

About this Issue

The article "[2016 shattered Earth's heat record](#)" (9.3 readability score) describes the record high global average temperature and record low global sea ice extent during 2016, and places that data within the larger context of climate change. Students can focus on trends that climate scientists are recording as described in the article, follow connections to earlier articles about climate change, explore cross-curricular connections to other major science topics and work in groups to study and report on various aspects of climate change science. *Science News for Students* provides another version of this article written at a lower Lexile level (7.5 readability score): "[Earth breaks heat record for third year straight.](#)" *Power Words* are defined at the end of the *Science News for Students* article. Also, *Science News for Students* describes "[El Niño and La Niña](#)" (8.2 readability score) and "[Global warming and the greenhouse effect](#)" (8.5 readability score) in two brief explainers.

Want to introduce your students to an interesting STEM career related to this article? Check out [Cool Jobs: Hunting surprises in thinning glaciers](#) by *Science News for Students*.

Connections to Curricula

Climate change
Atmospheric science
Ocean current science
Fossil fuels
Renewable energy sources
Meteorology
Infrared spectroscopy
History of the Earth
Energy

What's in this Guide?

- **Article-Based Observation:** These questions focus on reading and content comprehension by drawing on information found in the article "[2016 shattered Earth's heat record.](#)" Questions focus on observations about Earth's surface temperature over time and reasons behind the changing climate.
- **Quest Through the Archives:** With Internet access and your school's digital access to *Science News*, your students can use this short section to explore the history of climate change research and technology as reported by *Science News* since 1922.
- **Cross-Curricular Discussion:** These questions and extension prompts encourage students to think in more detail about scientific areas related to the article. The section is subdivided roughly by science subdiscipline for educators who would like to focus on one particular topic area. The extension prompts are either more topic specific or more conceptually advanced. **Physical Sciences** questions concern the radiant energy coming to and from Earth and the imbalance that causes net warming. **Earth Sciences** questions address the effects of global warming on the atmosphere, land and ocean. **Biological Sciences** questions involve effects on species and their survival. **Engineering and Experimental Design** questions focus on possible methods of averting or adapting to climate change.

- **Activity:** While working in groups, students can use **Climate Change: Analyze the Data** to explore available data and research various aspects of climate change. Each student group is charged with supporting their claims about a climate change topic with relevant data captured in charts and graphs on suggested sites. Teachers may choose to review best slide-making and presentation techniques before the groups share their findings with the class.

Standards Alignment

Next Generation Science	Common Core
Earth's Systems: HS-ESS1-2 , HS-ESS1-4 , HS-ESS1-6	ELA Standards: Reading Informational Text (RI): 1, 2, 3, 4, 5, 6, 7, 8
Earth and Human Activity: HS-ESS3-1 , HS-ESS3-2 , HS-ESS3-3 , HS-ESS3-4 , HS-ESS3-5 , HS-ESS3-6	ELA Standards: Writing (W): 1, 2, 3, 4, 6, 7, 8, 9
Energy: HS-PS3-1 , HS-PS3-2	ELA Standards: Speaking and Listening (SL): 1, 2, 3, 4, 5, 6
Ecosystems: Interactions, Energy, and Dynamics: HS-LS2-1 , HS-LS2-6 , HS-LS2-7	ELA Standards: Reading for Literacy in Science and Technical Subjects (RST): 1, 2, 3, 4, 5, 6, 7, 8, 9
Biological Evolution: Unity and Diversity: HS-LS4-4 , HS-LS4-5	ELA Standards: Writing Literacy in History/Social Studies and Science and Technical Subjects (WHST): 1, 2, 4, 6, 7, 8, 9
Engineering Design: HS-ETS1-1 , HS-ETS1-2 , HS-ETS1-3	