|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lesson Content** | | | | |
| **What Standards (national or state) relate to this lesson?**  (You should include ALL applicable standards. Rarely do teachers use just one: they’d never get through them all.) | | * SC.4.2.6.2- Identify the physical properties of common Earth-forming materials, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks, * SC.4.N.1.6- Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations. | | |
| **Essential Understanding**  (What is the big idea or essential question that you want students to come away with? In other words, what, aside from the standard and our objective, will students understand when they finish this lesson?) | | * How can you infer uses for earth materials based upon your observations? | | |
| **Objectives- What are you teaching?**  (Student-centered: What will students know and be able to do after this lesson? Include the ABCD’s of objectives: action, behavior, condition, and degree of mastery, i.e., "C: Given a sentence written in the past or present tense, A: the student B: will be able to re-write the sentence in future tense D: with no errors in tense or tense contradiction (i.e., I will see her yesterday.)."  Note: Degree of mastery does **not** need to be a percentage.) | | Students will be able to:   * Identify the physical properties of common Earth-forming materials. * Make inferences about the uses of common Earth-forming materials based on their properties. | | |
| **Rationale**  Address the following questions:   * Why are you teaching this objective? * Where does this lesson fit within a larger plan? * Why are you teaching it this way? * Why is it important for students to learn this concept? | | * I am teaching this objective because it is important for students to understand the difference between observations and inferences, and be able to apply it to real life situations where inferences have to be made based on logical reasoning and observations. * The incorporation of creativity through the advertisement making section of this lesson is a means of differentiation for those who show their best learning in non-traditional means of assessment. * I believe that incorporating various teaching styles such as whole group, small group talk, media and technology, and hands on activities ensures that students are engaged, and that a variety of methods are used to meet the needs of all the diverse learners in the classroom. | | |
| **Evaluation Plan- How will you know students have mastered your objectives?**  Address the following:   * What formative evidence will you use to document student learning during this lesson? * What summative evidence will you collect, either during this lesson or in upcoming lessons? | | Formative Evidence includes:   * Thumbs up/Thumbs down – This is a great way to assess that students are on track when guiding questions are asked throughout the lesson. Students are often honest with their answers and therefore I think this is effective * Checkpoint Questions – These would be asked throughout the lesson to check student understanding and determine if I need to restructure my lesson. * Monitoring/Circulating – When students are in their groups, I will circle around and monitor to ensure that they are on task and in the right direction. Additionally, I will monitor as they work on their individual checkpoint questions.   Summative Evidence includes:   * Students will make an advertisement for their mineral or rock that includes the properties of their sample and how humans could use those properties. These will be scored and conferenced. | | |
| **What Content Knowledge is necessary for a teacher to teach this material?** | | * Teacher must know the types of rocks, as well as the concepts of observations, inferences and advertisements. * Teacher must have adequate knowledge on the types of minerals and rocks, as well as their properties and how to test for these. | | |
| **What background knowledge is necessary for a student to successfully meet these objectives?**   * How will you ensure students’ have this previous knowledge? * Who are your learners? * What do you know about them? * What do you know about their readiness for this content? | | * Students must have background knowledge on igneous, metamorphic and sedimentary rocks. * Students should understand the concept of observations and inferences. * Students should have background knowledge on properties of rocks and minerals. * I can ensure that students have this previous knowledge by beginning with questions such as, “How could humans potentially use the properties of minerals and rocks?” | | |
| **What misconceptions might students have about this content?** | | * Students may not be able to distinguish between a rock and a mineral. * Students may confuse the concepts of observations and inferences | | |
| **Lesson Implementation** | | | | |
| **Teaching Methods**  (What teaching method(s) will you use during this lesson? Examples include guided release, 5 Es, direct instruction, lecture, demonstration, partner word, etc.) | * Direct Instruction * Small group discussions * Media/Video * PowerPoint Presentation * Individual Work * In class Investigation | | | |
