

Where did I lose them?

Incorporating (impromptu) informal formative assessments

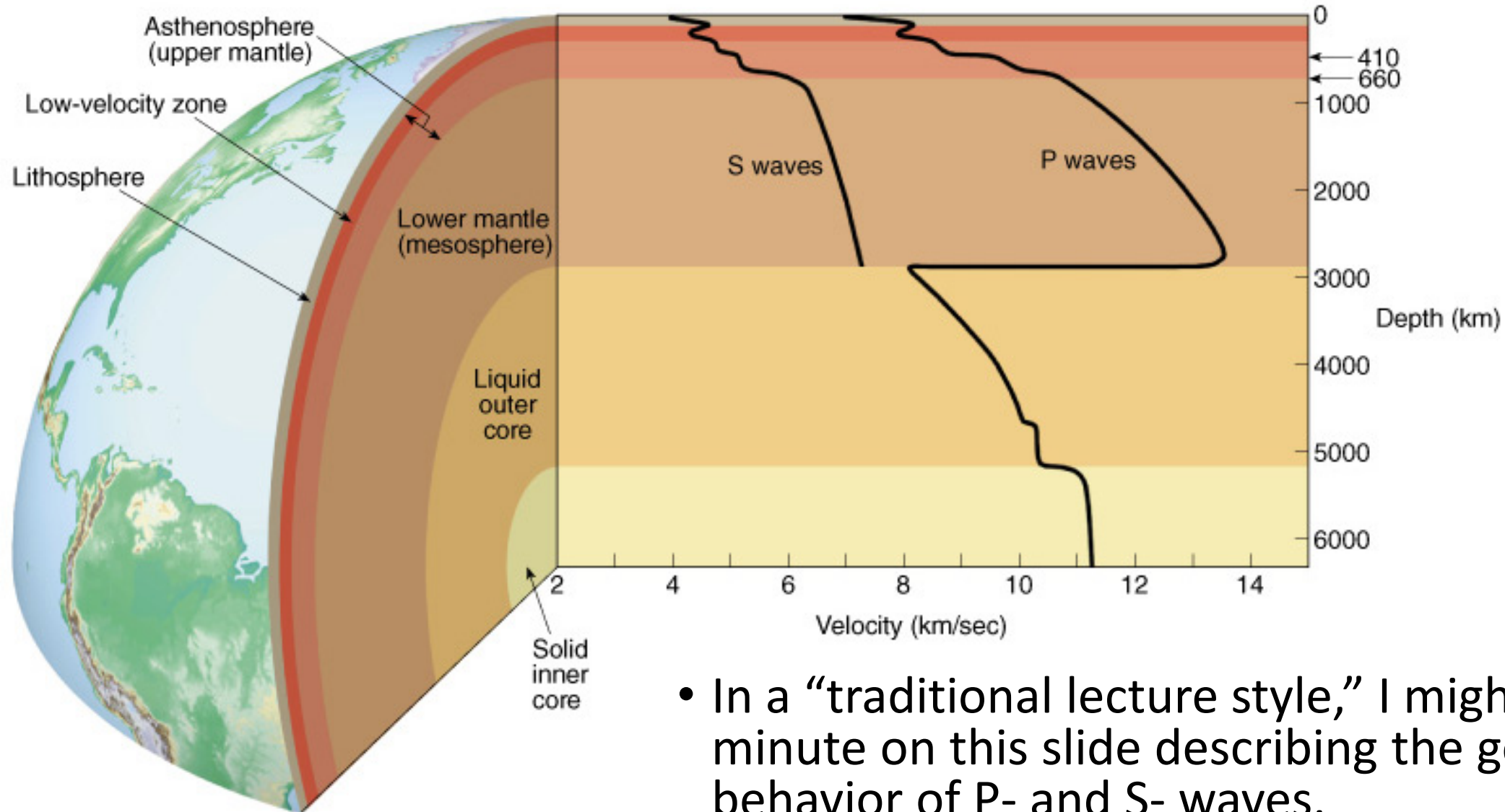
The problem

- It is hard for you to tell if students understand material if you are just talking at them
- It is hard for students to tell if they understand the material if they don't have a chance to think about it or apply it while it's being presented

The solution

- Active learning
 -But that's time consuming and I haven't developed the materials yet!
- ***Build in processing time, an ungraded task to test their understanding***

