

# GETTING STARTED

## AN INTRODUCTION TO GEOLOGIST'S BOOT CAMP: DISCOVERY AT MINE 909

Science Alberta Foundation is pleased to make Geologist's Boot Camp: Discovery at Mine 909, one of our Science-in-a-Crate programs, available in your community!

Geologist's Boot Camp is a science program that encourages students to develop an understanding of the distribution of Earth's materials such as rocks and minerals.

### Crate Storyline

This crate presents students with this challenge.

In northern Alberta a discovery at Mine 909 has the local community very excited. In an abandoned mine shaft some new minerals and rocks have been recovered. The town council has decided to give junior high students in Alberta the chance to identify the unknown minerals and rocks. But to identify the specimens students first have to attend Geologist's Boot Camp.

Your class will be divided into seven teams. The team activity, Boot Camp 101, presents each team with the above challenge and orients them to the basics of Boot Camp. Each team is also given a Geologist's Kit and three of the unknown rocks and minerals discovered at the mine in northern Alberta. (Each team has their own set of three rocks and minerals they must identify.)

By completing the seven activities in Geologist's Boot Camp, students will learn the skills geologists use to identify unknown rocks and minerals. Each activity also has a special Boot Camp Question that requires students to apply what they have learned at that station to help them identify their team's three mystery specimens.

The crate's seven activities include these main concepts and activities.

- Students constructively discover the different physical properties used to identify minerals when they are given a vial of crushed minerals to separate.
- The chemical properties of minerals and rocks are studied with the use of dilute hydrochloric acid (provided by the teacher or leader) and the appropriate safety precautions.
- The proper terminology and conventions used to identify rocks are introduced at additional stations where students match a description of the rock to a large sample.
- Special properties of minerals such as magnetism, fluorescence and double refraction are studied with excellent quality minerals.
- Students are introduced to the process by which all rocks on Earth are recycled when they create their own sediments from wax crayons and apply heat, pressure, melting and cooling to their sediments.

Geologist's Boot Camp meets many of the grade 7 curriculum outcomes as required by Alberta Learning. The crate's activity guide provides the background information necessary for teaching rocks and minerals from the Planet Earth Unit of the curriculum. Detailed instructions and answers for all activities are supplied. The activity topics and key concepts covered are listed below.

<b>Geologist's Boot Camp Activity</b>	<b>Key Concepts Covered</b>
Team Activity: Boot Camp 101	Identify rocks and minerals
How Accurately Can You Sort?	Rocks and minerals
Can You Identify the Six Crystal Systems?	Application of scientific terms for minerals
Can You Identify Different Minerals?	Observing component materials of Earth
What Properties do Rocks and Minerals Share?	Chemical and physical properties of minerals
Can You Identify Different Rocks?	Distinguish between rocks and minerals
What Minerals Have Special Properties?	Learning physical properties of minerals
What is the Rock Cycle?	Study three classes of rocks