OEAA Science Update

MME design reminder, SCA Progress, MEAP Fall 2010 Matrix design

MICHIGAN Department of Education

MME Science Test Design

As started in Spring, 2009, OEAA has aligned the content of the MME Science test to the 191* **essential** high school Science Content Expectations (SCEs) of the Michigan Merit Curriculum (December, 2006).

*The 5 essential R1.1x SCEs (Scientific Inquiry) lie among 20 OEAA selected science items among the 40 science items on the ACT. The other 186 essential SCEs are assessed on the OEAA-prepared part of the science MME. These 186 essential SCEs are distributed randomly with science standard across 11 test forms.

Essential SCEs coded with an upper-case letter "R" refers to either B, C, E, or P, the science subjects.

Distribution of the 191 Essential SCEs`

- 47 Biology SCEs
- 45 Earth Science SCEs
- 5 Reflecting & Social Implications SCEs
- 32 Chemistry SCEs
- 57 Physics SCEs
- 5 Inquiry SCEs (appear on ACT)

Test Standards per Subject

- Biology --- 4 test standards
- Chemistry --- 3 test standards (2 are combined)
- Earth Science --- 4 test standards
- Physics --- 4 test standards (1 is split)
- Reflecting and Social Issues --- 1 test standard
- Inquiry --- 1 test standard

Combined or Split

- Test standard C2 & C3 was combined to increase number of SCEs (2 + 4 = 6)
- Test standards P4.1 & P4.2 were split to decrease number of SCEs (33 = 17 + 16)

Science Content TEST Standards

Standard	Title	SCEs
R1.2	Reflection & Implications	5
B2	Living Systems	18
B3	Interdependence	14
B4	Genetics	10
B5	Evolution & Biodiversity	5
C2 & C3	Energy	6
C4	Properties of Matter	11
C5	Changes in Matter	15

Science Content TEST Standards

Standard	Title	SCEs
E2	Earth Systems	10
E3	The Solid Earth	11
E4	The Fluid Earth	11
E5	Earth in Space & Time	13
P2	Motion of Objects	10
P3	Forces & Motion	14
P4.1	Energy & Transformation 1	17
P4.2	Energy & Transformation 2	16

Form Layouts

- Each high school science MME form has 32 operational and 17 FT items.
- All test items are multiple choice, with 4 answer options.
- The MME is represented with 12 forms.
  - 10 operational
  - 1 makeup
  - 1 accommodated

Form Layouts

Operational, Accommodated forms 1 – 10, 12

Common set SCE Items, n = 16 1 item per test standard	+	Unique set SCE Items, n = 16 1 item per test standard	+	Unique field test items, n = 17 From any of 186 essential SCEs

Makeup form 11

Unique set SCE Items, n = 16 1 item per test standard	+	Unique set SCE Items, n = 16 1 item per test standard	+	Unique field test Items, n = 17 From any of 186 Essential SCEs

SCE Coverage

The 32 operational items per form offer:

- 2 items per each of 16 test standards,
  - the SCE to which an item aligns within a standard were selected at **random**
- Each form offers a unique set of 17 FT items

Operational Items on Each Form

The 32 operational items on each from consist of:

- a common set of items (n=16), each aligned to a randomly selected SCE, from within each of the 16 test standards.
- a unique set of items (n=16), each aligned to a randomly selected SCE, from within each of the 16 test standards.

Within each standard, the selected SCE for the common set is different from the SCE for the unique set.

