Introduction to Fluorescent Minerals
EDCG&MS Science Lesson and Traveling Mineral Kit

El Dorado County Mineral & Gem Society
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https://www.edcmgs.org

Lesson crafted by Pam DiFilippo, Science teacher.
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Activity Summary

This lesson is provided by the El Dorado County Mineral and Gem Society (EDCM&GS) as an introduction to fluorescent minerals. Students observe various mineral specimens to construct an evidence-based explanation for sorting materials. They make predictions based on the evidence collected and solutions presented by their classmates, and then, to explain the phenomenon of fluorescence.

NGSS Standards

Grade Standards - Grade 4

- ESS1- Identify evidence from patterns in rock formations
- Science and Engineering
  - Identify evidence from patterns that support particular points in an explanation. Science assumes consistent patterns in natural systems.
  - Make observations to serve as the basis of evidence for an explanation of a phenomenon.
  - Analyze and interpret data to make sense of a phenomenon using logical reasoning.
  - Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints.
  - Obtain and combine information from reliable media to explain a phenomenon.
- Cross-cutting Concepts
  - Patterns - Graphs, charts, and images can be used to identify patterns in data.
  - Cause and Effect - Cause and effect relationships are routinely identified, tested, and used, to explain change.
- Literacy Connections
  - W.4.7 - Conduct short research projects that build knowledge through investigation of different aspects of a topic
  - W.4.8 - Recall relevant information from experiences, relevant information, and categorize information.
  - W.4.9 a-b - Draw evidence from informational texts

Grouping

Materials provided for 10 groups. Suggested groups of 3-4 students.

Time

30-60 minutes (more if you choose to use the supplemental reading and coloring about fluorescence in the classroom, but this could also be sent as homework).

Materials

Provided by the El Dorado County Mineral and Gem Society

5 larger samples for teacher use/display
Bag of 4 rock specimens labeled A B C D (10 bags)
Rock E (1 bag of 10 samples)
Electronic copy of lesson and teacher pages
Small UV light (for student use)
Fluorescent Mineral collection
Large UV light (for adult use only)
Polished rocks (as rewards)
EDCM&GS Rock Show coupons and Society information flyers

Provided by the Teacher

White boards/paper/computer for recording and sharing group ideas
Copies of student handouts (print from edcmgs.org)
Large cardboard box (to be used by groups to view their samples)

Teacher Preparation

- Contact EDCM&GS to borrow the Fluorescence Kit (Fluorescent Minerals collection and large UV light)
- Arrange student groups
- Need a dark space for students (and supervising adult) to view large fluorescent mineral collection at the end of the activity.

Procedure Variations, Adaptations, and Differentiation

This lesson is written for 4th grade students and teachers, but can be modified for use by grades 2-7, as the scientific process in this lesson fits related standards in those grades as well.