

Jon Maifield
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Geology of Iowa for Teachers

A) Description: For my project, students will examine sand samples from different parts of Iowa, calculate percentages of minerals present, and try to determine where the sample came from given a list of locales and percentages of minerals present.

B) Objectives/Goals: Students will examine each sample using grid trays to calculate the percentages of quartz, feldspar, hornblende, or any other trace minerals present. They can also describe how well-rounded, angular, or frosted the grains are.

C) Implementation: Students will work in groups of two and each pair will receive a film canister of sand. The instructor will know where the sand in each canister came from. Students will pour a sample from their film canister onto the grid tray and use magnifying glasses or hand lenses to determine the percentages of each mineral present. They should do at least three trials with each film canister to come up with the best possible average. Once that is done, the instructor will reveal the pre-calculated averages for each location so the students can decide which part of the state their sample came from. This activity should take most of an 84-minute block period.

D) Evaluation: Students will be evaluated on how closely their calculated percentages match the known percentages (within a given margin of error) and if they chose the proper locale.