Annotating Texts

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WHAT is annotation?

- A systematic summary of text *within* the document
- A key aspect of close reading
- An active learning strategy that improves comprehension

WHY annotate?

- Isolate and organize important material
- Identify key concepts
- Monitor your learning as you read
- Make exam prep effective and streamlined
- Can be more efficient than creating a separate set of reading notes

HOW do you annotate?

- **Summarize** key points *in your own words*
- **Circle** key concepts and phrases
- **Write** brief comments and questions in the margins
- **Use** abbreviations and symbols
- **Highlight/underline** *sparingly*

As you annotate a text, ask yourself: *how would I explain this to a friend?* Focus on *rephrasing and summarizing*. The table below demonstrates this process using a geography textbook excerpt.

Passage from text	**Too much writing**	**Not enough**	**Good Balanced**
*The shape of metamorphic P-T paths provides insight into the manner in which these rocks are metamorphosed. In convergent margin settings, P-T paths indicate rapid subduction of rocks and sediments to sites with high pressures and relatively low temperatures. In settings where subduction leads to continental collision, rocks are pushed down to depths where pressure and temperature are both high. In both settings, the P-T paths form loops. These loops show that after the rocks experienced the maximum pressures and temperatures, they were pushed back up to shallow depths.**	Shape of P-T paths tells us about the conditions of metamorphosis: - Convergent margin settings: rocks are subducted to depths with high temperature and low pressure - Continental collision settings: rocks are subducted to depths with high temperature and high pressure In both cases the P-T paths form loops, showing that the rocks were pushed back up.	P-T paths show conditions Two settings P-T paths loop	**Shape of P-T paths reveals subduction site depths, temps, pressure** **Settings:** **1. Convergent margins: HIGH temp, LOW pressure** **2. Continental collision: HIGH temp, HIGH pressure** **P-T paths loop in both settings**

A common concern about annotating texts: It takes time!

Yes, it does, but that time isn't lost—it's *invested*. In return, your annotated notes will help speed up exam prep, because you can review critical concepts quickly and efficiently.

TIP: *Try separating the reading and annotating processes— quickly read through a section of the text first, then go back and annotate.*

Example Annotation (from geology textbook*)

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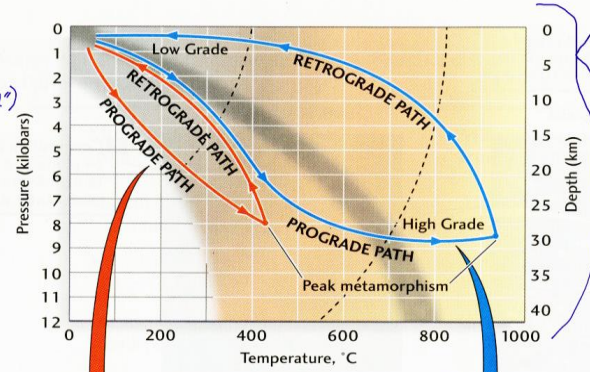
P-T paths record what happened when plates came together ("converged")

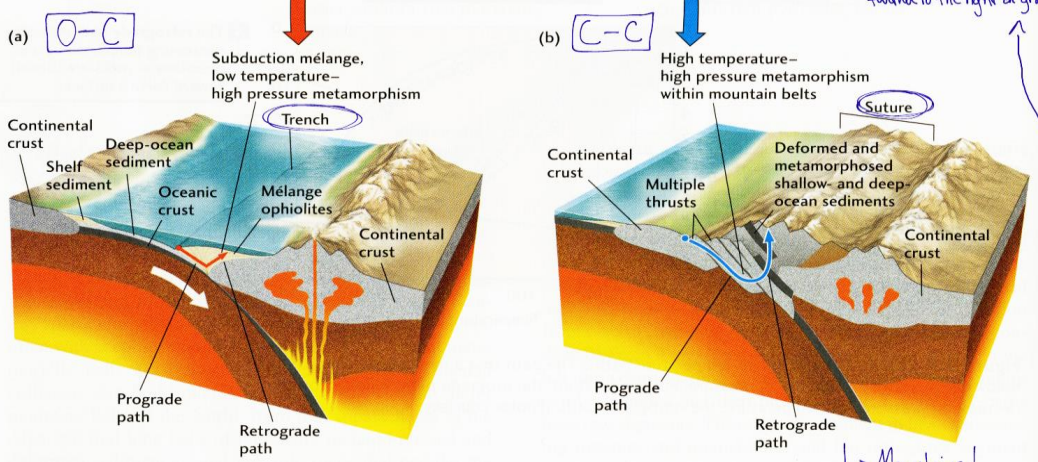


Prograde: Rocks are carried down pressure + temp ↑

Retrograde: Rocks carried back to surface ("exhumation") temp + pressure ↓

C-C creates higher temps than O-C

→ P-T path for C-C is further to the right on graph



→ Mountains!

Figure 9.10 P-T paths and rock assemblages associated with (a) ocean-continent plate convergence and (b) continent-continent plate convergence. The P-T paths differ by illustrating the lower geothermal gradients present in subduction zones. Rocks transported to similar depths—and pressures—beneath mountain belts become much hotter at an equivalent depth.

Depths + pressure are ≈ But temps ↑↑↑ for C-C

? What about ocean-ocean plate convergence?

convergence of a Mediterranean plate with the European continent. The Andes Mountains (from which the name of the volcanic rock andesite is derived), near the west coast of South America, are products of a collision between ocean and continental plates. Here the Nazca Plate collides with and is subducted under the South American Plate.

Continent-Continent Collision

Plates may have continents embedded in them, and a continent can collide with another continent, as shown in Figure 9.10b. Because continental crust is buoyant, both continents may resist subduction and stay afloat. As a result, they collide, and a wide zone of intense deformation develops at the boundary where the continents grind together. The remnant of such a boundary left behind in the geologic record is called a suture. The intense deformation that occurs during orogeny results in a much-thickened continental crust in the collision zone, often producing high mountains such as the Himalayas. Belts of magmatism characteristically form at depth within the core of the mountain range adjacent to the suture. Ophiolites are often found near the suture; they are relics of an ancient ocean that disappeared in the convergence of two plates (see Chapter 5).

As continents collide and the lithosphere thickens, the deep parts of the continental crust heat up and metamorphose to different grades. In deeper zones, melting may begin at the same time. In this way, a complex mixture of metamorphic and igneous rocks forms the cores of orogenic belts that evolve during mountain building. Millions of years afterward, when erosion has stripped off the surface layers, the cores are exposed at the surface, providing the geologist with a rock record of the metamorphic processes that formed the schists, gneisses, and other metamorphic rocks.

P-T paths for metamorphic rocks produced by continental collision have a different shape from those produced by subduction alone. Continental collision generates higher temperatures than subduction. Therefore, as a rock is pushed to greater depths during collision, the temperature that corresponds to a given pressure will be higher (see Figure 9.10b). The P-T path begins at the same place as the path for subduction but shows a more rapid increase in temperature as greater pressures and depths are reached. Geologists gen-

References:
Nist, S., & Holschuh, J. (2000). *Active learning: strategies for college success*. Boston: Allyn and Bacon. 202-218.
Simpson, M., & Nist, S. (1990). Textbook annotation: An effective and efficient study strategy for college students. *Journal of Reading*, 34: 122-129.
**Example annotations use excerpts from:* Press, F. (2004). *Understanding earth* (4th ed). New York: W.H. Freeman. 208-210.

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