

**LESSON: Rock Sort****GRADE: 3****OBJECTIVES:****Behavioral Sciences-****SS.3-5.BS.2 Understand the influences on individual and group behavior and group decision making.**

- Understand that people involved in a dispute often have different points of view.
- Understand that communicating different points of view helps people to find a satisfactory compromise.

**MATERIALS & RESOURCES:**

- Chalkboard or whiteboard and writing tools
- Web sites:
  - [Iowa DNR Minerals-  
http://www.igsb.uiowa.edu/Browse/minerals/minerals.htm](http://www.igsb.uiowa.edu/Browse/minerals/minerals.htm)
  - [Michigan Rocks Activities  
http://www.educ.msu.edu/michiganrocks/MI%20Rocks%20website/3lessons.htm](http://www.educ.msu.edu/michiganrocks/MI%20Rocks%20website/3lessons.htm)
- Flip chart
- Markers
- Rocks collected by the children on the playground, or brought from school, or photos of rocks

**PRESENTATION:**

Ask the kids what kinds of differences they can SEE in the kids in the classroom. Start a list on the board of the results of their brainstorming. Make sure they stick to things you can see, like—

- Color and length of hair
- Color of eyes
- Kinds of shoes and clothing
- Color of skin
- Gender

Tell them you're going to do an experiment to see if they can create a way to figure out which student you're talking about, just by asking "yes and no" questions.

**DIRECTIONS:**

1. Now ask all the students to stand in one large group in one area of the classroom.
2. Ask the kids to divide themselves into two groups that include all students in the class.
3. Now ask those two groups to divide again, making sure all students are included in the (now 4) groups. Let the kids come up with the questions for dividing the groups, making sure to use the guidelines above.
4. On the board, create the [dichotomous key](#), using the divisions the students have made.
5. Have the group stop when they are in small groups of three to five students.
6. If you continue this process until each student has their own branch on the key, you should be able to identify the students by asking the questions that form the branches.
7. Now ask if they collect rocks for a hobby? Have they ever begged their parents to buy them rocks at a science center or a museum? Do they or their family have any jewelry made of rocks?
8. While in the small groups: Guide the groups of students in creating a key for their rocks in the following way— (Each group will need at least eight rocks.)
  - 1) Write the Group name and the word Rocks as the “title” for the Dichotomous Key.
  - 2) Now divide the rocks into two categories of your choice, and write the name of each of these categories on a branch of your key.
  - 3) Look at your two main groups, and divide each of them into two subgroups. Make branches coming out from your first two categories and write the name of each of these categories on four branches of your key.
  - 4) If each group has eight rocks, dividing these four categories should give each rock its own category. Name the categories.
  - 5) Have each group talk about what they learned about rocks and sorting.
  - 6) Then have them share their dichotomous keys with the rest of the class.
  - 7) As a follow up activity, see if they can figure out which rock is which by using the dichotomous key. Have each group set all their rocks together, and then have the other groups rotate through the classroom seeing if they can follow the dichotomous keys to sort the rocks.

To help the children internalize the lesson, ask the following questions—

- 1) Why do you think scientists use dichotomous keys?
- 2) What did you learn about rocks during this activity?
- 3) What did you learn about people?
- 4) How did you feel about being put in a group based on something about your physical appearance?
- 5) Do we ever do that in real life?
- 6) How do you think people feel about being put in a group based just on how they look?
- 7) How are people who look different from most people treated differently?
- 8) How could we use a dichotomous key to settle a disagreement?
- 9) How do you think that would work?

**Garden Unit Directions:** Go outdoors and/or into the garden if possible. Rocks can still be used for the sorting or use different leaves, produce, seeds, or other plant parts instead.

**TIME:**

**45-90 min**