Advances in the PARCC ELA/Literacy Summative Assessment: Grade 9 Sample End-of-Year Set

October 2013
The following slides will provide the reader an overview of new sample items.

Together, they form an End-of-Year (EOY) set focused on Reading Standards for Literacy in Science/Technical Subjects.
Students will be given several passages to read closely. EBSR and TECR questions will be sequenced in a way that they will draw students into deeper encounters with the texts and will result in thorough comprehension of the concepts that can also provide models for the regular course of instruction. These tasks will draw on higher order skills such as critical reading and analysis, the comparison and synthesis of ideas within and across texts, and determining the meaning of words and phrases in context.
• **Range:** Example of assessing reading across the disciplines and helping to satisfy the 70%-30% split of informational text to literature at the 9-11 grade band (Note: Although the split is 70%-30% in grades 9-11, disciplines such as social studies and science focus almost solely on informational text. English Language Arts Teachers will have more of a 50%-50% split between informational and literary text, with informational text including literary non-fiction such as memoirs and biographies.)

• **Quality:** The article about DNA fingerprints represents content-rich nonfiction on a science-related topic.

• **Complexity:** Quantitatively and qualitatively, the passages have been validated and deemed suitable for use at grade 9.
Which three terms does the author use to refer to “DNA fingerprint” that help clarify the meaning of the term?

a) “genetic photograph”*
b) “science of genetics”
c) “individual crop varieties”
d) “radioactive probes”
e) “pattern unique to the organism”*
f) “desirable new traits”
g) “genetic blueprint”*
What do these terms indicate about the results of the seven-step procedure to develop a DNA fingerprint?

a) The procedure identifies a constantly evolving arrangement of genes.
b) The procedure identifies a generally accurate arrangement of genes.
c) The procedure identifies an uncomplicated arrangement of genes.
d) The procedure identifies a set arrangement of genes.*
According to the information in paragraph 1, how is solving crop crimes similar to solving high-profile murder cases?

a) Solving crop crimes uses the science of human fingerprint analysis to examine evidence.

b) Solving crop crimes uses genetic material inside the cells of living things to examine evidence.*

c) Solving crop crimes uses specialized computers at crime scenes to examine evidence.

d) Solving crop crimes uses information about the general appearance of living things to examine evidence.
Which detail from the article **best** supports the answer to Part A?

a) “Several organizations have started offering DNA testing to the North American plan breeding and seed industry.”

b) “...the test will be used by plant breeders and research scientists to identify important genes.”

c) “...DNA fingerprints will make it possible for police investigators or researchers to pinpoint specific plant traits and accurately identify seed varieties.”*

d) “Easy to use DNA test kits for certain crops should be on the market within the next few years.”
The final paragraph is headed by the phrase “Simplifying the Search.” What is the “search” discussed in this paragraph?

a) identifying new varieties of plants that can be grown from seeds
b) identifying new varieties of plants with particular characteristics*
c) identifying plants that can be easily tested for a DNA fingerprint
d) identifying plants that pass on their characteristics inside their seeds
Based on information from the text, what are the two ways that the procedure for developing a DNA fingerprint simplifies the search identified in Part A?

a) Plant breeders no longer have to guess which crop trait will be desirable.
b) Plant breeders no longer have to wait for seeds to grow into plants before learning if the plants possess a desired crop trait.*
c) Plant breeders can look for a desired crop trait that has the same DNA as a trait that is not desired.
d) The DNA test can be performed to look for markers for a desired crop trait rather than for its actual DNA.*
e) The DNA test can tell plant breeders which crop trait will be most desired by seed companies.
f) The DNA test can indicate which genes will eventually produce a desired crop trait.
The article shows that understanding plan DNA offers many advantages to plant growers and scientists. To complete the chart below, first select the two statements from the left column that are advantages of understanding plant DNA.

Then, drag and drop one quotation from the list of possible supporting evidence into the “Supporting Evidence” column to provide textual support for each advantage you selected. You will not use all of the statements from the box titled “Possible Supporting Evidence.”

