

Florida Department of Education
2010-2011 Instructional Materials Adoption
Science Specifications - Frequently Asked Questions

- *What exactly does “point of use” mean? The benchmarks on every page, on the page introducing the topic/lesson, or what exactly?*
Benchmarks should be included in the materials when introducing the topic/lesson. It might be appropriate at the beginning of a chapter, section, or lesson depending on the organization of the materials. It is not acceptable to put all the benchmarks at the front or back of a textbook.
- *Does the requirement for benchmarks at point of use pertain to AP courses?*
No, since the AP courses do not have Florida Course descriptions with benchmarks, benchmarks are not required at point of use.
- *Does the requirement for benchmarks at point of use pertain to all courses, including those that have traditionally had lower enrollments?*
Yes, all courses (except AP courses which do not have Florida course descriptions) are required to have benchmarks at point of use.
- *How many instances of coverage on an individual standard are required?*
There is no set number of instances of coverage that are required. The requirement is to meet 100% of the benchmarks for the grade or course for which the materials are submitted using Florida’s Vision for Science Education and the General Description for Publishers’ Submissions found in the Specifications.
- *Is it acceptable to cover multiple standards with one object?*
Yes
- *Access Points: do we need to tag in metadata and highlight/differentiate?*
The Specifications require correlation to the Access Points. The Access Points are intended for use only with students with significant cognitive disabilities.
- *There are numerous standards in grade 4 covering a vast array of science concepts. We are concerned that our recommended materials will be more than a teacher could teach in one year. Will the FDOE consider the time it takes for implementation?*
Committee members will consider the time it takes for implementation as part of their evaluation. There is a question on the Committee Questionnaire that addresses whether the implementation time would be appropriate for the grade or course for which the material was submitted.
- *If we met a benchmark rated as "Low" with an activity that had "Moderate" or "High" elements, would the activity meet the benchmark? (Presumably the assessment would match low/moderate/high.)*
Yes, as long as the activity also met the “Low” rating of the benchmark.

- *Does the state expect teachers to teach Florida's 18 Big Ideas of science directly in the classroom, or are the Big Ideas intended more as a conceptual framework to help teachers organize the content?*

The Big Ideas provide a framework for the in-depth development of essential science concepts in order to increase students' science literacy. The benchmarks provide content-specific learning targets to guide curriculum and instruction that will support in-depth understanding of the Big Ideas.

- *What is meant by the Cognitive Complexity/Depth of Knowledge ratings" (low, moderate, or high) that appear with the benchmarks in some versions of the Florida standards?*

The cognitive demand of each benchmark was rated by groups of Florida science educators using a modified version of Dr. Norman Webb's Depth of Knowledge system. Cognitive complexity refers to the cognitive demand of tasks associated with the benchmark. The depth of knowledge levels reflect the relative complexity of thinking that a given benchmark requires of students – what it requires students to recall, understand, analyze, and do. A description of each of the levels is provided at

<http://floridastandards.org/textonly.aspx?ContentID=22&UrlPath=/page22.aspx>

- *How will the "No more than 10% of the content in the major tool..." be determined? Is it 10% of the chapters, 10% of the pages, or something else?*

Committee members will determine this based on their overall review of the materials. If a committee member feels that the major tool addresses concepts outside the realm of the required benchmarks for the grade or course for which it is being submitted, they will be asked to substantiate their claim with specifics at the meeting. It will be up to the committee as a whole to make the determination of whether it goes beyond the 10%.

- *On the 10% for elementary we had originally understand no more than 10% at each grade. Is that true or is it 10% for the total submission K-5?*

No more than 10% at each grade.

- *Will the Biology End-of-Course exam take the place of the Science FCAT? If so, will it be phased in?*

According to the FCAT Test Development Center:

The current Grade 11 Science FCAT will still be operational for 2009-10 and 2010-11. The Biology End-of-Course exam is under development and is scheduled for field testing (in selected schools) in 2010-11. Beginning in 2011-12, the expectation is that the Grade 11 comprehensive Science FCAT will no longer be given and all students enrolled in Biology I will take the Biology EOC exam. However, this will require a change in statute. The Legislature is expected to consider this during the spring 2010 session.

- **Grade 4** - *In the magnets standard for Grade 4 (SC.4.P.8.4 Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets) is the intention not to teach about basic magnetic field at this grade? Or it is ok to do this? We are also wondering about "poles" but feel that we have to teach that in order to teach that magnets attract and repel other magnets.*

This is a 4th grade benchmark. The benchmark does not ask teachers to teach about magnetic fields at this point, but certainly a discussion of magnetic poles would be appropriate – especially in addressing why certain parts of magnets attract and repel each other.

