

**CLEAN MICHIGAN
ENVIRONMENTAL EDUCATION
INITIATIVE**

**DEQ Advisory Board Meeting
May 20, 2004**

Who is involved?

Tom Occhipinti, (DEQ Program Officer),

Joe Stoltman, Western Michigan University, Michigan Geographic Alliance

Janet Vail, Annis Water Resource Center, Grand Valley State University

Shawn Opplinger, Western Upper Peninsula Center for Science, Math and EE

Joan Chadde, Western Upper Peninsula Center for Science, Math and EE

Pamela Schmidt, Western Upper Peninsula Center for Science, Math and EE

Lisa De Chano, Western Michigan University

Heather Luoto, Western Upper Peninsula Center for Science, Math and EE

Mike Libbee, Central Michigan University, Michigan Geographic Alliance

Claudia Douglas, Central Michigan University

Mark Jenness, SAMPI, Western Michigan University

Paula Nettleton, Central Michigan University, Education Materials Center

David DeGraaf, Gratiot-Isabella RESD, CMU Science/Math/Technology Center

Kevin Richards, Michigan Department of Education

What are the key goals?

Develop a *foundation environmental education curriculum* which is:

science-based,

accurate,

data-based

balanced,

Michigan specific,

aligned with state standards,

enhances student achievement,

easy for teachers to use,

easily adoptable.

What are the key goals?

Have the CMEEI widely adopted by:

training a cadre of teacher trainers

training 3,000 teachers to use a unit

sustaining the project.

**What do you need to know about
systemic change in education?**

What are standards, and what are goals?

“The student will be able to analyze and take action to improve major environmental problems in their community.” is a **goal**.

“80% of graduating seniors will be able to explain the importance of food chains and biological magnification in environmental problems.” is a **standard**.

What should students know and be able to do?

What EE content should students know?

What EE skills should students be able to demonstrate?

*Teachers cover content but
develop (teach repeatedly) skills.*

How good is good enough?

Student performance standards:

Develop grade level benchmarks.

Define the assessment tasks.

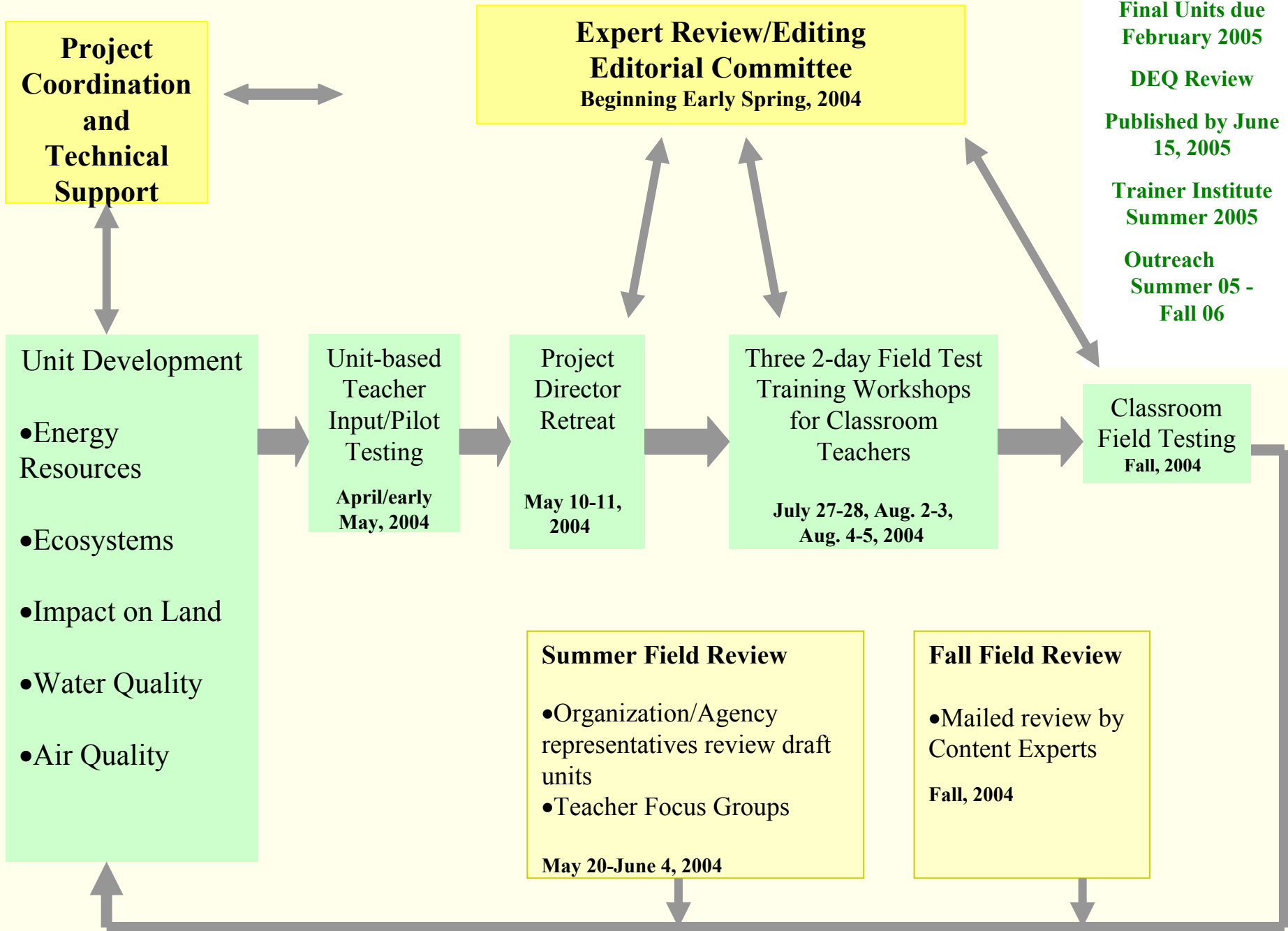
Develop assessment rubrics

Identify the scores that define student success.

Project performance standards.

??? percent of Michigan schools use CMEEI units

**Where are we now
in the process?**



What will the final product include?

The five foundation units are

Michigan's Changing Ecosystems

Individual's Impact on the Land

Water Quality

Air Quality

Energy and Resources

What will the final product include?

Each of the five units will include:

- 6-8 core lesson plans
- reproducible student material
- printed material such as pictures, posters, and maps
- and a CD containing:
 - the other CMEEI units.
 - background science lessons.
 - extension lessons providing options.
 - units/material developed by other organizations.

What will the final product include?

All units will include:

Use of science concepts, principles, and theories.

The impact and consequences of individual decisions.

Data-based decision-making.

Examination of Michigan issues.

Economic and ecological sustainability.

Stewardship and pollution prevention.

Questions for the DEQ Advisory Board

Are there gaps?

Is there another unit we should find/develop?

Do the units include the right content and skills?

What content and skills will be needed for a deeper insight into important environmental issues?

Questions for the DEQ Advisory Board

How can we ensure balance?

Are the units/lessons balanced and free from bias?

Do they represent alternative perspectives appropriately?

How can we deal with the costs of alternatives?

How can we ensure widespread adoption and acceptance?

What should we be doing that we haven't thought of?

Decision-Making Alternatives

Economic

- market forces
- profitability, employability
- accounts for internal costs and benefits
- competition within an industry
- individual or business oriented
- short feedback cycles
- human life span
- concern with minimizing known risk

Ecological

- natural forces
- sustainability
- accounts for external costs and benefits
- consequences of an industry
- society or ecosystem oriented
- long feedback cycles
- species/ecosystem life span
- concern with response to unknowable risk