

Science Lesson Plan

Teacher:

Period:

Class:

Date(s):

SETTING THE STAGE	
<u>Essential Question</u>	What does it mean to be a critical thinker? Is it important to be a critical thinker?
<u>Content Objective(s)</u> (Student-friendly)	To help the students build critical thinking skills and to work collaboratively in groups.
<u>Connection to previous or future lessons</u>	This lesson will provide the students with exposure to an important skill that is needed in the STEM fields.
<u>Critical Thinking Questions</u>	If you cannot open an object, what observations and tools could you use to conclude what is inside?
<u>Key Vocabulary</u>	Observations Critical thinking
<u>Materials Needed/Safety</u>	Closed cylinder with strings winded inside somehow with the four string outputs labeled A, B, C, D (part of a kit) A black block taped closed with a marble and some sort of material such as sponges or cardboard of different shapes inside. (part of a kit)
ACTIVE INSTRUCTION	
<ul style="list-style-type: none"> • Launch (Engage) 	Pose the questions: what tools help you when you think you have a broken arm or an expecting mother doctor needs to look at the baby? Why are these needed, why can't you just look inside?

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<ul style="list-style-type: none">• Investigation (Explore)	<p>We are going to use a simpler model to discuss how we determine what is inside an object when we cannot open it. I will hand out closed cylinders with four string outputs. I would like you to discuss in groups what is inside the cylinders, what you think the strings look like, how are they connected, if they are, etc? Students can use whatever tools you need to in order to determine what is inside: touch, sound, sight etc. The students will use their notebooks to sketch their conclusion, what reasons they believe this to be true and why.</p> <p>After you have finished with the cylinders I will hand you a black box. You will again discuss in your groups what you think is inside. Every group will have a different box. Draw what you think it looks like inside and write down what ideas your group came up with and what your reasons are and why.</p>
TIME FOR REFLECTION	
<ul style="list-style-type: none">• Summarization (Explain & Extend)	<p>This activity is designed to discuss, explain and understand the importance of critical thinking. It is extremely important considering most of the class would like to be engineers. I think it is important to stress to the students the importance of the process and not focusing on getting to the answer.</p>
<ul style="list-style-type: none">• Assessment (Evaluate)	<p>I will discuss the steps of each of the groups and have them report their results to the class. I will look over the journals to determine how well the activity was received.</p>
<ul style="list-style-type: none">• Homework	