

Lesson 2: Historical Hurricanes

Lesson question: Which hurricanes and tropical storms have affected our community?

Learning objectives:

- Students use the NOAA Historical Hurricane Tracks tool to create a hurricane timeline for their local area, learning how often hurricanes and tropical storms have made landfall in their location.

Timing:

- Two class periods
 - › Day 1: Find data using the Historical Hurricane Tracks tool
 - › Day 2: Creating a hurricane timeline

Materials:

- Computers (one for each student pair) and Internet access
- Computer, projector, and Internet access (teacher)
- Student pages: *Our Historical Hurricanes* (pages 21-22)
- Paper, rulers, and colored pencils (for making timelines, if not made digitally)

Preparation:

- Bookmark the URL for NOAA Historical Hurricane Tracks on student computers (coast.noaa.gov/hurricanes).
- Copy the *Our Historical Hurricanes* student pages for each student.
- Test out the Historical Hurricane Tracks tool and search your local hurricanes following the instructions.

Directions

DAY 1

Introduce NOAA Historical Hurricane Tracks.

- Ask students how many hurricanes and tropical storms they think made landfall in their local area over the last 100 years.
- Tell students that in this activity, they will make a timeline of all the hurricanes and tropical storms that made landfall in their location.
- Orient students to Historical Hurricane Tracks on NOAA Digital Coast.
 - › Assign students or pairs of students to computers.
 - › Have students launch Historical Hurricane Tracks and then guide them through the following features:
 - **Search by location, year, or storm name.** Have students test this by searching a location (enter the name of your city, for example). This will pull up the full inference, which shows a map of storm tracks that have hit your location, as well as a list of the hurricanes and tropical storms.
 - **Orient students to the interface.** Point out the map of storm tracks that passed directly over their location and the list of storm names that appear next to the map. Note the location of the Legend (which shows the categories and color codes) and the options for filtering the data (category, pressure, year, and distance).

SKILLS:



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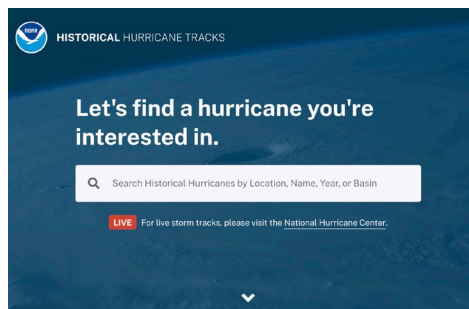
Have students research local hurricanes using the Historical Hurricane Tracks tool.

- Pose the lesson question: *Which hurricanes and tropical storms affected our community?*
- Hand out the *Our Historical Hurricanes* student pages.
- Have students follow the instructions to find all storms that struck in your coastal area within a 50 miles radius and then omit storms that happened over 100 years ago. (Narrowing the search allows students to focus on storms that occurred when current residents were living in the area.)

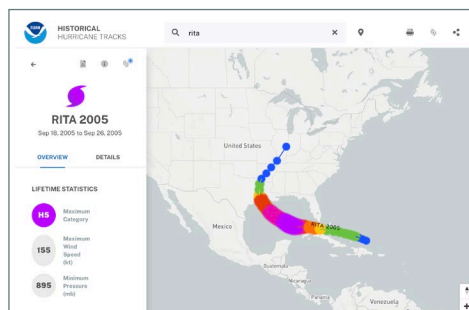
Analyze the data.

Have students use the directions on the student activity sheet to sort the list by year and ask what they notice. (Students may notice many things, including that some storms have names and others don't, which is because storms weren't named until 1953.)

- Have students describe the data following the questions on the student pages, including:
 - › How many storms happened in each decade? (*Answers will vary by location.*)
 - › Do storms always come from the same direction? (*Students should notice that they do all come from the ocean towards the land, but the specific track will vary.*)
 - › What is the range in Saffir Simpson categories for the storms that made landfall here? (*Students will likely notice a variation in the storm categories for any location. Make sure students look at the category of the storm when it made landfall; note that strength changes over time.*)
- As students analyze the data, they may wonder why sometimes there are several storms in a row and, at other times, there weren't any storms. See the Science Background section (pages 4-8) for an explanation of variability in hurricane frequency to prepare to answer student questions.
- Have students zoom in to figure out which storms struck closest to where they live.
- If the Historical Hurricanes tool does not include data from the current year, students will need to add recent storms to their list. Students may be able to do this from memory. To ensure their additions are accurate, check the National Hurricane Center's list of recent storms (nhc.noaa.gov/data/tcr).



