Instructional Plan

Teacher	School	Subject/Course	Grade	Class Length
Keith Olive	Wilson Middle School	Earth Science	8th	88 minutes

Topic/Lesson Title
Introduction to Mineral Identification

DESIRED RESULTS

Next Generation Science Standards

Performance Expectations

- 5-PS1-3. Make observations and measurements to identify materials based on their properties.
- MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.

Crosscutting Concepts

Patterns

- Macroscopic patterns are related to the nature of microscopic and atomic-level structure.

Science and Engineering Practices

Planning and Carrying Out Investigations

- Conduct an investigation to produce data to serve as the basis for evidence that can meet the goals of an investigation.

Analyzing and Interpreting Data

- Analyze and interpret data to determine similarities and differences in findings.

Learning Targets/Lesson Objectives

- I can understand mineral identification techniques and be able to identify mineral samples.
- I can collect data and use the data with identification keys to successfully identify mineral samples.

© 2010 Vulcan Productions. All rights reserved.

BACKGROUND INFORMATION

Resources Used To Develop Lesson

- *Stories in Stone* GEMS (Great Explorations in mathematics and Science) Kit®
- Mineral samples
- Mineral identification keys
- Streak plates
- Hardness test kits
- Notes

Interdisciplinary Connections

Assessment Of Prior Learning

- Oral discussions about mineral uses, gems, crystals, and rock collecting.

Materials/Equipment/Tools

- Streak plates
- Hardness test kits
- Mineral identification keys
- Mineral data tables
- Mineral samples

FORMATIVE AND SUMMATIVE ASSESSMENT

Formative Assessment

- Students share strategies for drawing and estimating the size of angles.
- Students show how to find the percent of a number.

Summative Assessment

- Demonstrate techniques, make adjustments to and suggestions on techniques, and find out how successful their group was in correctly identifying their samples.
- Individual performance assessment of mineral identification.
- Group performance assessment and a written assessment on minerals.
- The final activities will involve a series of events:
- Student and parent evening where the girls and their mothers will come in and create their own makeup from mineral powders.
- Everyone will use minerals to make their own toothpaste from mineral powders.
- The owner of a local jewelry store will come share information about gem minerals and have gemstone jewelry from the store for students to examine.

© 2010 Vulcan Productions. All rights reserved.

LESSON PLAN

Lesson Overview

1. Students review notes from prior day's lesson.
2. Overview of new lab.
3. Monitor progress in each group and ask clarifying questions.
4. Share findings with class.
5. Clean up.

Teacher Tasks	Student Tasks
1. Introduce new lab. 2. Review vocabulary. 3. Demonstrate proper techniques and improper techniques. 4. Demonstrate data recording on data tables. 5. Establish groups. 6. Review group expectations. 7. Wander around the room to monitor and adjust procedures and group dynamics. 8. Topics to review: - Luster - Color - Hardness - Streak - Cleavage and Fracture - Use of mineral identification key - Mineral data tables 9. Allow about five minutes to get the streak plates cleaned, samples returned to bags, identification keys returned, and hardness kits reassembled.	1. Review notes from prior day's lesson. 2. Work in cooperative groups of three to learn the techniques of mineral identification. 3. Keep own data, demonstrate the proper technique on mineral samples. 4. Share findings with group members. 5. Clean up of streak plate and hardness test kit.

LESSON REFLECTIONS

After the lesson, I reflect that I would have liked to spend a little more time pulling vocabulary meanings out of the kids and get them to state it more in their terms. Having more time to get the kids to demonstrate the techniques of testing and using their data with the identification key is another area I'd like to time manage into the lesson. We got to do this the next day, but I would like them to all go home saying, "Hey, I can do this." Overall, the lesson flows pretty smooth and clean as long as the teacher monitors the understanding of the students and continues to check in with them to make sure they "get it."

© 2010 Vulcan Productions. All rights reserved.