

Biology - High School

Leading Group Discussion

Thinking critically about a Scientific Article

Scenario Guide
Activation Date:
Intensity Level: Low

Author(s)	Avatar(s) & Environment	Suggested Learner Audience
Simulations for Secondary Science Teachers Conference Karri Blalock Dr. Kabba Colley Dr. Rebecca Cooper Dr. Samantha Strachan Deiny Toss Dr. Rachel Karchmer-Klein Mursion Julie Snyder	Host Avatar(s) Nina/Michael Simulation Avatars Ciara, Angela, Jordan, James, Stephanie Environment [ML3z] 11th Grade High School Classroom	<ul style="list-style-type: none">• Pre-Service/In-Service High School Science Teachers
Delivery Mode(s) Available for Scheduling 1:1, Facilitated Group		
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Learner-Facing Vignette:

You are a High School Biology teacher about to lead a group discussion with your 11th grade students about an article that you shared with your students for homework. This is the culmination of a unit on Healthy ecosystems/recognizing a healthy ecosystem. The students are familiar with indicators of a healthy ecosystem.

They have read the article and are prepared to have a conversation based on your guidance. You plan to lead a discussion about reading a scientific article and analyzing data. You anticipate that you will encounter some misconceptions and preconceived notions in this discussion and you plan to guide your students to have an active role in analyzing and interpreting this information.

Note: The article (as well as the Journal article upon which it is based) can be accessed via the Portal as an attachment to the scenario card.

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Outcome:

Your goal in this scenario is to engage the students in a discussion to think critically about a scientific article.

Strategies/Best practices to consider:

- Leading the students to guide their own discussion by encouraging them to respond directly to each other
- Ask follow up questions for clarification and based on concepts/misunderstandings that you uncover.
- Ask higher-order thinking questions to engage the students critically on the topic

Information about Intensity Level: Low

- Low intensity sessions are meant to build confidence for the learner. This setting is recommended for first time learners.

Supplemental Materials:

Note to the Course Instructor: Although this is a Low intensity scenario it does contain advanced content. We recommend this selecting scenario for Learners that have had experience with Mursion simulations and/or experience in the field.

Students Prior Knowledge:

Indicators of a Healthy Ecosystem

This scenario is gearing toward practicing the following of the
[Next Generation Science Standards 8 Practices of Science & Engineering](#):¹

Analyzing and Interpreting Data

Scientific investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always obvious, scientists use a range of tools—including tabulation, graphical interpretation, visualization, and statistical analysis—to identify the significant features and patterns in the data. Scientists identify sources of error in the investigations and calculate the degree of certainty in the results. Modern technology makes the collection of large data sets much easier, providing secondary sources for analysis.

Engaging in Argument from Evidence

Argumentation is the process by which explanations and solutions are reached.

Obtaining, Evaluating, and Communicating Information

Scientists and engineers must be able to communicate clearly and persuasively the ideas and methods they generate. Critiquing and communicating ideas individually and in groups is a critical professional activity.

¹ NSTA, and using information from Appendix F of the Next Generation Science Standards © 2011, 2012, 2013 Achieve, Inc. "Science and Engineering Practices." *National Science Teaching Association*, 2014, <https://ngss.nsta.org/practicesfull.aspx>. Accessed 10 8 2021.