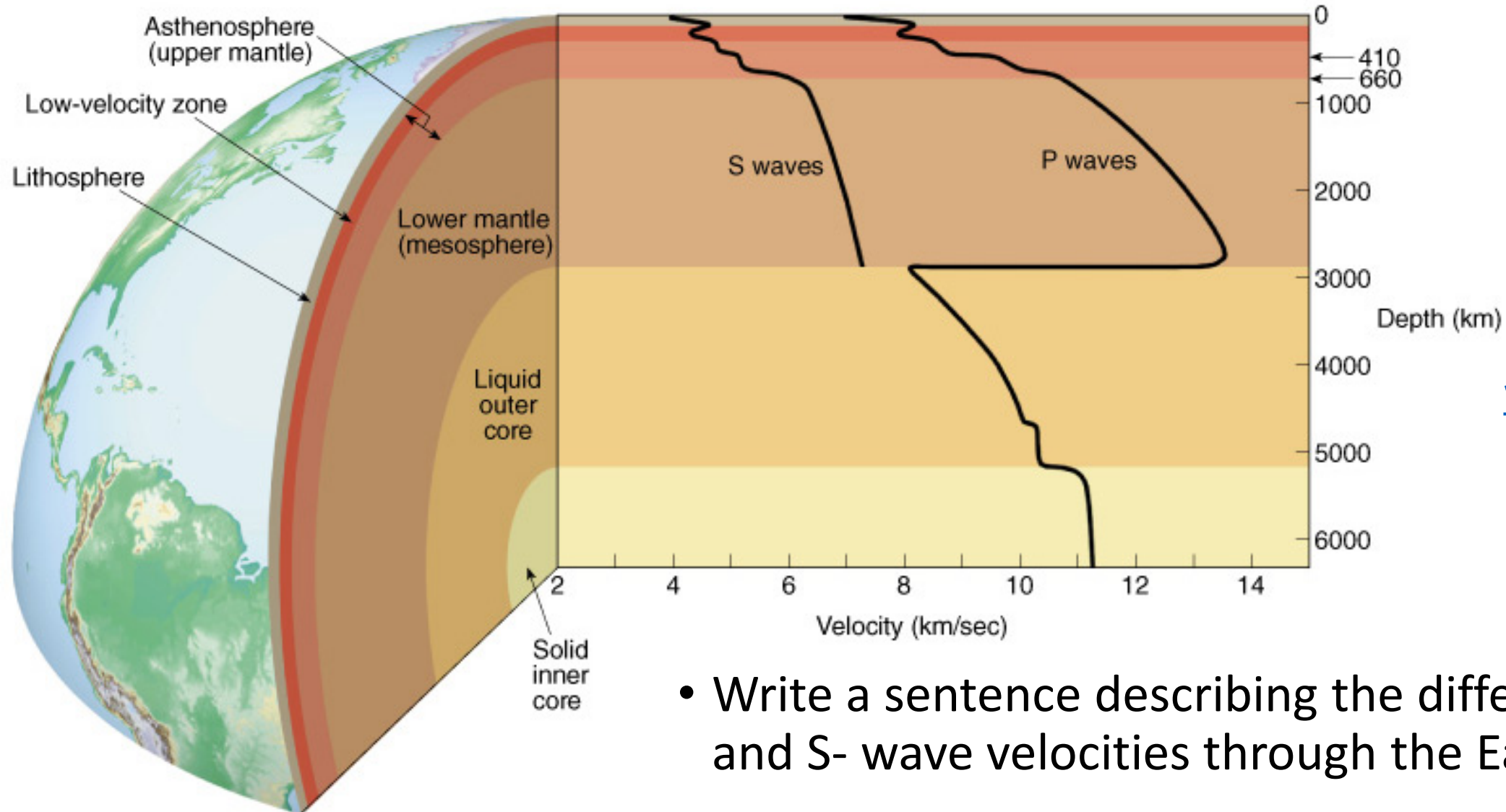
...As you can see here



- In a “traditional lecture style,” I might spend ~1 minute on this slide describing the general behavior of P- and S- waves.

Talk them through how to read it, and ask a question:

- What general trends do you see in the graph?



What questions do you have? Submit to www.pollev.com/mfplenge

- Write a sentence describing the difference in P- and S- wave velocities through the Earth.