It does not preclude discussions or observations about how the attraction and repelling forces act over a distance and that the forces decrease as the distance between the magnets increases (the observations will lead to later understanding of a magnetic field and the $1/r^2$ relationship). But a discussion of field lines or fields of action is reserved for high school (see SC.912.P.10.16 and SC.912.P.10.17).

- **Grade 6** - *How much depth of coverage of human body systems would the state expect to be included to address standard SC.6.L.14.5?*
Coverage should include functions and major components of each system, and how the functions relate to growth, reproduction, and homeostasis.
- **Grade 6** - *Would the state expect information on pregnancy and birth in covering part of standard SC.6.L.14.5 on the human reproductive system, or is it just interested in the exploration of the system itself, as related to the other systems?*
Yes, pregnancy and birth would be covered in this benchmark, at a level that is developmentally appropriate for grade 6.
- **Grade 6** - *Part of standard SC.6.L.14.4 requires coverage of the cell membrane. Should our discussion of this topic include active and passive transport, diffusion, and endo/exocytosis, or is that getting too complex?*
Diffusion across the cell membrane would be developmentally appropriate for grade 6.
- **Grade 6** - *Should content on HIV/AIDS be included in material to address standard SC.6.L.14.6 (“types of infectious agents that may infect the human body, including viruses . . .”) or would that discussion provide more depth than is required by the standard?*
Curriculum and instruction based on this benchmark may include content on HIV/AIDS as an example of a virus, in a developmentally appropriate manner.
- **Grade 7** - *How much information on the geologic eras (Paleozoic, Mesozoic, and Cenozoic) would the state expect teachers to present in addressing standard SC.7.E.6.4?*
Curriculum and instruction based on this benchmark should support an understanding and general perspective of geologic time.
- **Grade 7** - *As written, standards SC.7.L.16.1–16.4 seem to require that genetics and heredity be taught in the context of all organisms, but would it also be acceptable to include information on human inheritance and/or human genetic disorders?*
Yes, the new course description for middle grades life science includes health benchmarks related to human health and genetics.
- **Grades 7 and 8** - *Which grade should get more in-depth coverage of states of matter and changes of state: Grade 7 to cover SC.7.P.11.1 or Grade 8 to cover SC.8.P.8.1?*
Although both of these benchmarks are within the Physical Science Body of Knowledge and the concepts are very closely related, it may be helpful to look at these two benchmarks in the

context of the hierarchy of the standards for grades K-8: content area --> body of knowledge --> big idea --> benchmark, and to understand that these benchmarks fall within two different “Big Ideas”:

Benchmark SC.7.P.11.1, Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state, is associated with Big Idea 11: Energy Transfer and Transformations

- A. Waves involve a transfer of energy without a transfer of matter.
- B. Water and sound waves transfer energy through a material.
- C. Light waves can travel through a vacuum and through matter.
- D. The law of conservation of energy: energy is conserved as it transfers from one object to another and from one form to another.

Benchmark SC.8.P.8.1, Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases, is associated with Big Idea 8: Properties of Matter

- A. All objects and substances in the world are made of matter. Matter has two fundamental properties; matter takes up space and matter has mass, which gives it inertia.
- B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or “stuff”) in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of “weight” is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

Looking at these two benchmarks in terms of the Big Ideas, SC.8.P.8.1 is more directly related to states of matter and changes of state, and SC.7.P.11.1 is more related to the role of energy in phase changes.

- *Some standards talk about seasons at all grades, but we do not see any specific standards that ask us to explain the reason for the seasons. Is that Florida’s intent or are we missing something*

Science benchmark [SC.8.E.5.9](#) reads as follows:

“Explain the impact of objects in space on each other including:

- the sun on the Earth including seasons and gravitational attraction
- the moon on the Earth, including phases, tides, and eclipses, and the relative position of each body.”

This is content benchmark in grade 8 where students are expected to learn that seasonal changes on Earth are the result of the tilt of the Earth’s rotational axis relative to the sun.

- *If we met a benchmark rated as "Low" with an activity that had "Moderate" or "High" elements, would the activity meet the benchmark? (Presumably the assessment would match low/moderate/high.)*

Yes, an activity with moderate or high cognitive complexity components would meet the requirements of a benchmark categorized as low, as long as the activity clearly aligns with the benchmark. The cognitive complexity ratings were assigned by groups of experts to indicate the cognitive demand of tasks associated with the benchmark.