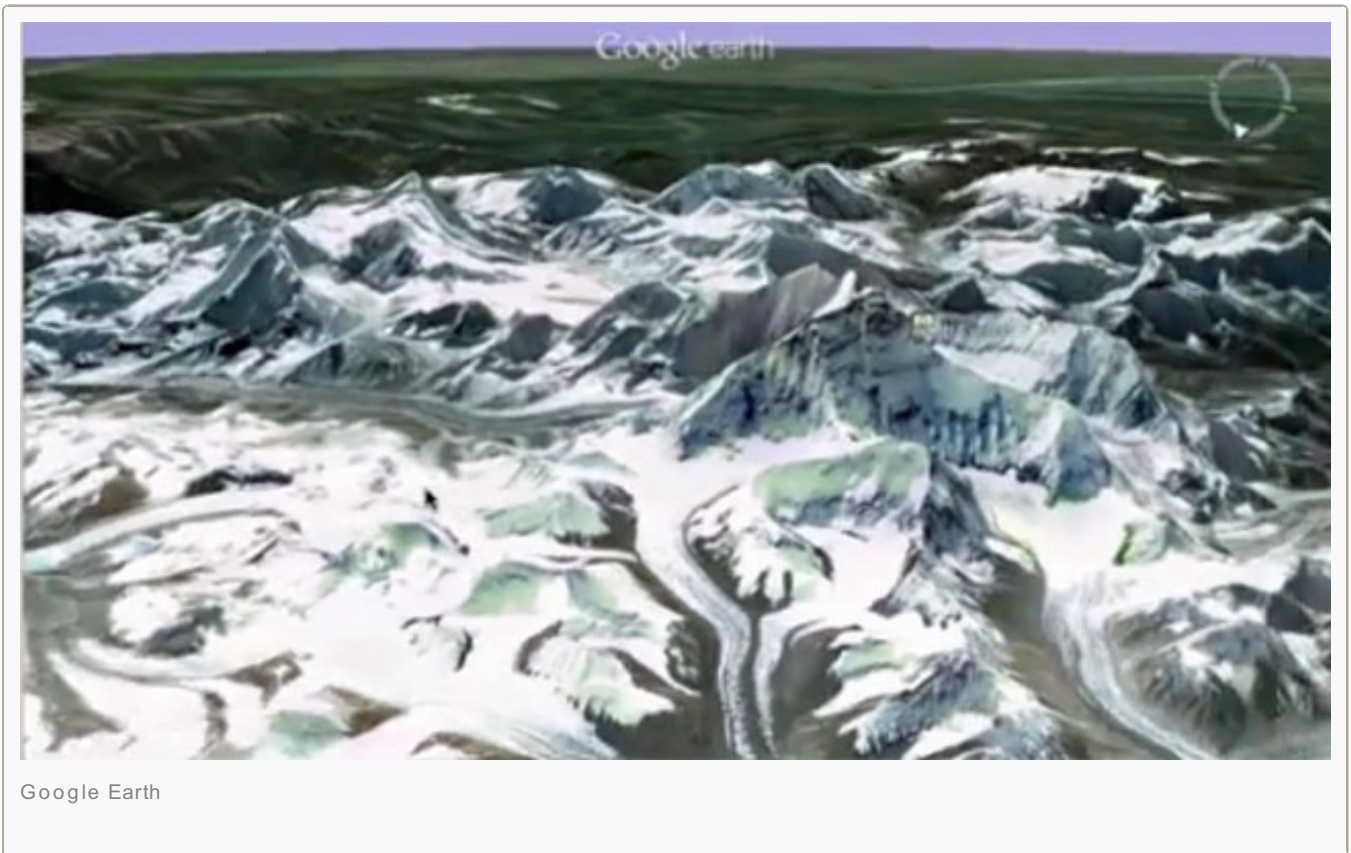


Looking For Real-World Math Problems? Try Google Earth!

- [Digital Tools](#)

One of the most



common questions math teachers hear from their students is, “why does this matter?” They are constantly trying to convince students that math is useful and could help them in their everyday lives. But it can be a tough sell. Word problems alone often feel contrived and students see right through them.

Thomas Petra has taught math at every level for more than 20 years and encountered dubious students at every grade level. That’s why he developed [Real World Math](#), a free website with lessons based on Google Earth aimed at grades 5 – 10. “I was trying to show them actual applications of the math ideas that they see in the textbook,” Petra said.

Petra takes an inquiry learning approach to the Google Earth-based problems. “I want them to use the things they know already and I want them to learn new skills like critical thinking and problem solving on their own terms,” Petra said of his approach. To do that, Petra has developed more than 30 elaborate souped-up word problems based on downloadable Google Earth maps with additional information embedded at different points.

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One lesson Petra did with middle school students helped them practice the distance formula: distance = rate x time. To get them practicing the formula and understanding what it means in practical terms, Petra developed a lesson based on the [Iditarod](#) sled dog race in Alaska. He mapped the 22 Iditarod checkpoints and had students calculate the time it takes their mush team to get to each stop. They drew cards along the way with misfortunes or luck that increased or decreased their speed, forcing them to recalculate.

Petra grouped the students on teams, competing to win the race. The cards that determined speed were random, so even the slower learners had a chance of winning. Petra said for the first time he had students that hated math getting to class early.

Another of Petra's favorite lessons helped algebra students understand variables. He put them into teams and asked them to use search and rescue patterns to find a missing paddler. At first he didn't give them much information. The students had to figure out what variables would affect the search and researched the real-world answers to those variables, like finding out how fast coast guard boats travel. Then they developed a search map using Google Maps. Petra developed a separate map for the paddler and afterwards the students could compare maps to discover if their search would have found the paddler.

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"We went to the Coast Guard station and they explained how they did search and rescue," Petra said. "We were probably five minutes in and my kids were completing their sentences." The students had learned much more than algebra. They knew the ocean science and Coast Guard procedures and equipment through their research, which won them admiration and an "A-list tour," according to Petra.

"Rather than a passive learner, it can make the student an active learner," Petra said. His goal is not to tell students what to do, but to create the conditions so they can explore and create meaning.

While Google Earth is a great tool for math, another long-time educator, Jerome Burg, has found it just as useful in English. He developed another free site for teachers called [Google Lit Trips](#), as a way to allow students to follow the travels of literature's great characters. He has made literature maps where each stop on the map includes more relevant resources about the place and book. The tool doesn't allow students to skip their reading, but it helps place them more firmly in the literary worlds they are studying.

Note: Real World Math is password protected so that students can't see answer keys to lessons on the site. If you are an educator and want to access the tools go to the [Real World Math website](#) and contact Petra for the password.

Explore: [Google Earth](#), [inquiry learning](#), [math](#)

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