

"All Standards, All Students" Summer Institute
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CAS: Cellular metabolic activities are carried out by biomolecules produced by organisms (LS3)

Benchmark: Analyze and interpret data on the body's utilization of carbohydrates, lipids, and proteins

Learning Target: I can analyze nutrition labels and use my knowledge of biomolecules to determine if a food has high nutritional value.

Element 1: Classroom Context. *To help other teachers understand the context of your lesson, describe your content area and grade level, class size, your student population (**without** any personally identifiable information), and relevant features of your school environment (e.g., access to instructional materials, aspects of the school culture that influence instructional decisions).*

Teaching at Overland High School has allowed me the opportunity to teach the co-taught English Language Supported (ELS) Biology classes. Biology classes at OHS are mostly freshman, but because of the ELS students, I have a few 10th, 11th, and 12th graders dispersed throughout my 3 ELS classes. My classes range from 24-30 students. Of those students, a little less than half are ELS students ranging from almost no English language skills to near English proficient, and the others are native English speakers. This year, I'm seeing more twice exceptional students – ELS and special education. Within my classes, students' native languages include Spanish, Russian, Uzbek, Somali, Arabic, Twi, and Amharic.

My co-teacher this year is a 10-year elementary school ELS specialist. She speaks Spanish fluently, and we have the opportunity to plan together every other day. OHS has made Chromebook carts available to every other classroom for core academic classes. I use the Chromebooks for students to research vocabulary, watch video lessons, collaborate, and take assessments online. The Cherry Creek School District also uses an online platform called Schoology (formerly COLE).

Element 2: Lesson Planning with Rationales for Your Decisions. *Your lesson plan should reflect your own metacognition: not just what you plan to do in the lesson, but why you are planning to do it. Be explicit and intentional in your decision making, with phrasing like, "I plan to use Instructional Strategy X so that students will engage in Practice Y, and here is how I predict this will happen in the lesson." You may use the metacognitive questions in the CDE Concept-Based Lesson Planning Process Guide to help you through this process, along with any other planning guides (such as the Lesson Planning Process Guide template) or tools you received from your content specialist.*

I plan using the 5E Model because it makes me intentionally pay attention to each detail of the lesson plan – from my introduction (engage) to how I want students to interact with the content to what evidence I will collect to determine if students have met their learning target.

Engage – I start every class with an opener. For this lesson, my students started by answering the question, "Why should teens read food labels? What's important?" My goal was to make the anticipatory set clear and help students focus their thinking on the learning outcome for the day.

Explore – Students were each given a food label and an inference-making worksheet. Students moved into same-label groups. They then took a line from the text (their food label), recorded their group's background knowledge about that line of text, and created an inference based on the text and background knowledge. Giving students the opportunity to explore a food label of a food item they

were all familiar with allowed students to develop the concept of “good nutrition” and reading the food label. I used the instructional strategy of modeling how to make an inference so students would engage in making their own inferences.

Explain – Students went back to their home teams to jigsaw their inferences; they now all had a different food label and thus, different inferences to share. Each student then received a paper that explained the different parts of a nutrition label. I like this first one because it is shorter <https://patienteducation.osumc.edu/Documents/food-la.pdf>, but this second link is nice because of all the information that it gives so students can explore more deeply: <http://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/UCM275396.pdf>. Students had to share their best inference with their teammates and show them their food label. This allowed students to question each other and explain what they had learned so far.

Elaborate – Students elaborated on this concept of reading food labels and determining “good nutrition” in their home teams. Each student shared their best inference. Then, they used textual evidence from the “How to read a food label” sheet to support or reject their inference. This process allowed students to elaborate on what they already knew about carbohydrates, fats, proteins, sodium, calories, and serving size. Through this structure, students were also able to dispel their own misconceptions.

Evaluate – Lastly, students went back and assessed their understanding by answering their essential question that was presented at the beginning of class. This exit ticket allowed me to collect evidence of student learning. Based on these formative assessments, I could see areas of confusion and misconceptions, and I could use this information to adjust my next lesson.

Element 3: Description of the Lesson Implementation. *Without relying on inferences or interpretations, give a straightforward synopsis of the enactment of the lesson. Focus on what actually happened. It may be helpful to think about the lesson from a student's point of view, or the perspective of an observer who didn't know your lesson plan ahead of time. It may also be useful to include artifacts of student work (without any personally identifiable information).*

Initially, students wanted to answer their essential question right away. Some of them did write their initial thinking in their science notebooks. During the Explore portion of the lesson, students were having a hard time using textual evidence and background information to make their inference. For example, one student wrote, “Sodium 160 mg 7%, My mom always tells me that Pop Tarts are unhealthy, Pop Tarts are good for me.” I explained to this group that their background information needed to be about sodium.

After reading a few inferences, I clarified to the class that the inference needed a “because...” Most students wrote better inferences after this adjustment. “Lunchables are not healthy because they have a lot of fat.”

Students wrote 1-3 inferences in their same food label groups. When they returned to their home teams and shared their best inferences, most groups were only able to support or reject one inference with evidence from their text, “How to read a food label”, because of time.

Exit Tickets were informative. Students were able to say that they needed to know about what’s in food because they need to have the right kinds of Calories and need to make healthy food choices.

Element 4: Reflection. *Whereas the description of the lesson focuses on what happened, the reflection should focus on why things happened, and how your lesson plan did or did not work as intended. Describe the effect of instructional choices on students, and your perception of the effectiveness of your instructional strategies. Finally, suggest revisions for the lesson, and how you might use and improve the instructional strategies you used. These suggestions should be informed by your reflection and student data collected for the lesson. Also, please include a summary of student reflections of the lesson and/or their learning during the lesson.*

Reflecting upon this lesson, I first have to admit that it took twice as long as I had planned. Students were not making the inferences as quickly as I had thought, and they spent a lot of time reading “How to read a food label.” Also, some of the food labels, like orange juice, did not have a lot of information in the food label, and this made the task harder for students instead of easier. Also, students really seemed to want to make every food healthy, even the Butterfinger candy bar! Making inferences is a higher-level thinking skill, and I need to allow students time to struggle. Even though the lesson took longer than expected, I don’t feel that it was time wasted. Giving students time to collaborate allows them to not only work on 21st century skills, but also have a sense of ownership in their learning process.

The formula (text + background knowledge = inference) seemed to help all of the students. Because I discovered during the first class that the inference needed to include the “because”, I was able to give the other classes a sentence frame, and this made the students’ inferences much better the first time around. In the future, I would share some exemplary inferences that students had written during the students’ work time to better model the expectation.

For the Exit Ticket, I would require that students use their key vocabulary (given at the start of each class) in their answers. This would more concretely anchor evidence of student learning – if students can use the vocabulary correctly in answering the essential question, then they demonstrate a better understanding of the concept.

At the start of the next class, I asked students what they thought about writing inferences and the food label activity they had done. Students said that writing the inferences was hard and that they wished they had more time to share and discuss each other’s inferences in their home teams. They wanted more time to find evidence to support or reject their inferences. Students said they enjoyed the activity because most of them had not taken the time to read Nutrition Facts for the foods they eat. They felt they could make healthier decisions now that they had some experience. Some of the important things they said they were going to pay attention to are Serving size (i.e. one pack of Pop Tarts has two servings), %DV of fat, and total sugar/carbohydrates.

Notes:

- * Use of a learning experience from a DSCP instructional unit is encouraged but not required.
- * Be respectful of copyrighted lesson materials by summarizing and providing citations where necessary.
- * There is no single lesson template required for this lesson. You should be fine if you address the four elements above in an organized way. Your CDE content specialist can help you if you have questions.