My NASA Data - Interactive Models

Patterns in Earth's Surface Temperature

Grade Band

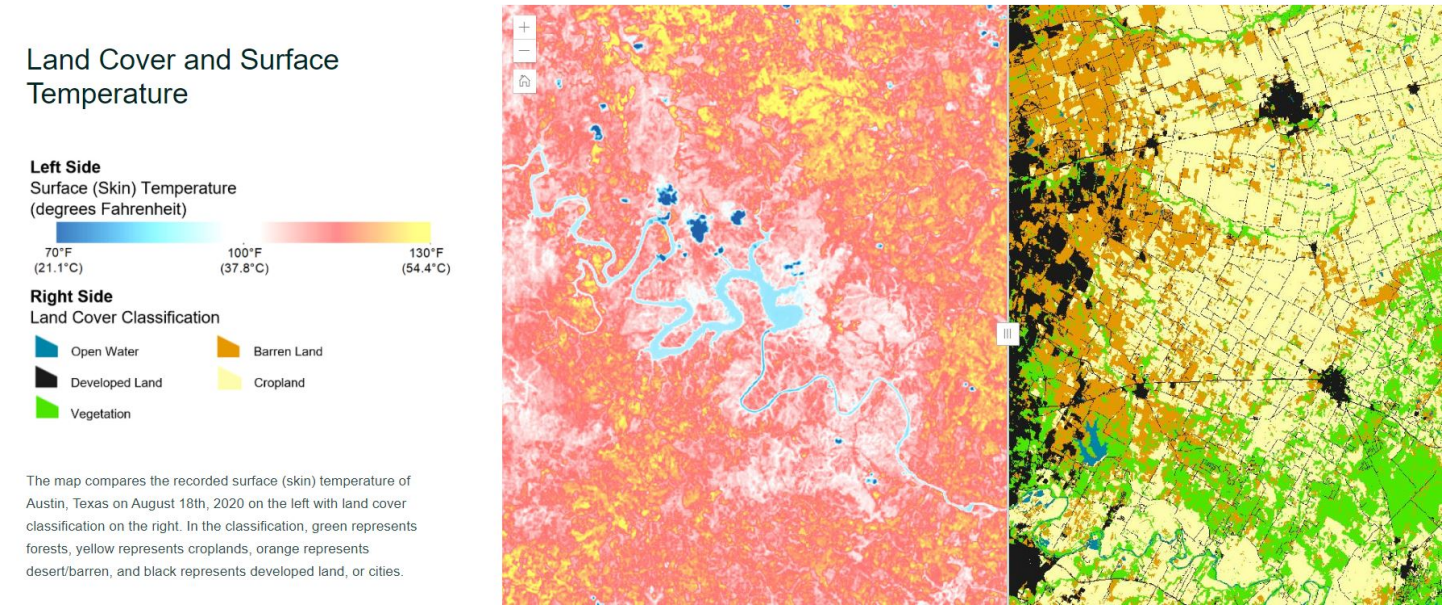
- 3-5
- 6-8
- 9-12

Time

- 30 minutes

Directions

1. Using an internet accessible device, students open the link to the Patterns in Earth's Surface Temperature Interactive Model to begin their exploration of this phenomenon.
2. Distribute the Patterns in Earth's Surface Temperature Interactive Model Student Sheet (optional). Have students navigate on their own through the interactive model to answer the questions and complete the activities on their student sheet.



CLICK HERE

Teacher Note

Heat islands form as vegetation is replaced by asphalt and concrete for roads, buildings, and other structures necessary to accommodate growing populations. These surfaces absorb—rather than reflect— the sun's heat, causing surface temperatures and near-surface air temperatures to rise near these surfaces. Displacing trees and vegetation minimizes the natural cooling effects of shading and evaporation of water from soil and leaves (evapotranspiration).

To learn more, visit:

- The **Urban Heat Island Phenomena** page for background information.

Teachers who are interested in receiving the answer key, please complete the Teacher Key Request and Verification Form. We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

NGSS Three Dimensional Learning

NGSS Disciplinary Core Ideas

- ESS2A: Earth Materials and Systems
- ESS3C: Human Impacts on Earth Systems

Crosscutting Concepts

- Patterns

Science and Engineering Practices

- Developing and Using Models
- Analyzing and Interpreting Data

Learning Objectives

- Students will analyze how surface (skin) temperatures vary among a community and determine what factors contribute to this variation.
- Students will describe the relationship between surface (skin) temperature and surface air temperature.

Essential Questions

- How does human activity affect the local environment?
- What factors contribute to variation in surface (skin) temperatures across a community?
- What factors affect air temperature in a community?

Google Docs Interactive Files

Student Sheet