Indiana Academic Standards (IAS):
Instructional and Assessment Guidance
ISTEP+: Science – Grade 10
2017-18

Opportunity to Learn

From an assessment perspective, preparing students necessitates a focus on "Opportunity to Learn." Opportunity to Learn (OTL) refers to equitable conditions or circumstances within the school or classroom that promote learning for all students. OTL includes curricula, learning materials and instructional experiences. In short, OTL supports student success by ensuring student access to both content and instruction.

Opportunity to Learn is both a moral imperative and an ethical responsibility on the part of educators. Indiana teachers have a two-fold obligation with regard to OTL. First, teachers must provide students with OTL for Indiana Academic Standards that are assessed in the classroom and on ISTEP+. Second, and more importantly, teachers must provide OTL in terms of the content that students must learn in preparation for the next level of learning.

Prioritizing Instruction

In an effort to empower teachers and focus on instructional priorities, the Office of Student Assessment has created this Instructional and Assessment Guidance ("Guidance") document for grade 10. The *Content Priority* of each Standard is delineated in the Guidance as one of three designations:

1) Critical – identified as "✓+"
2) Important – identified as "✓"
3) Additional – identified as "✓–"

The Guidance document is designed to assist teachers in planning and prioritizing instructional time to ensure student success.

It is important to note that the Grade 10 ISTEP+ test is a domain-based test, rather than an end of course assessment. In other words, the Grade 10 ISTEP+ test will be administered during specified testing windows (Part 1, Part 2) and includes the following science-related topics: *The Nature of Science*; *Cellular Chemistry & Cellular Structure*; *Matter Cycles and Energy Transfer & Inter-dependence*; *Molecular Basis of Heredity & Cellular Reproduction*; and *Genetics and Evolution*.

A Final Note

The Guidance document, as well as the Standards themselves, are not meant to be used as a "checklist." Rather, when teachers take into consideration the instructional priorities and deliver rich, meaningful lessons, the Standards come to life in the classroom.

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Symbol	Key
✓+	Critical Content
✓	Important Content
✓–	Additional Content

**** Represents standards that may be assessed on ISTEP+ Part 1 and ISTEP+ Part 2. All standards may be assessed on ISTEP+ Part 2.***

The Nature of Science		Cellular Chemistry & Cellular Structure		Matter Cycles and Energy Transfer & Inter-dependence		Molecular Basis of Heredity & Cellular Reproduction		Genetics & Evolution	
*1	✓+	B.1.1	✓	B.3.1	✓	B.5.1	✓+	B.7.1	✓+
*2	✓	B.1.2	✓	B.3.2	✓+	B.5.2	✓+	B.7.2	✓
*3	✓+	B.1.3	✓	B.3.3	✓	B.5.3	✓	B.7.3	✓
*4	✓	B.2.1	✓	B.3.4	✓+	B.5.4	✓–	B.7.4	✓+
*5	✓	B.2.2	✓	B.3.5	✓	B.5.5	✓	B.7.5	✓
*6	✓	B.2.3	✓	B.4.1	✓	B.5.6	✓	B.8.1	✓
*7	✓–	B.2.4	✓	B.4.2	✓+	B.6.1	✓+	B.8.2	✓–
*8	✓+	B.2.5	✓	B.4.3	✓	B.6.2	✓	B.8.3	✓
*9	✓+	B.2.6	✓	B.4.4	✓	B.6.3	✓	B.8.4	✓
*10	✓					B.6.4	✓+	B.8.5	✓+
*11	✓					B.6.5	✓	B.8.6	✓
								B.8.7	✓

Note: *The ISTEP+ Science assessment for Spring 2018 will be aligned to the 2010 Indiana Academic Standards for Science. Correlation guides comparing the 2010 and 2016 Indiana Academic Standards for Science can be found here: http://www.doe.in.gov/standards/science-computer-science. The correlation guides should be used in conjunction with the Instructional and Assessment Guidance when planning instruction for the 2017-18 school year.*

The Nature of Science and the Design Process standards can be found at the front of the 2010 Indiana Academic Standards for Science documents. The number designations of each are included below for clarification.

1: Develop explanations based on reproducible data and observations gathered during laboratory investigations.

2: Recognize that their explanations must be based both on their data and other known information from investigations of others.

3: Clearly communicate their ideas and results of investigations verbally and in written form using tables, graphs, diagrams, and photographs.

4: Regularly evaluate the work of their peers and in turn have their work evaluated by their peers.

5: Apply standard techniques in laboratory investigations to measure physical quantities in appropriate units and convert quantitates to other units as necessary.

6: Use analogies and models (mathematical and physical) to simplify and represent systems that are difficult to understand or directly experience due to their size, time scale, or complexity. Recognize the limitations of analogies and models.

7: Focus on the development of explanatory models based on their observations during laboratory investigations.

8: Explain that the body of scientific knowledge is organized into major theories, which are derived from and supported by the results of many experiments and allow us to make testable predictions.

9: Recognize that new scientific discoveries often lead to a re-evaluation of previously accepted scientific knowledge and of commonly held ideas.

10: Describe how scientific discoveries lead to the development of new technologies and conversely how technological advances can lead to scientific discoveries through new experimental methods and equipment.

11: Explain how scientific knowledge can be used to guide decisions on environmental and social issues.