POLAR TREC

TEACHERS AND RESEARCHERS EXPLORING AND COLLABORATING

Arctic Challenge

Overview

This lesson allows students to learn about the Arctic through a challenging question and answer game format. Inspired by experiences in the Hidden Ocean 2016: Chukchi Borderlands expedition, the game includes “careers”, “animals”, “equipment”, “climate change”, and “geography” components. The game may be used as a learning tool, a review tool, or an assessment tool.

Objectives

Students will be able to:

- Identify some equipment used to study Arctic regions.
- Describe some Arctic animals and their roles in the Arctic ecosystem.
- Locate the Arctic Ocean/Chukchi Borderlands on a map.
- Identify careers associated with Arctic research.
- Relate the effects of changing climate to Arctic regions.

Lesson Preparation

This lesson may be used as either a learning tool, a review tool, or an assessment (pre or post) tool. The lesson may also be used as an introduction to Arctic studies.

Procedure

- Students may compete as individuals or in pairs or small groups.
- To maximize participation, it is recommended that students use whiteboards or paper to record their

Details

Lesson
Arctic
About 1 period
Download, Share, and Remix
Middle School and Up

Materials

Arctic Challenge Game File (attached PPT)
A computer and projector are suggested for this challenge game.
Whiteboards and dry erase markers or paper and pencils or a “buzzer” system are recommended.
The lesson may be run in either Google Slides or Microsoft PowerPoint.

Standards

answers. Alternatively, student teams may use a buzzer system to ring in.
- Decide upon rules for scoring and selection of categories/questions prior to beginning the game.
- The teacher may serve as “MC”, or this role may be assigned to a student.
- The MC reads each question and students record their answers prior to revealing the answers.

Resources

Many of the answers may be found in Sandra Thornton’s PolarTREC journals. (https://www.polartrec.com/expeditions/chukchi-sea-borderland)

Assessment

Instructor may wish to keep track of correct and incorrect answers to questions as a way to guide further instruction.

Author / Credits

This lesson was created by Sandra L. W. Thornton, PolarTREC Fellow/NOAA Teacher At Sea 2016. Thornton may be contacted at slwthornton@gmail.com.

This activity addresses both MS and HS Next Generation Science Standards relating to “ecosystems” (MS-LS2, HS-LS2, HS-LS4) and “earth and human activity” (MS-ESS3, HS-ESS3). Students are introduced to the Arctic ecosystem, factors threatening biodiversity, and ways in which scientists explore and evaluate Arctic biodiversity.

Content Standards, Grades 5-8

Content Standard C: Life Science

a. Structure and function in living systems
d. Populations and ecosystems
e. Diversity and adaptations of organisms

Content Standard E: Science and Technology

b. Understandings about science and technology

Content Standard F: Science In Personal and Social Perspectives

b. Populations, resources, and environments
e. Science and technology in society

Content Standard G: History and Nature of Science

a. Science as a human endeavor

Content Standards, Grades 9-12

Content Standard C: Life Science

d. Interdependence of organisms

e. Matter, energy, and organization in living systems

f. Behavior of organisms

Content Standard E: Science and Technology

b. Understandings about science and technology

Content Standard F: Science In Personal and Social Perspectives

c. Natural resources

d. Environmental quality

e. Natural and human-induced hazards

f. Science and technology in local, national, and global challenges

Content Standard G: History and Nature of Science

a. Science as a human endeavor