

EOCEP Biology 2018 Data Review Report

On 19 October 2018 the South Carolina Department of Education convened a panel of experts to review item data on the Spring 2018 End-of-Course Examination Program in Biology 1. The panel looked at items with a high percentage of students answering correctly and items with a low percentage of students answering correctly. The discussion of that panel yielded the following recommendations.

The panel recognizes the hard work of South Carolina educators and offers the following as suggestions for ways to improve student success. Teachers on this year's panel felt that last year's suggestions were still extremely relevant and that teachers should be reminded to look at last year's Data Review Report (2017). The panel offers these suggestions as an addendum to those from last year.

For Students:

- Read questions carefully to clarify what is being asked.
 - Look for clues on what is being asked.
- Read all answer choices before making a selection.
 - Weigh options on the **best** answer choice for a given question.

For Teachers: It is recommended that teachers reference the *EOCEO Biology 1 Sample*

- The panel encourages teachers to look at the EOCEP Biology 1 Sample Items located on the SCDE webpage: <https://ed.sc.gov/tests/tests-files/eocep-files/2018-biology1-sample-release-items/>
- Give students opportunities to design, modify, use, and explain models.
- Present students multiple opportunities to practice looking at data containing related, but unfamiliar variables, to familiarize them with the process of interpreting, analyzing, and communicating scientific information.
- Have students check models/ diagrams for accuracy and be able to identify missing or incorrect information, then replace with the correct information.
- Supply reading passages:
 - with accompanying data,
 - accompanied by questions asking students to analyze/ summarize/ synthesize information from the passage, and
 - that ask students to communicate data from the reading by
 - graphing data and
 - identifying trends.
- Present scenarios in which a process- including changes- occurs, and explain the impact of that change.
 - For example, when a malfunction occurs in a process such as the cell cycle or the building of a protein explain the results of that malfunction.
- Differentiate the cell cycle.
 - Emphasize events in G₁, S, G₂, M
 - M phase has prophase, metaphase, anaphase, and telophase
- Focus on the pros and cons of stem cell research.

- Present students with multiple examples involving the uptake and release of O₂ and CO₂ in heterotrophs, photosynthesis vs respiration, and provide multiple examples of each.
- Review Punnett squares to be sure students can interpret them.
 - Identify sex-linked, heterozygous, and homozygous traits.
- Writing—ask students to write frequently. Have students write:
 - explanations of models,
 - conclusions about data, and
 - experimental procedures.
- Use graphic organizers, especially for comparing and contrasting.
- Be sure to teach the phylogeny of life, focusing on the major groups and relationships which connect all organisms. Be sure that students can describe and distinguish among the three domains and the six major kingdoms. (Teachers can explain that most of the diversity in the Eukaryota is contained within the protists, and most biologists feel it is inappropriate to lump all protists into a single kingdom. Although many revised systems have been proposed, no single one of them has yet gained wide acceptance and this can be considered extended knowledge.)