

Ecological Organization Storyboards

Lesson Overview

In this lesson, students will graphically represent their understanding of the levels of organization in an ecosystem as a digital storyboard. *Note: This lesson uses Google Sites, Google Classroom and its tools. This lesson can be completed as a standard non-digital storyboard. The materials for those can be found in Storyboards white paper.*

SC Standards Addressed

7.EC.5A.1 Develop and use models to describe the characteristics of the levels of organization within ecosystems

Disciplinary Literacy Strategies

Collaborative Groups, Chart Talk

Computational Thinking

Tools:

Storyboards

Cornerstone(s) Addressed:

- Decomposition: Students break apart the biosphere into the different smaller levels of organization that can be studied by scientists.
- Pattern Recognition: No matter what biome is being studied, the levels of organization are the same even though the species of plants and animals are different.
- Abstraction: At each level, various elements of the ecosystem must be ignored to study the correct variables.

Lesson Plan

Time required: Two 70-minute class periods

Focus Question(s): Issues like climate change and plastic pollution in the ocean are complex problems that impact ecosystems all over the world. Different scientists need to focus on different parts of the ecosystem to understand the complexity of the impacts. What are the different levels of the ecosystem that will need to be studied?

Disciplinary Vocabulary: individual organism, population, community, ecosystem

Materials needed:

- Chromebook with Internet access (*optional*) (*Non-digital will require the materials for standard storyboards.*)
- Google Drive account/Google Sites (*optional*) (*Non-digital will require the materials for standard storyboards.*)
- Ecology Sorting Cards (*in "Resources" below*)

Engage Teacher will group students using a collaborative grouping strategy (not by ability). Use "Chart Talk" to record their responses to, "What do you think happened when wolves were introduced into Yellowstone National Park after being absent for over 70 years?" Students watch the video entitled, "How Wolves Change Rivers." Be sure to discuss the complex relationships and variables studied to discover the trophic cascades.

Explore Each group will have a full set of ecosystem cards (*one full set provided at the end of this lesson*). The ecosystem cards have pictures; groups must try to divide them into four different categories and explain the reasoning behind the formation of each category.

Explain Students will be given a Google Slide presentation with the following vocabulary words and definitions: individual organism, population, community, and ecosystem. After reading the definitions, the students must re-sort their ecosystem cards into four categories, according to the given definitions. They will then take a picture of each category of cards and add it to the appropriate Google Slide in the presentation.

Elaborate Students will create a Google Site and design different pages within the site, to act as a digital storyboard. They must graphically explain their understanding of the ecological levels of organization within ecosystems. The design of the Site is up to each student, but each student must include graphic explanations of his/her understanding of individual organisms, populations, communities, and ecosystems. For each page of the storyboard, students will create their illustrations using AutoDraw™ (*link in resources*). The drawings will be downloaded into Google Drive and uploaded into Google Sites. The students can add any needed text directly into the Google Site. (NOTE: *Instruction for using Google Suites is NOT addressed here.*)

Evaluate Students will publish their Google Sites and share them with the members of the class. Students must look at a minimum of 3 other storyboards and fill out a Google Form to give the teacher feedback about what they learned from looking at other people's interpretations of the information.

Assessment Notes Google Feedback Form could be used as a formative assessment for student understanding, or a rubric could be developed for use as a summative assessment. For GT classes, teacher could have students include appropriate research questions that scientists would use to study each ecological level. For example, a student could choose the topic of ocean acidification and then design questions that would have to be studied for different levels of a coral reef.

