

Sandra Leiterman
Fuller Middle School, Little Rock, AR
Pulaski County Special School District

I chose to create a lesson using the CALLA approach for my 6th grade gifted and talented science class. I taught the lesson to all fifty students on my roster, which is divided into three sections. The fifty students include 29 male and 21 female students. There are 22 Caucasian students, 22 African American students, 3 Hispanic students, one Asian student, one American Indian student, and one Italian student. All students are English language proficient, with all three Hispanic students speaking Spanish as their secondary language, and one speaking Italian as her second language. Cultural diversity exists through both racial make-up and socio economic make-up, as all but 13 students qualify for free or reduced lunch.

This lesson actually lasted three days; however, the video attached is just from Day 2. On the first day, students were given a printed handout of the six simple machines. They were asked to read it thoroughly, and then create a 6 – tab foldable (which is 2 3-tab foldables glued back to back). The instructions were to place the name of the simple machine on the outside, along with a picture (to be drawn by the student). On the inside tab, the students were asked to define the simple machine, explain how it works, including force, effort and load, and give at least one example and one non example. (ie a truck ramp is an inclined plane, but a slide is not). For this activity, they were allowed to discuss their definitions and examples with others at their table.

Day 2 involved a review of the simple machines, using the previously created foldables, as well as a new lesson about compound machines. The lesson proceeded as follows:

Teacher will review the 6 simple machines with students. Students will be given a sheet with pictures of 6 compound machines, along with vocabulary cards of the six simple machines. They will be asked to identify the simple machines that make the compound machine. Teacher will show a short video of each machine showing it “in action”. This will help create a visual scene for those students that may not be familiar with the items in the pictures. Teacher will give students time to indentify individually and cooperatively. Students will be encouraged to justify their reasonings, and make any changes necessary.

After the exercise, teacher will invite students to the smart board to place their vocab words on the part of the compound machine where the simple machine exists.

Calla lessons have three main parts: Content, Language and Strategy. This particular lesson was designed for science vocabulary and function. I incorporated organizing, grouping, imagery and elaboration and collaborative learning. CALLA requires several important elements including hands-on learning, use of visual aids and use of high level cognitive skills such as analyzing and synthesizing, all of which are present in this lesson.

Implications of the lesson:

Sociocultural: Students were first given time to identify the simple machines that make up the given compound machines individually. They were then given time to compare and discuss their results with another class member. Lev Vygotsky developed a socio-cultural approach to cognitive learning. It was his writings that developed into the Social Development Theory, which places an emphasis on social interaction and language for learning new concepts. This lesson goes along with Vygotsky's theory as it gives students an opportunity to collaborate with their peers and discuss the outcomes of their thinking. While giving students a chance to speak in a small group setting to defend/change their answers before sharing their results with the entire group. By first speaking in a small group setting, it allows the CLD student to gain confidence in their knowledge. A small group (or pair) is beneficial to the CLD student, as they are given the possibility to change their answers or be vindicated in their success.

Language: The foldable from day 1 provides a study guide for students to use in future discussions, assignments and projects. The use of videos of the compound machines in motion allowed for students to see how the machine works, but also allowed for them to try and see where simple machines may be part of the compound machine. The three time reinforcement of simple machines helped to create a concrete understanding of the six simple machines, as well as provided for an opportunity to see 'real world' examples of compound machines comprised of one or more simple machines.

Academic: This activity reinforces the new vocabulary needed to complete the science unit on force and motion. Additionally, student engagement was very high, and it appeared that all students felt comfortable sharing their answers and wanting to identify the machines on the 'big picture.' The lesson was

successful in building the relationship between simple and compound machines, as was evident in their assessment given today. The average score was above 80%, which is a huge improvement from the last unit, in which very little vocabulary strategies were used.

Cognitive: Students were successful in increasing their vocabulary as well as their ability to analyze situations. Three of the four learning quadrants were used (reading, speaking and listening) which increased student engagement, as it covered multiple learning styles. Students were given the opportunity to first speak in small groups before sharing with the whole class. Overall, there was an enhancement in the development of syntax understanding and analytical thinking. Finally, the lesson allowed students to see/hear multiple perspectives which permitted them to gain clarification on their understanding if needed.