<table>
<thead>
<tr>
<th>Advantages of Understanding Plant DNA</th>
<th>Supporting Evidence</th>
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</thead>
<tbody>
<tr>
<td>A. The study of plant DNA has led to a better understanding of human DNA.</td>
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<tr>
<td>B. The study of plant DNA has led to advancements in computer programs that help with the analysis of genes.</td>
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<tr>
<td>C. The study of plant DNA has enabled scientists to isolate the genes responsible for more useful plants.*</td>
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<tr>
<td>D. Scientists can now determine if a crop has desired characteristics much earlier in the growth cycle.*</td>
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<tr>
<td>E. Plant DNA now enables scientists to recreate species of plants that have become extinct.</td>
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<td>F. Plant DNA has generated public interest in science and has resulted in new products being sold.</td>
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Possible Supporting Evidences

1. “Easy to use DNA test kits for certain crops should be on the market within the next few years.”
2. “Specialized computer-based analysis programs identify the fingerprint, or specific genes carried in the seed of individual crop varieties.”
3. “The technique of DNA fingerprinting has been developed using the science of genetics.”
4. “An organism’s DNA contains the blueprint of its characteristics—in the case of plants, that would include features like yield, drought resistance and starch content. (correct answer for C)*
5. “At one time, the researcher would have to grow the crop to see if the trait is present. But now, the DNA of the seed batch can be tested to determine if the seeds contain the sought-after gene.” (correct answer for D)*
6. “Since DNA fingerprints are taken from the same DNA that carries the entire genetic blueprint for the plant, pieces of DNA that are close together tend to be passed on together from one generation to the next.”
Complete the diagram below by choosing and correctly sequencing the steps of the process of developing a DNA fingerprint, as described in the text. Drag and drop each selected step into the appropriate box. Not all steps will be used.

**Correct Sequence:**
- Add an extraction solution to a small amount of the sample being studied. (step 1).
- Add enzymes to the extracted DNA. (step 2)
- Sort the DNA fragments into a pattern. (step 3)
- Shift the pattern to a nylon sheet and inject radioactive probes. (step 4)
- Identify the pattern by locating the sites where the radioactive probes bonded to the DNA fragments. (step 5).

**Steps of the Process**

<table>
<thead>
<tr>
<th>First...</th>
<th>Then...</th>
<th>Then...</th>
<th>Then...</th>
<th>Finally...</th>
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<tbody>
<tr>
<td>Add an extraction solution to a small amount of the sample being studied.</td>
<td>Add enzymes to the extracted DNA.</td>
<td>Sort the DNA fragments into a pattern.</td>
<td>Shift the patterns to a nylon sheet and inject radioactive probes.</td>
<td>Identify the pattern by locating the sites where the radioactive probes bonded to the DNA fragments.</td>
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**Steps**
- Sort the DNA fragments into a pattern.
- Use scissors to cut the DNA into strands of differing lengths and shapes.
- Identify the pattern by locating the sites where the radioactive probes bonded to the DNA fragments.
- Place particles in a series of sieves to separate them by size.
- Add an extraction solution to a small amount of the sample being studied.
- Shift the patterns to a nylon sheet and inject radioactive probes.
What is one question the article answers by explaining the steps required to obtain a DNA fingerprint?

a) How long does it take for scientists to obtain DNA fingerprints?

b) How complicated is the process used to obtain a DNA fingerprint?*

c) Why is it possible that obtaining DNA fingerprints will become more common?

d) Why is it important to obtain a DNA fingerprint?
Which quotation from the article best reflects an inference that supports the answer to Part A?

a) “Easy to use DNA test kits for certain crops should be on the market within the next few years.”*

b) “The technique of DNA fingerprinting has been developed using the science of genetics.”

c) “An organism’s DNA contains the blueprint of its characteristics—in the case of plants, that would include features like yield, drought resistance and starch content.”

d) “The DNA of each individual is unique, producing a unique set of fragments.”
The Common Core State Standards in English language arts/literacy and mathematics were created by educators around the nation.

Nearly every state in the nation is working individually and collectively to improve its instruction and assessments to ensure students graduate with the knowledge and skills most demanded by college and careers.

The PARCC assessment rewards this commitment by providing an assessment focused on the instructional shifts and academic skills needed to prepare all students for college and career readiness in the 21st century.