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| **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.
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| **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?
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| **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:* Infer logical uses for rocks and minerals based on their properties.
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| **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 be able to apply their knowledge to real life situations where inferences have to be made based on logical reasoning and observations. By the students selecting a rock or mineral based on criteria given to them, they are showing that they truly understand the content taught.
* I believe that putting the students into the role of an executive board of a business is engaging and would really spark students’ creativity. It is also useful for those who prefer to express their knowledge through means other than traditional 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.
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| **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.
* Individual Student Justifications – I will check student justifications for which rock or mineral they should “purchase” to ensure that the content and purpose of the lesson is being understood.
* Colorubric – Students and teachers will make a colorubric collaboratively for the presentations to determine what is expected of the students, and also to ensure understanding.

Summative Evidence includes:* Students will create justifications for their scenarios for their rocks or minerals, and then present their decision and reasoning to the class. These would be evaluated.
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| **What Content Knowledge is necessary for a teacher to teach this material?** | * Teacher must know the types of rocks and minerals.
* Teacher must have adequate knowledge on the types of minerals and rocks, as well as their properties.
* Teacher should know what an effective presentation should be like.
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| **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 the different types of rocks and knowledge.
* 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 can you use the properties of rocks and minerals to identify an earth material for a specific purpose?”
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| **What misconceptions might students have about this content?** | * Students may not be able to distinguish between a rock and a mineral.
* Students may not understand some of the vocabulary/jargon in the scenarios given to them.
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| **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
* PowerPoint Presentation
* Individual Work
* In class Investigation
* Rock/Mineral Walk
* Class Presentations
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| **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 minutes3 minutes 5 minutes6 minutes 10Minutes20 minutes  | Who is responsible (Teacher or Students)?Teacher and Students Students and TeacherStudents Students StudentsTeacher and 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. Class captain will read essential question and objective.
2. We will summarize the previous lesson. (Table talk) *Last week we created advertisements for our mineral or rock sample based on its properties.*
3. I will then explain to the students that they are not going to think from the other side of things. Last week, they thought from the eyes of someone who wanted to sell their mineral or rock, so they made advertisements. Today, they will play the role of an executive board of a business that is in the market for a rock or mineral to serve a particular purpose. Students will talk in the groups about what I just said and share out to ensure understanding.
4. I will then place students in triads and explain that each member of their group will receive a scenario card. This scenario card will include the name of the company that they are pretending to represent, as well as the purpose for which they want to use the mineral or rock. I will then show an example of one of the scenarios.
5. I will then ask , “How can you use the properties of rocks and minerals to identify an earth material for a specific purpose?” I will have triads discuss. (You would want beautiful color or luster for jewelry or a very hard rock or mineral for building materials)
6. I will then pass out the scenarios and allow the students to independently read the scenarios and use their LDC booklets and science notebooks as guidelines to identify the properties that the rock or mineral would need to be useful to their company for the purpose in the scenario. In other words, read your scenario and see what the company is looking for. What properties are important to meet that need? Do we want soft materials for building important structures? Students will share properties that they came up with, and I would record these in a power point.
7. I will then allow each executive board member to decide which rock or mineral they would recommend their company buy, and allow them to write a justification for why they should make this purchase. (Emphasize full sentences and proper writing and grammar like they do in ELA).
8. The triads would then come together and share their recommendations to each other. They will come to a consensus about what they should purchase and why. They should then present their decision and reasoning.
9. As a class, we will determine guidelines for this class presentation according to the colorubric.
10. Each triad will then present.

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| **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
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| **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 involving opposite properties needed.
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| **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?**Many students are aware of companies and executive board members, and thus this will peak their interest.  |
| **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 different scenario.
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| **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.”
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| **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.
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| **Materials**(What materials will you use? Why did you choose these materials? Include any resources you used. This can also include people!) | * Elmo
* PowerPoint
* Projector
* Laptop
* Science Notebooks
* Rock/Mineral Samples
* LDC Activity Guides Booklet.
* Cut out Scenarios
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