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| **Learning Experience** | **Lesson Description** | **Goals** | **Possible modifications/ideas** |
| 1. Pebble poems | a. students observe rocks & record observations  b. introduce how to make poems using words(optional)  c. students work in groups to make poems about rocks(optional) | -Students hone observation skills and practice describing rocks | * Combine Lessons 1 & 2(to save time) * Use observations for Lesson 6 |
| 2. Rock in’ Dominoes and Rock Swap | a. Class game “Rockin’ Dominoes” using descriptions of rock properties  b. Students record observations of rocks  c. Students work in groups to match other students’ descriptions with rocks  d. Class discussion | -Students practice observation skills  - Students identify properties of rocks | * Play “Rockin’ Dominoes” in morning meeting time |
| 3. | a. Teacher creates class VennDiagram ROCKS/MINERALS  a. Students observe and sketch rocks (with mineral particles)  b. Teacher fills in ROCKS circle with students’ observations | -Students observe properties of rocks  -Build awareness that rocks are made of minerals | * Skip observation- it repeats previous two lessons and can be cut to save time |
| 3a. What is a rock | 1. Teacher read aloud “ The Rock Factory” 2. Class discussion and completion of Venn Diagram ROCKS | -Build awareness that rocks are continually being formed and changed by earth’s natural processes |  |
| 4a. Rock Classification | a. Students work in groups to match rock samples to information cards  b. Teacher read aloud “Rocks Hard Soft Smooth and Rough” | -Introduce types of rocks & how they form (rock cycle)  - Introduce that rocks are made of minerals |  |
| **Learning Experience** | **Lesson Description** | **Goals** | **Possible modifications/ideas** |
| Optional  Rock Collecting | a. Teacher read aloud “ Rock Collecting”  b. Students collect rocks and make rock identification guide | -Students hone observation and identification skills  -Build awareness of data collection | * Skip “Rock Collecting” reading * Add visuals to make rock cycle more clear |
| 5. Exploring Minerals | a. Students work in groups to observe and describe minerals  b. Class discussion and completion of MINERALS side of Venn diagram | -Students observe and discuss minerals  -Encourage student questioning |  |
| 6. Mineral Field Tests- Color & Acid | a. Students choose one mineral to test  b. Teacher demonstrates how to test minerals for color and acid  c. Students work in groups to complete tests and record results  d. Class discussion of findings | -Introduce geology field tests(Color & Acid)  -Students hone observation skills  -Students collect data for mineral profile table  -Build awareness that there are many types of minerals | * Combine Lessons 6, 7, 8 as stations |
| 7. Mineral Field Tests-Properties & Luster | a. Students work in groups to follow directions, completing tests, record results on texture, weight, smell, magnetism  b. Teacher demonstrates how to complete luster test  c. Students work in groups to complete luster tests  d. Class discussion of data | - Introduce geology field tests(Luster, weights, etc)  -Students hone observation skills  -Students collect data for mineral profile table  -Build awareness that minerals have composition |  |
| **Learning Experience** | **Lesson Description** | **Goals** | **Possible modifications** |
| 8. Mineral Field Tests- Streak & Hardness | a. Teacher demonstrates Streak test  b. Students collect data on streak test  c. Teacher demonstrates Hardness test  d. Students collect data on hardness test  e. | - Introduce geology field tests(streak, hardness)  -Students collect data for mineral profile table  -Build awareness that geologists use comparison to identify unknown minerals |  |
| 9. Mystery Mineral Revealed | a. Students complete Mineral Profile Sheet and use field guide to identify their mineral sample  b. Students share their data | - Build awareness of importance of accurate data collection  -Students analyze and share data in order to identify a mineral in a field guide |  |
| 10. Useful minerals (homework) | a. Students complete homework assignment identifying minerals in their home  b. Class discussion | -Build awareness that rocks and minerals are present in everyday items | * Could be extended into project at home |
| 11. Salt & Sugar crystals | a. Class discussion: How can you tell salt from sugar?  b. Students observe salt & sugar with hand lenses  c. Teacher explains difference of salt & sugar | - Introduce terms ‘organic’ and ‘inorganic’  -Reinforce properties of minerals & crystals |  |
| 12 & 13. Making Crystals | a. Students observe quartz samples  b. Teacher reviews how minerals form & crystal shapes  c. Student make crystal shape models from paper  d. students share their models | - Reinforce terms ‘organic’ and ‘inorganic’  -Build awareness of how crystals form | * Skip activity about making crystal models (somewhat tedious and not worth the time?) * Extend lesson to make it a lesson on developing an investigation. Students come up with ways to test variables on crystal formation (see lesson at the back of teacher binder for crystal growing instructions) |
| 14. Sand | a. Class reading of poem “Big Rocks”  b. Read aloud” Sand, Jump into Science”  c. Students observe different sand samples and identify possible types of rock | -Students observe sand  -Reinforce that sand is rock | * Skip lesson(if short on time)- it’s fun and engaging but not crucial to understanding of rocks and minerals |