Difference in approach

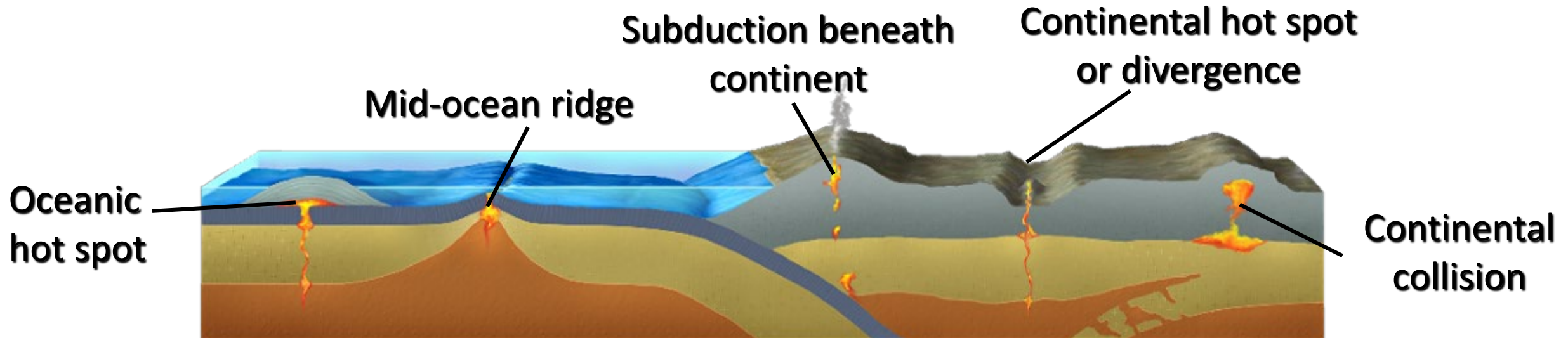
**Giving students content
(interpreting the graph for them)**

vs.

**Giving them information they can use to come
to conclusions**

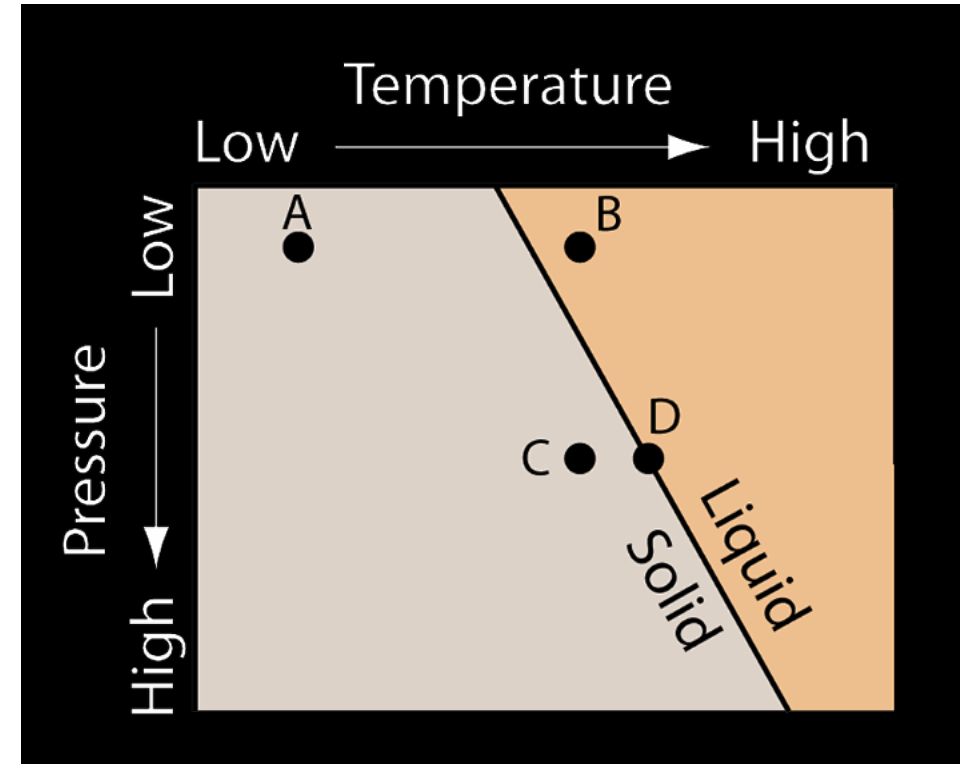
What conditions can cause magma to form?

- Magma forms at plate boundaries, BUT WHY?
- *What can cause rock to melt?*
 - Increase in temperature
- *Hint: Other variables to consider are pressure and the chemistry of the rocks*



A graph can help illustrate how temperature and pressure control melting

- Walk students through construction of the graph
 - Explain axes labels
 - Draw liquid-solid line
 - Have students figure out which side is which
 - Tilt line appropriately
 - Where is Earth's exterior on this graph?
- What is the easiest way to cause a rock at point "A" (the crust) to melt?
- What is the easiest way to cause a rock at point "C" (the deep lithosphere/mantle) to melt?



Anytime to ask the class “Is this making sense?” and you see only blank stares and vague nods,
DO SOMETHING ABOUT IT!

- ***Build in processing time, and/or an ungraded task to test their understanding***
 - These can be done on the fly!
- Ask a question! Give them a chance to talk about it in groups rather than picking the fastest hand from the crowd
- Make the question open-ended (but not vague), and low-stakes
- Give students resources to use if they’re not there.
 - “If you don’t get it, chapter 15 in your book does a great job of explaining it!”
- Use this as a springboard to see where you need to add active learning exercises into your course!