

Laboratory 7: Supplemental Exercise – Metamorphism and Continental Collision

The figures below show the position of continental and oceanic plates and associated igneous, sedimentary, and metamorphic rocks. Figure 1 depicts the position of various rock units before the continental plates collide. Figure 2 depicts the position of various rock units after the plates have collided. You are to label each of the features or rock types (include specimen #) identified on both figures and deduce what happens to these geologic features or rocks after the collisions. You may use your text, notes, maps on the walls, and lab books as references to complete the exercise.

Figure 1. Label the indicated features as requested on this diagram showing two continents prior to collision. Each question is worth one point.

What sedimentary rocks are found in this environment?: 1) _____ 6) _____
 (Include the rock number from your box) 2) _____ 7) _____
 3) _____

Name the dominant igneous rock 5) _____

Figure 2. Label the indicated features as requested on this diagram that shows the geology following collision of the plates shown in Figure 1.

What rocks are found in this environment?: 11) _____ 14) _____
 (3 points) 12) _____ 15) _____
 13) _____ (2 points)

What rocks are found in this environment?: 14) _____ 15) _____
 (2 points)

On the cross section, show where zones of high-grade and low-grade metamorphism will occur.

What pressure and temperature conditions are associated with these two zones? High-grade _____ Low-grade _____

Why is the volcanic arc shown on Figure 1 no longer shown on Figure 2? _____

- 16) (2 points) On the cross section, indicate where you would look to find the igneous and metamorphic rocks indicating the remains of the volcanic arc.
- 17) (2 points) What rock type or composition of magma would you look for as evidence of the remains of the volcanic arc? _____
- 18) (2 points) What type of metamorphism would you expect to find associated with the remains of the volcanic arc? _____