

FIVE E'S INQUIRY CYCLE WITH STRATEGIES FOR ELL AND LD STUDENTS

Engage: Access Prior knowledge, set goals, exposes students to a common experience

Strategy 1: Journal entries

- What do you know about _____?
- What do you think _____?
- Make lists
- Give dedicated quiet time to think

Lesson Model: Warm-up

Strategy 2: Review Goals

Two types

- Science Goal
- Communication Goal: How they are going to communicate today, or what vocabulary words are they going to be introduced to.

Lesson Model: Goals and agenda

Strategy 3: Use activities with pictures or Hands-on materials

- These activities often require the use of science skills of observation and categorization

Lesson Model: Kingdoms of the life (sort pictures of animals into groups)

Explore: Students plan and carry out investigations

Strategy 4: Provide criteria for each piece of the investigation (question, hypothesis, procedure, data and graphs, analysis and conclusion)

Lesson Model: [Formulating the question \(cues to language\)](#)

Explain: Students explain what they have constructed up until this point and teacher introduces science content to students

Strategy 5: Content Reading Strategies

- Pick one you like and use it!
- Adria Klein's interactive editing

Lesson Model: [Kingdoms of Life reading](#) using [interactive editing](#)

Strategy 6: Use Graphic Organizers

Lesson Model: [Kingdoms of Life notes](#)

Strategy 7: Introduce Vocabulary Slowly, use semantic feature analysis

Lesson Model: [Defining Living Things](#)

Elaborate: Investigating further what students want to know which could be done through projects, another experiment, or a performance task.

Strategy 8: Rubrics and checklists

No examples given

Evaluate: Beyond the recall of facts, understanding science concepts

Strategy 9: Concept Maps

Lesson Model: [Animals concept Map](#)

Strategy 10: Take home essays and pre-writing strategies

- Graphic Organizers to pre-write, organize paragraph
- Give students time to think and write in a quiet space.

Lesson Model: [How does the environment effect insects](#) (DL overarching question)

References

- Llewellyn, D. 2002. *Inquire Within, Implementing Inquiry-Based Science Standards*. Thousand Oaks: Corwin Press Inc.
- Swartz, S.L., Klein, A. F., and Shook, R.E. (2001). *Interactive Writing and Interactive Editing: Making Connections Between Writing and Reading*. San Diego: Dominie, Press, Inc.

Online Resources

- Houghton Mifflin, Graphic Organizers:
<http://www.eduplace.com/graphicorganizer/>
- Tools for Writing and Reading, Greece Central School District:
<http://www.greece.k12.ny.us/instruction/ela/6-12/Tools/Index.htm>
- Teacher Workbooks, Graphic Organizer Series, Science Organizers
Volume 1:
Technology Publishing Company <http://www.technology.com/gold/sciorg.html>
- Inspiration Software: <http://www.inspiration.com/home.cfm>

My Website: <http://www.stepsnature.com/lifescience.htm>