Intro screen of the Historical Hurricane Tracks tool. (NOAA Digital Coast)

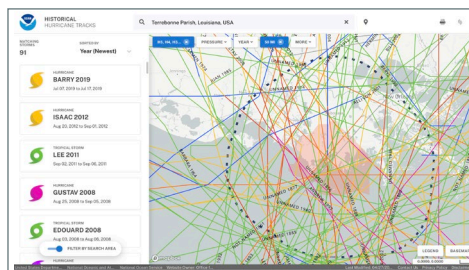


Historical Hurricane Tracks includes a database about hurricane characteristics, including the storm tracks, category, timeline, wind speed, and pressure.

DAY 2

Make hurricane timelines.

- Have students each construct a timeline of all the hurricanes, tropical storms, and tropical depressions that they think could have affected their community following these guidelines:
 - › Include all the hurricanes and tropical storms in the past 100 years that made landfall in a particular part of the coast.
 - › Place the events in the correct order and location along the timeline.
 - › Include the correct year for each storm.
 - › Use symbols, colors, or both to indicate the strength of the storm.
- You may wish students to work in pairs instead of individually. Students can create their timeline digitally or on paper using colored pencils and a ruler.



Searching for a location brings up all hurricanes and tropical storms that have affected that location. In this lesson, students will search for their location in order to identify storms to include in their timeline.

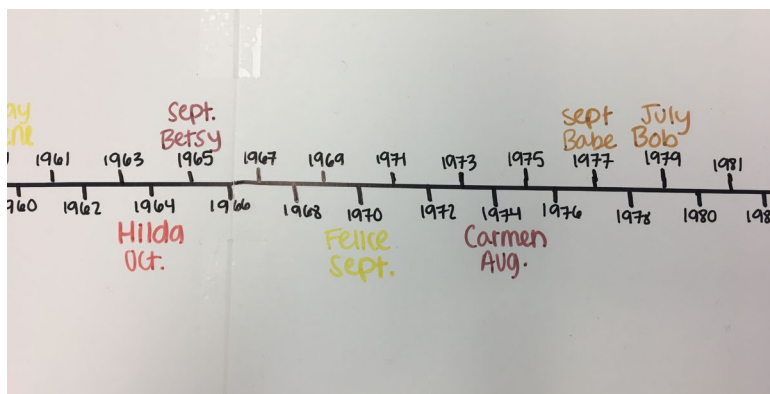
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Introduce the Driving Question Board.

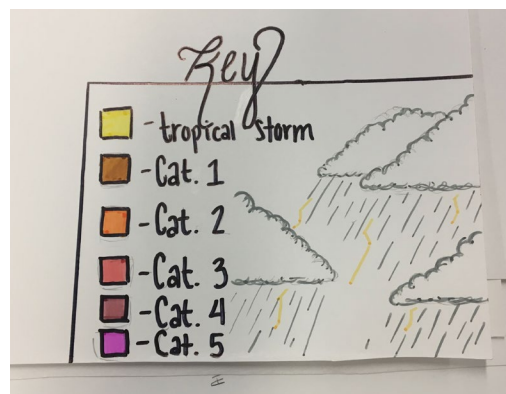
- Share the Driving Question Board with students. Explain that the Board is a place where we can collect our questions about hurricanes, the risks they pose, and how we can stay safe. The Board will be displayed in the classroom throughout the unit, and the class will update it each week.
- Introduce the central question in the Driving Question Board (such as *How and why do hurricanes affect us and how can we stay safe?*). Write this question on the Board if you have not already.
- Once students have analyzed data about their local hurricanes and tropical storms, they may have questions about why some years have more storms than others, why the category varies, or what some storms were like. Pass out sticky notes and have each student write a question that they have about hurricanes.
- Have students add their questions to the Driving Question Board and work together to organize them into categories.

Opportunities for Assessment:

- The timelines that students create can be used as an assessment. Timelines should extend 100 years and include all hurricanes and tropical storms that occurred in the local area over that time, according to the NOAA Historical Hurricane Tracks tool. Timelines should note the storm year, name, and strength.
- The questions on the student pages can be used to assess student understanding about hurricane characteristics and data analysis skills.



Sample timeline created by students at South Terrebonne High School. (LSG)



Students should create a key for the colors and symbols that they use in their timeline. (LSG)

Extension:

- If you have additional time, you may wish to allow students to compare the storm data from different locations or different times, based on a question that they have about hurricanes (such as “Does our community get more hurricanes than Miami?” or “Have there been more hurricanes in the past decade than a hundred years ago?”)

