KWL:
A Method To Nurture Science Research In Your Classroom

The graphic organizer and reading strategy known as a KWL (What I KNOW, What I WANT to know, and What I LEARNED) can be the tool you are looking for to make science meaningful for all your students. Learn to implement KWLs to nurture science research and inquiry in your classroom. Use KWLs to address the California science content standards and to evaluate your curriculum.

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BEFORE & AFTER RESEARCH

Personal Goals Prior to Research at MRI.

- See and use sophisticated science equipment
- Participate in an interesting cutting-edge scientific research
- Increase my scientific methods and procedures
- Share some of my learning with my students back in school

Other Goals Achieved During this Research Experience

- Listened to top scientists
- Learned to integrate science
- Compared research methods to classroom practice
- Acquired more teaching resources
- Learned to value science research as key to teaching science
- Experienced personal and professional growth as a teacher

The BIG questions

"Why do I need to learn science?"
"When am I ever gona' use this?"
"What's the point?"

"How can I help increase science literacy?"
"Can I turn my students into researchers?"

KWLs in Science

- A **KWL** is a graphic organizer that helps you make sense of what you are learning.

- A **KWL** helps students learn concepts based on prior knowledge, content instruction, interest or inquiry, and reflection.

- A **KWL** is an excellent tool, with high potential to:

  Introduce topics
  Increase comprehension
  Promote inquiry
  Allow assessment
  Modify teaching instruction

- **KWLs** support the California Science Content Standard: Investigation and Experimentation

KWL Instructions

1. Begin with a general topic
2. Give students 3 minutes to think and write what they know about the topic in the "K" section of the KWL
3. Have students share what they know
4. Teach the topic for about twenty minutes; students could listen to a lecture, read from an article, do an activity/experiment, etc.
5. Students think and write in the "W" section about what they want to learn about the topic after being exposed to some new information.
6. Have students share from their "W" section by writing them on the overhead. This becomes a source of test questions, where the teacher can also offer unseen questions.
7. Students continue to explore their topic trying to answer the questions posed.
8. Record the answers on the "L" section.

Name: _____ Subject: _____

Teacher Name: _____ Date: _____

TOPIC:

K What I *know*	W What I *want* to learn	L What I have *learned*
Mastery: 1-10		Mastery: 1-10

Evidence: Attach a document that shows you KNOW the topic.

Illustrate: Draw something on the back that shows you KNOW the topic.

The generators below will allow you to make graphic organizers by filling out a simple form. The materials are made instantly and can be printed directly from your computer. Your creations are exclusive to you. If you would like to keep your creations, save them when you make them. We are constantly developing new tools if you have an idea for a tool please let us know. Currently, the following tools are available in this area:

Concept Web Generator

Try to reinforce the who, what, when, where and how of a concept. This can help.

KWL Generator

Getting students to reflect on their learning is a difficult task. KWL's can help.

SQ3R Chart Generator

Using an SQ3R chart is very helpful when reading long reading passages.

Time Line Generators

This generator can be used to make time lines of up to 14 events of your choice.

Venn Diagram Generator

Venn diagrams are a powerful way to graphically organize information.

Resources

KWL Generator (click on "Teacher Tools")
www.teach-nology.com/

KWL Background
www.ncrel.org/sdrs/areas/issues/students/learning/lr2kwl.htm

www.exploratorium.edu/IFI/resources/lifescienceinquiry/usingkwl.html

http://www.ferris.edu/ searching for KWL

http://www.abcteach.com/KidsClub/GraphicOrganizers/KWL.htm

Ogle, D. S. (1986). K-W-L group instructional strategy. In A. S. Palincsar, D. S. Ogle, B. F. Jones, & E. G. Carr (Eds.), *Teaching reading as thinking* (Teleconference Resource Guide, pp. 11-17). Alexandria, VA: Association for Supervision and Curriculum Development.

ASK a Scientist: Curious minds

www.scienceline.ucsb.edu/
www.madsci.org/