

Image Analysis

What is Image Analysis?

Image analysis is a form of slide observation (Reynolds and Peacock, 1998) where students are shown a photograph, map, or diagram and asked to make observations and interpretations. These types of exercises are an excellent way to begin a class as they immediately engage the student in the topic at hand. Image analysis involves knowledge, comprehension, application, and analysis levels of Bloom's taxonomy. Under certain circumstances exercises may also require students to synthesize and evaluate information.

How to use Image Analysis

1. **Show an image.** Images may illustrate pictures of landscapes or specific features, maps, or diagrams.
2. **Make observations.** Divide the class into formal or informal 2-4 person groups and allow them about five minutes to make a list of observations about the image.
3. **Report the observations.** Have each group appoint a spokesperson and have them report one observation per group. Write their observations on a chalkboard or overhead transparency. Continue polling the class until all observations have been reported. The instructor now has two options: i) begin lecture by describing the principal features in the image; or, ii) have student groups interpret what they see in the image, perhaps in response to a question. These alternatives are described more fully below.
4. **Describe the key features of the image.** The instructor may now introduce the principal elements of that day's lecture using the image as a starting point. Lecture material can be readily linked to some of the more astute student observations. This option returns the class to a more typical lecture setting but the information is now tied to a foundation of knowledge established by the students.
5. **Make an interpretation or respond to a question.** Now that the students have seen and heard all the observations they may be prepared to make some basic interpretations of what they can see in the image. The instructor builds the lecture around their interpretations but must be careful not to allow the development of misconceptions. This element of the exercise requires that students differentiate observations and interpretations, two key parts of the scientific process.
6. **Concept application and analysis.** Following lecture or other classroom activities, a new image may be presented for student interpretation. Ideally the image would allow the students to apply their newly acquired knowledge to analyze a situation that is related to the first image and the lecture/activity that followed.

Reynolds, S.J., and Peacock, S.M., 1998, Slide observations – Promoting active learning, landscape appreciation, and critical thinking in introductory geology courses: *Journal of Geoscience Education*, v.46, p. 421-426.



This image of Mt. Jefferson, Oregon, was used as an introduction to the hydrologic cycle. Students were shown the image at the beginning of class and asked the following question. What are the relationships between water and the earth system that are suggested by this image of Mt. Jefferson, Oregon? Briefly describe how water is represented and/or utilized. This question was adapted from a similar exercise described by Stephen Reynolds, Arizona State University, during a presentation at the University of Akron.