**Video Study Guide: Earth Revealed  
Episode 18: Metamorphic Rocks**

Read the questions first. Then answer them while watching this episode of "Earth Revealed". If you miss it in class you are still responsible for the viewing this segment and answering the questions. The video is available online at <http://www.learner.org/vod/video.html?sid=78&po=18> . The index for these programs is online at <http://www.learner.org/progdesc/index.html?uid=78> . If you do not have an internet connection at home, view it after school or during study hall in the media center. Each segment is 30 minutes long.

1. What happens during metamorphism?
2. What is a protolith?
3. What temperature and pressure ranges are common in metamorphic environments?
4. What is directed pressure and what usually causes it to occur?
5. What happens to minerals as temperature and pressure increase?
6. What is foliation?
7. Why are foliated rocks often unstable when exposed at the surface?
8. Describe temperature increases and recrystallization.
9. What are migmatites and how are they formed?
10. What changes in composition often occur during the metamorphic process?
11. What factors affect the specific changes which take place during metamorphism?
12. Describe contact metamorphism.
13. Describe regional metamorphism.
14. How is metamorphism like cooking (called an "isochemical" process).
15. What are metamorphic facies, and how are they used to decipher geologic history?
16. Describe how metamorphism is a process of continual change.
17. Describe progressive regional metamorphic stages, using claystone as the protolith.
18. Why aren't metamorphic rocks 'unmetamorphosed' as temperatures drop?
19. What types of information are preserved in metamorphic rocks?
20. What is the assumed rate of growth of snowball garnets, and what does this suggest about the metamorphic process?
21. Why are most metamorphic rocks associated with plate boundaries?