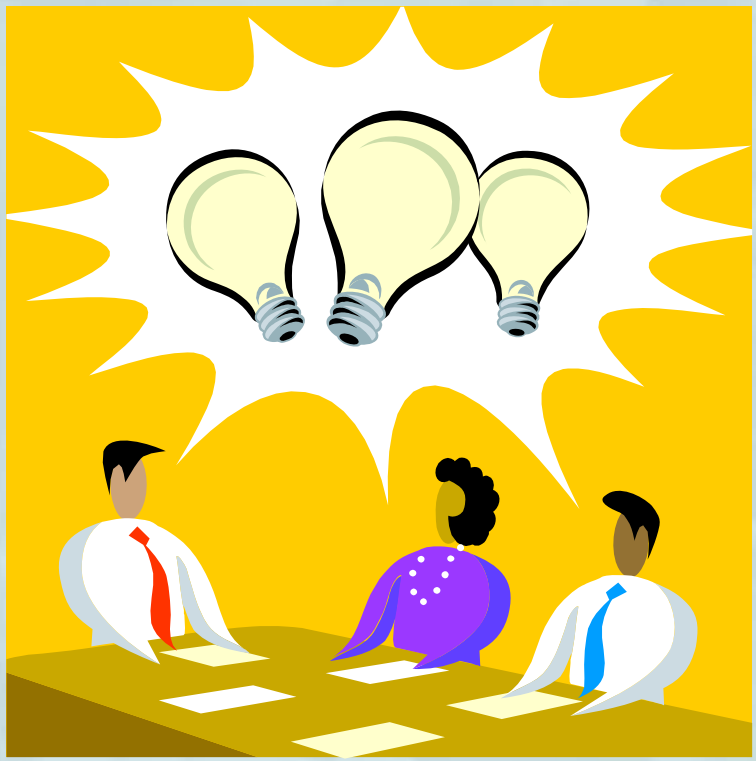
Makeup Test (Form 11)

- The SCEs for form 11, the makeup test, were selected, at random, independent of item selection for forms 1 – 10 & 12
- This form will have 32 items, aligned to 2 different SCEs from each of the 16 test standards.
- This form will also offers 17 FT items

MME Science Test Summary

- The MME science test is just that – a high school science test
- It is not a subject (e.g., Biology) test.
- Test forms 1 through 10 will be spiraled within a school. As such, the school will get data across all tested SCEs (student n > 12)
- Since the item SCEs are selected at random within a test standard, test results, by student, school, district, or ISD do provide a valid and founded measure of science performance

MME Discussion – Q & A



Secondary Credit Assessment

OEAA science has / is preparing secondary credit exams in Biology and Chemistry (now available), Physics (available May, 2010), and Earth Science (available May 2011 – budget permitting)

Districts may elect to use these high school tests as end of course exams; pre-course, test–out exams; or summative assessment exams that is partitioned into smaller item sets and used for a periodic proficiency assessment throughout the course.

Secondary Credit Assessment

Each test will have items that assess:

- approximately: 50% of a subject's essential science content expectations (SCEs), chosen at random across standards, and

- 100% of the subject's core SCEs

This test is designed as a pass or fail assessment, where OEAA recommends a 70% cut score

Secondary Credit Assessment

The science SCA test items were drafted by highly qualified Michigan teachers for each subject, as well as independently reviewed and edited by Michigan educators and OEAA staff for bias and alignment to the a specific SCE.

The SCA exams are available for districts to use via the following website:

www.Michigan.gov/OEAA-secure

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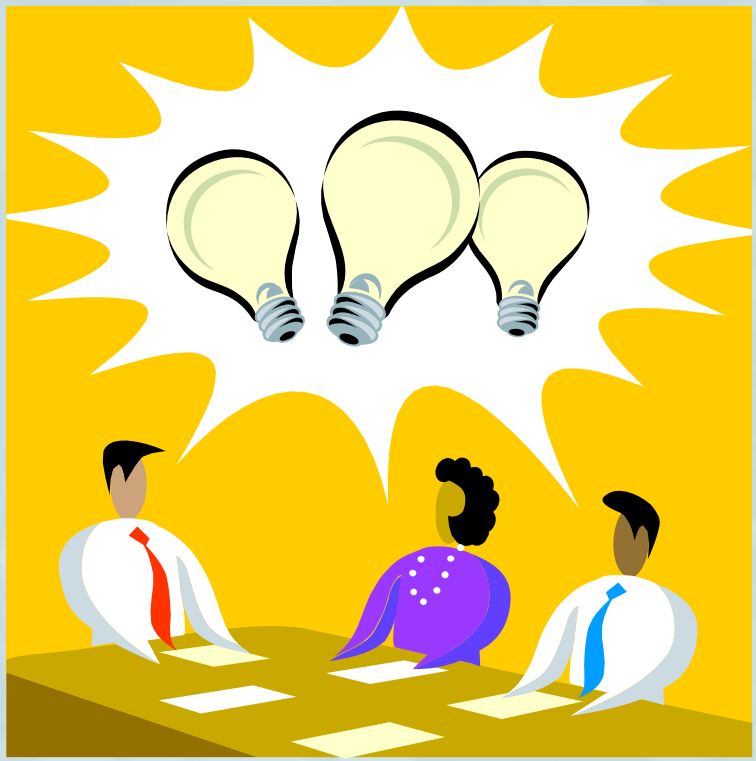
SCA Discussion – Q & A



MEAP test Fall 2009 & Fall 2010

The Fall 2009 MEAP science test are aligned to the Michigan Science Curriculum Framework (MSCF, Summer, 2000)

2009 - 2010 is the last school year that the MEAP science test will align to the MSCF.

