

Objective: Students will conduct background research on the issue of rising air temperatures and extreme heat on human health.

Curriculum Standards:

- NGSS ESS3.C Human Impacts on Earths Systems
- MD E-Lit Standard 1 Topic A: Environmental Issue Investigation
Indicator 1: Identify an environmental issue.
Indicator 2: Develop and write research questions related to an environmental issue.
- MD E-Lit Standard 6 Topic B: Human-Induced Changes and Human Health

Materials Needed:

- Student Research Worksheet
- Device to access the internet \ library
- Access to: Website: “Number of 90 degree days in your hometown since you were born”
<https://www.nytimes.com/interactive/2018/08/30/climate/how-much-hotter-is-your-hometown.html>
- EPA document: “Climate Change & Extreme Heat: What you can do to prepare”
<https://www.epa.gov/sites/production/files/2016-10/documents/extreme-heat-guidebook.pdf>

TEACHER DIRECTIONS

Review the issue of rising temperatures worldwide and, if possible, reference local events. The frequency and duration of extreme heat events have been increasing which increases the health impacts on humans. The groups (aka “stakeholders”) most vulnerable to illness or death from extreme heat includes:

- older adults
- children
- people working outdoors
- the socially isolated
- economically disadvantaged
- those with chronic illnesses
- those without air conditioning

Terms to Know

>Extreme heat is defined as summertime temperatures that are much hotter and/or humid than average. (Center for Disease Control). In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees. (Department of Homeland Security)

>Stakeholders = an individual or group interested in or impacted by an activity.

Divide the students up in small groups to complete the following guided research worksheet. Remind students to record the source of their information. Is the source credible, peer-reviewed, or simply opinion? Explain the terms and differences of each source type. Is there data that supports the information?

For the question, uses an interactive website for students to lookup information on the number of extreme heat days in their hometown.

<https://www.nytimes.com/interactive/2018/08/30/climate/how-much-hotter-is-your-hometown.html>

The research questions can be answered using the EPA document “Climate Change & Extreme Heat: What you can do to prepare” or various websites on the topic of extreme heat.

Encourage students to use other websites such as:

- National Weather Service (www.weather.gov)
- National Centers for Environmental Information – NOAA (<https://www.ncdc.noaa.gov/climate-information/extreme-events>)
- NOAA Weather (www.noaa.gov/weather)
- Department of Homeland Security (www.ready.gov/heat)
- Center for Disease Control (www.cdc.gov/disasters/extremeheat/heat_guide.html)
- Ready.gov – Extreme Heat. (<https://www.ready.gov/heat>)

Compile student research as a classroom activity using the attached worksheets as an example.

Discuss the responses. What are the sources of student’s information? Are the responses from credible sources? Are there any impacts missing from their research?

Compile & Discuss the student responses

Upon completion, **Ask** the students: “*How do you manage extreme heat where you live?*”

If desired, continue your classroom conversation:

- Inquire how students would prepare for extreme air temperatures
- Are there stakeholders in their neighborhood that would vulnerable to extreme heat?
- Who are people that could help community members in times of extreme heat?
- What could planners and community designers do to assist people in coping with extreme heat events?



3. What are some ways people can prepare for extreme heat?

4. List some things we can do to reduce the impacts of extreme heat &...

who will do them?
