**What do you wonder? Real-world math problems are everywhere**

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We hear this everywhere – students should be doing “real-world” math and they should be applying what they learn in math to “real-world situations.” Textbooks and math resources advertise their “real-world problem solving” experiences and “real-life math applications.” But, as those of us who are math teachers can attest, often times the real-world examples are contrived or forced and—let’s face it—not very interesting to students. I mean, what student really cares what time two trains leaving from New York and Detroit are going to cross paths?



What do you wonder? Image courtesy of images.google.com

The idea of real-world problem solving and applications in mathematics is important. As the Common Core specifically states in the [~~Standards of Mathematical Practice~~](http://www.corestandards.org/the-standards/mathematics/introduction/standards-for-mathematical-practice/), “*Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace*.” But I wonder if we often try too hard to *create* real-world problems when, if all we did were look around and ask “what do you wonder?” and “what do you notice?”, we would find that [math problems](http://blog.keycurriculum.com/2012/03/what-do-you-wonder-real-world-math-problems-are-everywhere/) are everywhere.



I admit—I stole the “what do you wonder?” and “what do you notice?” from Annie Fetter, an inspiring math educator at [The Math Forum](http://mathforum.org/). Annie (@[MFannie](http://twitter.com/MFannie)) did this amazing [Ignite!](http://www.keypress.com/x25933.xml) presentation at NCTM 2011 on just asking students those simple questions. Her point is that students will come up with creative questions and applications about mathematics if we just let them.

We, as teachers, don’t spend enough time letting *our students* make real connections and ask real problems and questions. We don’t give them time to wonder or notice because we are so focused on the end-result.  Here are a couple of responses from my online participants which I think you will find interesting:

*“I know that teachers are asking, “Are there any questions?” and “Do you understand?”; however, I’m not sure how many teachers are asking, “What do you notice?” or “What do you wonder?” So many times, teachers will ask if there are any questions, or whether students understand, only to be met with blank stares. This leads to nobody’s “needs” being met.”*

*“Asking good questions is key to any well-functioning classroom. The CCSS include students’ ability to communicate mathematically. Asking good questions gets conversations started. Simply by asking students what they notice and/or what they wonder, students will begin to communicate mathematically. Asking them what they notice and what they wonder puts the ownership back on the student, encouraging them to think and communicate about math.”*

*“My ultimate goal is to create independent thinkers and doers of mathematics. So many times they panic and shut down when they “don’t get it.” Maybe if I give them the opportunity to notice and wonder about things, their* [*anxiety*](http://blog.keycurriculum.com/2012/03/what-do-you-wonder-real-world-math-problems-are-everywhere/) *will decrease. I look forward to trying this approach in class. It’s new, so there will be some “growing pains” that go along with trying something new, but if it helps to create independent thinkers, I’m all for it!”*



*“I thought the idea of not asking a specific question was very intriguing, something I might try. It certainly leaves the problem more open to exploration and interpretation.”*

*“If asked them to wonder, students may wonder why would I need to know this, or why does this happen and feel more compelled to investigate and learn like a young child. I very much agree with the speaker. We need to allow kids to wonder and encourage their thinking.  Math may have numbers but concepts are concepts and I* [*bet*](http://blog.keycurriculum.com/2012/03/what-do-you-wonder-real-world-math-problems-are-everywhere/) *many HS kids would love to be asked what they wonder.”*



I think it’s something everyone should try. Give your kids a picture or a puzzling situation and ask them what they wonder or what they notice. As I was writing this blog I noticed a Tweet from [@gcouros](http://twitter.com/gcouros) referencing the [Free Technology For Teachers](http://www.freetech4teachers.com/2012/03/101-questions-new-math-questions-site.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:+freetech4teachers/cGEY+%28Free+Technology+for+Teachers%29) from site ([@rmbyrne](http://twitter.com/rmbyrne)) . They posted information about [Dan Meyer’s](http://blog.mrmeyer.com/) free [101 Questions](http://101qs.com/) site, which provides real-world images and [videos](http://blog.keycurriculum.com/2012/03/what-do-you-wonder-real-world-math-problems-are-everywhere/) with the simple directive “what’s the first question that comes to mind?” Similar to Annie,  students can wonder and notice mathematical connections of their own making. In 140 characters or less students or teachers can pose a question that gets them thinking about real-world math…everywhere. Another great resource for real-world thought provoking wonderment’s is [mathalicious.com](http://www.mathalicious.com/lessons/) run by [Karim Ani](http://blogs.edweek.org/edweek/sarameads_policy_notebook/2011/05/karim_kai_ani_founder_mathalicious.html), as well as [Yummymath.com](http://www.yummymath.com/) run by [Brian Marks and Leslie Lewis](http://www.yummymath.com/about-us/) . These are just some resources to get you started.

My challenge to you: ask your math students what they wonder and what they notice—you may be surprised at the mathematics that results.