Students who are being instructed in science using the K-12 Science Content Expectations (approved 2007) will be adequately prepared for a test aligned to the benchmarks of the MSCF.

MEAP test Fall 2009 & Fall 2010

The format for the Fall MEAP tests will be the same as last year's.

The 2009 elementary school science test will have 51 operational and 10 field test items. The test will use 7 test forms where only the field test items change across forms.

The 2009 middle school science test will have 58 operational and 10 field test items. The test will use 7 test forms where only the field test items change across forms.

MEAP test Fall 2009 & Fall 2010

The Fall 2010 test format for MEAP assessment will be different.

The elementary school MEAP science test will align to fully cover all grade 2, 3, and 4 science content expectations; these content expectations total 95, counting the unique Inquiry and Reflecting expectations once, though the same expectation could be listed across all elementary grades.

The K and grade 1 expectations will not be used.

MEAP test Fall 2009 & Fall 2010

The middle school MEAP science test will align to fully cover all grade 5, 6, and 7 science content expectations; these content expectations total 113, counting the unique Inquiry and Reflecting expectations once, though the same expectation could be listed across all middle school grades.

(Note instruction in the high school science content expectations of the Michigan Merit Curriculum starts in grade 8.)

MEAP test Fall 2009 & Fall 2010

The elementary and middle school MEAP test designs remain on the drawing board. These designs should be finalized by the end of the calendar year.

The elementary school MEAP test will have about 50 operational items and the middle school MEAP test will have about 55 operational items. Some operational items will be the same across forms, while some will different; hence a matrix design that will cover all 95 elementary and all 113 middle school science content expectations.

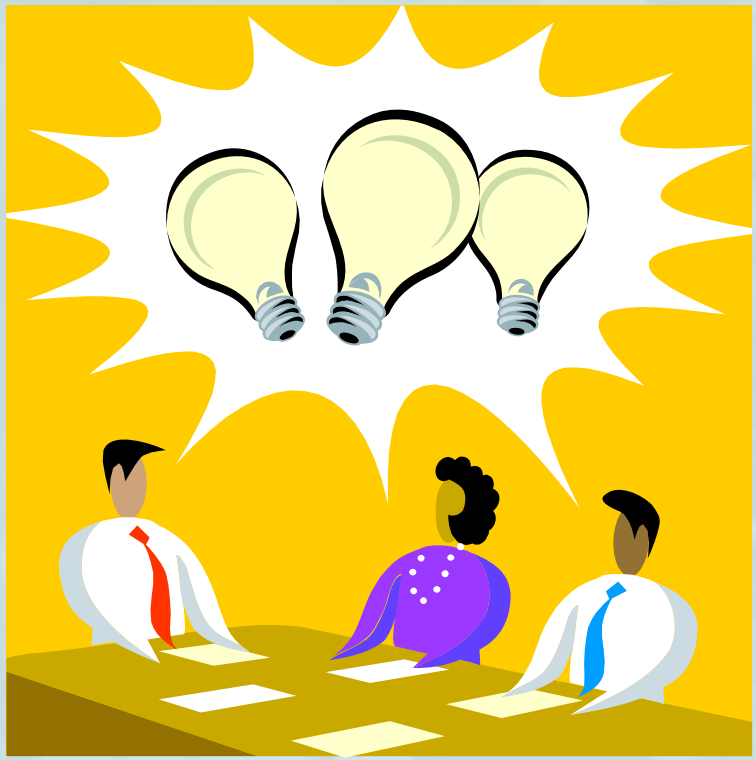
MEAP test Fall 2009 & Fall 2010

Those operational items that differ across forms will be chosen at random within each science standard. As such, regardless of form, all students will be assessed on the same number of items for each science standard.

Each test will also have about 10 field test items.

Full text on the MEAP tests, designed to fully align to the K – 7 science content standards should appear in the OEAA update by January, 2010 and presented at conference (MSTA, Michigan Test Conference, and OEAA conferences scheduled within 2010.

MEAP Discussion – Q & A



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