My NASA Data - Interactive Models

Human Impact and the Creation of Urban Heat Islands

Grade Band

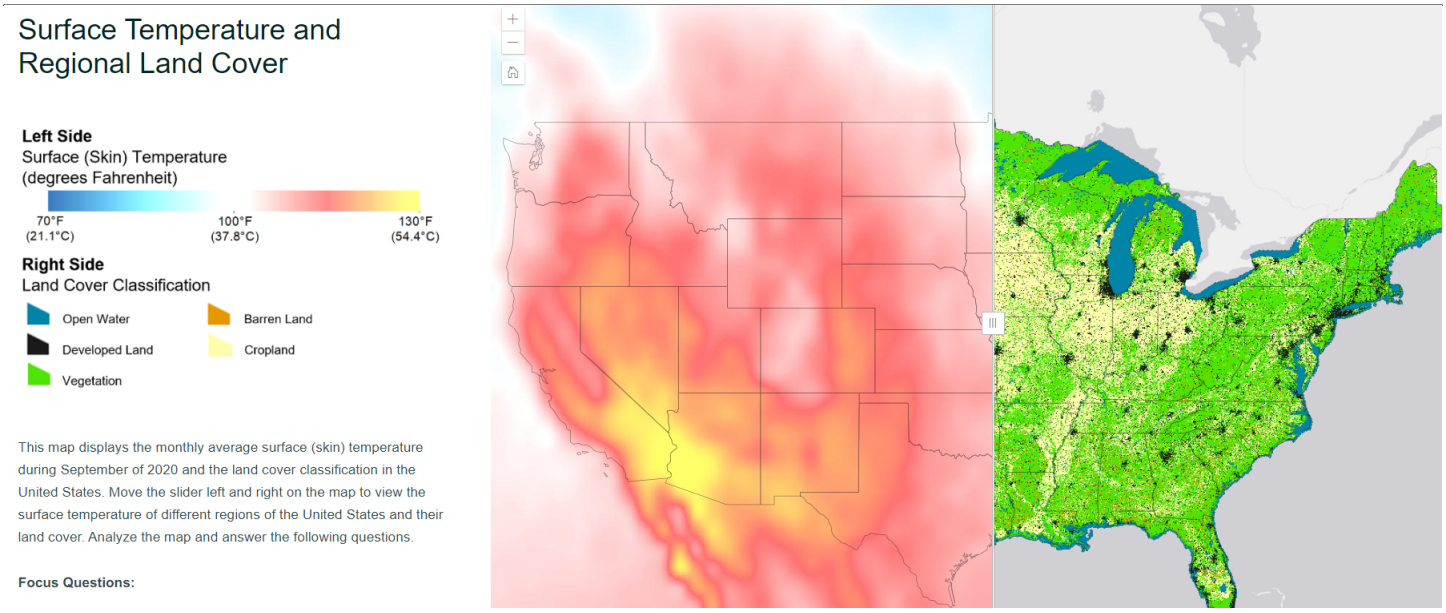
- 3-5
- 6-8
- 9-12

Time

- 30 minutes

Directions

1. Using an internet accessible device, students open the link to the Human Impact and the Creation of Urban Heat Islands Interactive Model to begin their exploration of this phenomenon.
2. Distribute the Human Impact and the Creation of Urban Heat Islands 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.

Virtual Teachers: Make a copy of the Google Form of your choice so that you may assign it directly from your Google Drive into your Learning Management System (e.g., Google Classroom, Canvas, Schoology, etc.). Do you need help incorporating these Google Forms into your Learning Management System? If so, read this **Guide to Using Google Forms with My NASA Data.**

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
- Cause and Effect

Science and Engineering Practices

- Developing and Using Models
- Analyzing and Interpreting Data

Learning Objectives

- Students will analyze and describe the relationship between land cover classification and surface (skin) temperature.
- Students will describe the pattern between population density and the location of urban heat islands.

Essential Questions

- How is population density related to the location of urban heat islands?
- What is the relationship between land cover type and surface (skin) temperature?
- Describe how urbanization has contributed to the urban heat island effect.

Google Docs Interactive Files

Guide to Using Google Forms with My NASA Data

Google Forms Interactive Files

Student Form