Indiana
DEPARTMENT OF EDUCATION

Dr. Jennifer McCormick
Superintendent of Public Instruction

Working Together for Student Success

ISTEP+ Part 1

Item Sampler for Science

Grade 10

Updated September 2016

Part 1 ISTEP+

Sample Items:

The following items are samples, designed for use with

- teachers, as part of professional development, and
- students, to familiarize them with items aligned to the 2010 Indiana Academic Standards for Science

There are two types of Science items found in Part 1 of the ISTEP+ assessment:

- Constructed-response items, which are worth 2 points
- Extended-response items, which are worth 4 points

Constructed-Response Item

A student is measuring the boiling point of an unknown liquid at different elevations above sea level. What would be the BEST way for the student to display the data she collects about how the different elevations relate to the different boiling points? Be sure to include the type of display the student should use and to describe how each important part of the display would be labeled.

Constructed-Response Item Example Answer

- Any response indicating that a line graph would be used and that the title of the line graph relates boiling point temperatures to elevation above sea level.
- Any response indicating that the x-axis would be labeled ‘Elevation’ with a reasonable metric unit of distance included such as meters or kilometers.
- Any response indicating that the y-axis would be labeled ‘Boiling Point Temperatures in degrees Celsius.’

Extended-Response Item

A student is researching the effects of electronic waste (e-waste) on the environment. E-waste is disposing of electronics, such as cell phones, laptop computers, and other electronic products, in landfills or by burning. E-waste often contains substances, such as metals and glass, that could be used to make other products. However, e-waste also contains toxic substances that when burned or placed in a landfill can seep out into the surrounding environment and sometimes into groundwater. The amount of e-waste is expected to grow from 48.9 million metric tons in 2012 to 65.4 metric tons in 2017.

Extended-Response Item

- Describe ONE way to fix the e-waste problem that will help the environment and still allow people to use electronics as much as they would like to do so.

- Explain TWO ways the method you described will benefit the environment.

- Describe ONE way companies that sell electronics could make reducing e-waste attractive to their customers.

Extended Response Item: Example Answer

- Any response indicating that the out of date electronics should be recycled.
- Any response indication that this will reduce the amount of e-waste created.
- Any response indicating that this will reduce the cost of mining/producing the materials needed for electronics by allowing the metals and glass to be re-used instead of being mined or created.
- Any response indicating that electronics companies could offer a discount to customers who bring in old electronics to turn in when purchasing new electronics.

Resources

- Item Sampler
- Released Items and Scoring Notes
- Instructional and Assessment Guidance

Questions

- Please contact Tim Martin for science-related assessment questions at tmartin1@doe.in.gov.

- For other questions, please contact the Office of Student Assessment by calling (317) 232-9050 or via email at INassessments@doe.in.gov.