Teacher Biographical Information

Kelly Bearden

B. S. Marine Biology

M.A.T. Elementary Education

Certification: Elementary Education, Middle School Science

- 17 years teaching middle school science
- 12 years teaching 7th grade science
- 5 years teaching 6th grade science

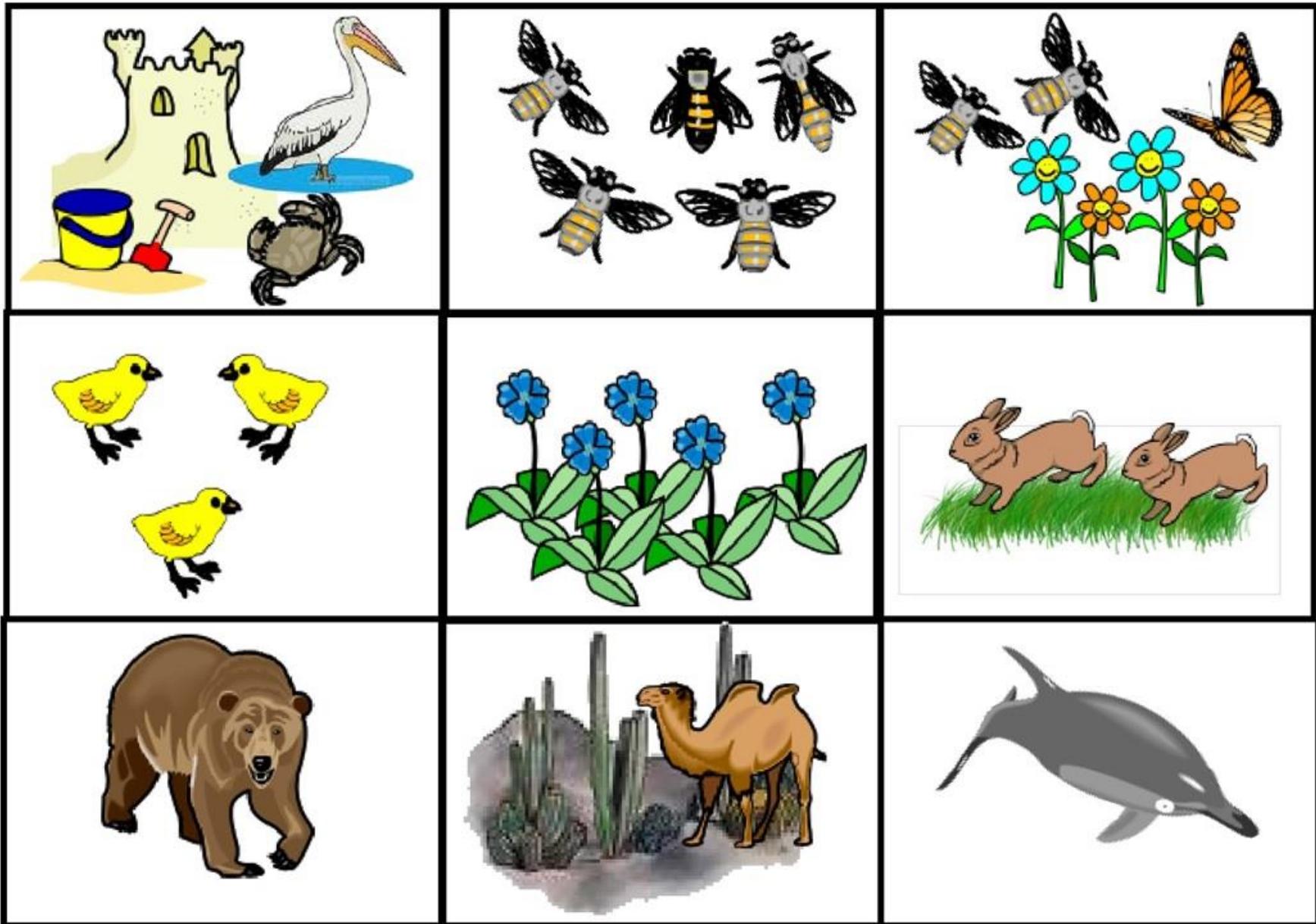
Resources

AutoDraw - <https://www.autodraw.com/>

iSTEM CS "Storyboards" White Paper- <https://www.s2temsc.org/strategy-warehouse.html>

How Wolves Change Rivers video - <https://www.youtube.com/watch?v=y5a5OBhXz-Q>

Ecological Organization Sorting Cards A



Ecological Organization Sorting Cards B