| **Step-by-Step Plan**  (What exactly do you plan to do in teaching this lesson? Be thorough. Act as if you needed a substitute to carry out the lesson for you.)  Where applicable, be sure to address the following:   * What Higher Order Thinking (H.O.T.) questions will you ask? * How will materials be distributed? * Who will work together in groups and how will you determine the grouping? * How will students transition between activities? * What will you as the teacher do? * What will the students do? * What student data will be collected during each phase? * What are other adults in the room doing? How are they supporting students’ learning? * What model of co-teaching are you using? | Time  5 minutes  7 minutes  12 minutes  25 minutes  10  Minutes | | Who is responsible (Teacher or Students)?  Students and teacher  Students and teacher  Students and Teacher  Students  Students | Each content area may require a different step-by-step format. Use whichever plan is appropriate for the content taught in this lesson. For example, in science, you would detail the 5 Es here (Engage/Encountering the Idea; Exploring the Idea; Explanation/Organizing the Idea; Extend/Applying the Idea; Evaluation).  1) Students will view the PowerPoint entitled “How Humans Use Rocks.” Slides would be discussed with discussion questions. Students will be asked to brainstorm examples of how humans use rocks in the world. This would be discussed in table groups and then shared out.  2) Students will turn to their our “rock and mineral” page in their LDC activity guides booklet. Instructions would be given to the students about their task which is that they would placed into groups, with each group getting either a rock or mineral sample. They would be responsible for writing observations in the observation column of the chart. Properties can also be written down. Students can test for properties such as streak color and hardness, using materials provided by teacher.  3) Rocks or minerals would be given to groups, each group member having their own sample to avoid any conflicts. Students will proceed to fill out their charts. (observation section). Once this is done, I will ask, “How can humans use the properties of minerals and rocks?” Answers would be discussed including jewelry, countertops, roads and so on. Students will then make inferences in the inferences column on their charts about the uses for their rock or mineral.  4) Students will then be shown the powerpoint, “Advertising in America!” As I go  through the slides, I will ask students “What are some tricks/gimmicks that advertisers use to persuade consumers to buy their products?”  5) Students will then be given a copy paper, and will be given the task to create an advertisement for their mineral or rock. The advertisements should have the following criteria:   * A Color picture of the mineral or rock * Properties of the mineral or rock * Logical inferences of how the mineral or rock can be used by humans.   An example would also be shown to students as a sample for the mineral diamond. This would not be given to groups as a sample, to ensure that they do their own thinking.  6) A rock and mineral gallery walk would then occur in which students will display their advertisements and samples for students to see. |
| **What will you do if…** | **…a student struggles with the content?**   * Can work with teacher at back of classroom. * Can get support from table partners during table talks * Model another example for class | | | |
| **What will you do if…** | **…a student masters the content quickly?**   * Would encourage student to assist table partners who may be struggling. * Student can help with equipment distribution * I would ask higher order questions that encourage synthesizing * Challenge student with scenario related to investigation done at the end. For example, “What would be different if you got a rock/mineral with a higher/lower hardness level?” | | | |
| **Meeting your students’ needs as people and as learners** | **If applicable, how does this lesson connect to the interests and cultural backgrounds of your students?**  My students all love engaging, interactive activities and therefore I am confident that they would enjoy this lesson. Additionally, many have background knowledge on minerals and rocks, as they are part of our daily lives especially in everyday materials and products used. This, I think that this background connection will spark interest. | | | |
| **If applicable, how does this lesson connect to/reflect the local community?**  Students are exposed to rocks and minerals on a daily basis, and the community is filled with materials and products made from these structures. Thus, it is a lesson that easily connects to all communities. | | | |
| **How will you differentiate instruction for students who need additional challenge during this lesson (enrichment)?**   * I would ask higher order questions that encourage synthesizing * Challenge student with scenario related to investigation done at the end. For example, “What would be different if you got a rock/mineral with a higher/lower hardness level?” | | | |
| **How will you differentiate instruction for students who need additional language support?**   * I believe that this lesson is ESOL friendly due to the amount of visual support provided. * They can also be provided with a word call with definitions so that new vocabulary is accessible. * Students will be given sufficient thinking time before having to answer questions, as students who are learning a new language often need this “wait time.” | | | |
| **Accommodations (If needed)**  (What students need specific accommodation? List individual students (initials), and then explain the accommodation(s) you will implement for these unique learners.) | * The teacher may work with struggling students to provide extra help * D.T- Student may need to work with a partner for individual work, or work with the teacher at the back of the classroom for extra help. * G.Z- For gifted students, more challenging questions would be asked. “Student teacher” can also be implemented. | | | |
| **Materials**  (What materials will you use? Why did you choose these materials? Include any resources you used. This can also include people!) | * Elmo * PowerPoint * Meter Rulers * Stopwatch * Projector * Laptop * Science Notebooks * Rock/Mineral Samples * Copy Paper * LDC Activity Guides Booklet. | | | |