

**Concept Attainment Project**  
Topic - Living Things  
Audience - 7th Grade Life Science Class

**Context**

Our concept attainment project is designed for middle school Life Science, usually taken in 7th grade. However, it can be adjusted for 6th - 8th grade classrooms. The topic is living things with the idea that students will be able to identify the characteristics of living things:

- made out of cells
- respond to stimuli
- grow and develop
- adapt to environment
- obtain food for energy → metabolism
- uses DNA for hereditary molecule
- reproduce
- as a group, living things change over time → evolution

**Lesson**

Amy will model the role of a life science teacher while Brandon and Nan will model the role of 7th grade students during our presentation. Amy will introduce the class to the topic by presenting index cards with yes/no words on the whiteboard (Phase 1 - presentation of data). Brandon and Nan will identify that concept being discussed (Phase 2 - testing attainment of concepts). The “yes” words have been picked to meet the eight characteristics of life while the “no” words do not meet the criteria. After concept is identified as “living and non-living things”, Amy will ask Brandon and Nan to categorize other words into the “yes” and “no” columns as well as provide other examples.

Amy will show a short 3 minute video “Is it alive?” on Teachers’ Domain website (<http://www.teachersdomain.org/resource/tdc02.sci.life.colt.alive>) and ask Brandon and Nan to further analyze the pictures present and further test understanding of the concept (Phase 3 - Analysis of Thinking Strategies). Afterwards, we will discuss the importance of this activity by revisiting the yes/no words to come up with the eight characteristics of life.

## References

Boulware, B. J., & Crow, M. (2008). Using the concept attainment strategy to enhance reading comprehension. *Reading Teacher*, 61(6), 491-495. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ787678&site=ehost-live>

Boulware and Crow (2008) provide a general overview of the Concept Attainment (CA) Strategy and show how it can be applied to reading comprehension for two different grade levels. The first section of the article is a rationale of the CA strategy, noting that the real benefit of CA is not just learning a vocabulary term, but "constructing meaning through referential representation" (p. 491). The article then goes on to illustrate using the CA strategy to assist students to comprehend new words through the "structured thinking and reasoning process" (p. 491) of CA. Two examples are given, showing the three phases of CA: "The Concept to be Taught," "Testing Attainment of the Concept," and "Analysis" (p. 492-494). Each phase describes three steps that are undertaken by students and / or teachers to achieve each phase. A brief look at assessment (which must occur both throughout and at the end) is followed by a short discussion about how CA can be especially useful for teaching English-language learners through pictures and provide gifted students with a way to learn abstract concepts (p. 494-495). Boulware and Crow note that CA insures, because it occurs on multiple levels, that learning is not fleeting, but lasting, since it connects "what is know to what is unknown" (p. 495).

Hughes, J. (2009). An instructional model for preparing teachers for fieldwork. *International Journal of Teaching and Learning in Higher Education*, 21(2), 252-257. Retrieved from <http://www.isetl.org/ijtlhe/pdf/IJTLHE694.pdf>

Hughes describes Concept Attainment (CA) as a method that can help prepare student teachers for effective learning experiences in classroom settings by using CA not only as learning an instructional tool for teaching concepts to students, but at the same time, as a framework for student teachers to get more out of their fieldwork because student teachers “must be trained to be effective observers of classroom interaction so their learning and understanding of the teaching process can be cultivated and enhanced” (p. 256). Hughes describes the three phases of CA - presentation, testing, and analysis (p. 254) - and then describes how CA can be modified to provide a three-step model “for preparing student teachers so they can effectively participate in classroom observation and fieldwork” (p. 253) and use the “fieldwork experiences to enhance their understanding of the teaching and learning process” (p. 253) through “reflecting on their experiences” (p. 253). Hughes includes two tables (p. 255) illustrating the phases of the CA model as described by Joyce, et al, and the modified steps version created by Hughes to assist student teachers in the field. Hughes concludes with noting that further research on this topic would be beneficial to compare different ethnic, location (urban vs. rural), and affluence variables.