

Classroom Gem Mining

Hands-On Rock & Mineral Mining Program

Program Overview

Students use plastic sifters and catch trays to search through mining ore for a hidden collection of real gems and minerals. Each student uncovers and keeps a set of specimens, creating a memorable, hands-on introduction to Earth materials, mineral properties, and scientific classification — directly supporting Next Generation Science Standards (NGSS) instruction in Earth and Physical Science.

NGSS Standards Supported

Elementary (K–5)

2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
4-ESS1-1	Identify evidence from patterns in rock formations and fossils to support an explanation for changes in a landscape over time.
5-ESS3-1	Obtain and combine information about ways individual communities use science ideas to protect Earth's resources.
2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Middle School (6–8)

MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process (rock cycle).
MS-ESS3-1	Construct a scientific explanation based on evidence for how the uneven distribution of Earth's mineral, energy, and groundwater resources results from natural processes.
MS-ESS3-3	Apply scientific principles to minimize human impact on Earth's systems (responsible/sustainable mining practices).
MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

Science & Engineering Practices (All Grade Levels)

SEP.1	Analyzing and Interpreting Data — students sort, sift, and categorize physical mineral samples into evidence-based groups.
SEP.2	Obtaining, Evaluating, and Communicating Information — students identify and classify specimens using observable properties.
SEP.3	Developing and Using Models — connecting hands-on discovery to explanations of how rocks and minerals form.

Standard alignment shown is a general guide. For the strongest classroom tie-in, we recommend framing the sifting activity around mineral property classification (hardness, luster, streak) and/or rock cycle origin (igneous, sedimentary, metamorphic) to match your grade level's specific unit.