YOUR GUIDE TO MAPMAKER

Welcome to MapMaker! MapMaker is National Geographic's online mapping tool for exploring the world through a variety of basemaps, data layers, and annotation options. With this web-based app, anyone can visually experience and interact with geospatial information about Earth's interconnected social and physical systems while also exploring the art of mapmaking.

MapMaker is designed to be intuitive and simple to use. This guide offers background information and tips for getting started, to help make the most of this adaptable tool.

NOTE TO TEACHERS

There are many ways to incorporate MapMaker into learning, and it's easy for students to save and share maps they create. In the process, they can hone essential 21st-century skills in data analysis, critical thinking, data-driven decision making, and spatial thinking.

Learning with MapMaker can be incorporated into multiple subjects. For example:

- As students read maps—considered informational text—they develop literacy skills.
- In math class, students using MapMaker apply scale, ratios, estimation, spatial understanding, and data visualization to real world topics.
- Analyzing data and recognizing patterns at different scales on Earth's surface connects the practices, skills, and crosscutting concepts of national and many state science standards.
- Applications for social studies, history, geography, and world languages are endless.

These are just a few ways MapMaker's learning approaches address state and national standards for literacy, math, and also the Next Generation Science Standards (NGSS), the College, Career, and Civic Life (C3) standards for social studies, and the National Geography Standards.

MapMaker is one of many resources the National Geographic Society offers as part of its commitment to geography education.

UPDATES TO MAPMAKER

MapMaker has been updated to make it easier to use and better suited for use in and out of the classroom. Changes driven by advancements in technology ensure MapMaker is available anywhere, anytime, and on any device.

Other improvements, directed by feedback from teachers and students, include:

- New options for map layers that align with the way teachers want to use this resource in the classroom;
- An autosave feature to ensure work isn't lost;
- An easy way to search for a specific location, including a "find my location" option;
- Content with clearly marked update dates and descriptions

GETTING STARTED

Here are some tips to get started using MapMaker's updated intuitive design.

Create an account: If this is your first MapMaker visit, create an account to access all of the features. Select **Menu** (in the top right corner of the layer panel) and then **Sign In**

and follow the prompts. If you already have a MapMaker/National Geographic account, just sign in.

Create a new map: To create a new map, select **Menu > My Maps > Create New Map**. To make a copy of a map select **Menu > Save a copy of this map to My Maps**. After naming and saving a map, annotation tools appear in the upper right corner.

Creating a new map or saving a copy of an existing map activates the Map Editor which allows you to design and edit your map.

Design a map: Once in the Map Editor, you are able to choose a basemap, add layers to incorporate data sets, add annotations (circles, lines, point labels and descriptions, etc.), and save the map to access it again later. See "Choosing a Basemap," "Adding Map Layers," "Annotation Tools," and "Working with Your Maps" (below) for details.

Manage your maps: Each map you save is stored under *Menu > My Maps*. To delete a map, select the trash can icon in the bottom right corner of the map card.

Find a specific location: In the *Find address or place* entry box (bottom right corner of the map), type in a location and select the magnifying glass to search for it.

Moving the map on the screen: To move the whole map in any direction, tap/click and drag it.

Zooming: Zoom in or out on a map using the "+" and "–" symbols near the bottom right corner of the map. Alternatively, on a desktop computer you can zoom using your mouse or trackpad. Pinch to zoom on a smartphone or tablet device. The scale for distance (to the left of *Find address or place*) changes as you zoom.

Sign out: When finished, sign out of your account by going to *Menu > Sign Out*.

TROUBLESHOOTING TIPS

- **Refresh:** If something isn't working, try refreshing the page.
- **Zoom in/out**: If data sets aren't appearing in a layer, try zooming in or out. Some data sets are limited by the scale of the map, so if zoomed in too close or out too far, the data might not be visible. For example, in the Latitude and Longitude layer, the lines won't be visible at a global scale.

Conversely, the lines of the Meridian layer are only visible at a global scale.
- **Be patient:** Robust data sets may take time to load. Adding more than three layers to your map may affect loading times as well.
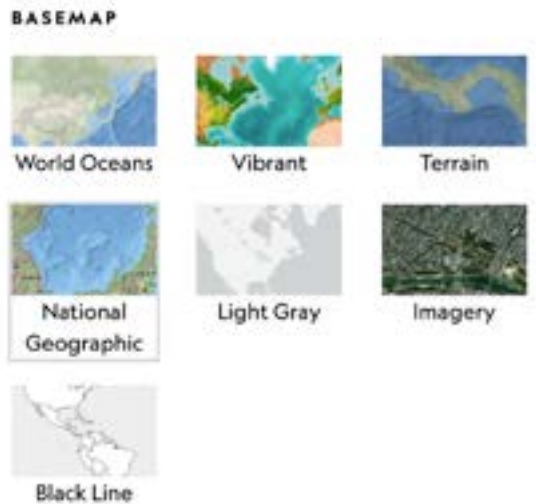
CHOOSING A BASEMAP

MapMaker offers several options for the map you use as the base. Select *Map Settings* in the layer panel to see the basemap choices. The choice depends largely on the purpose of your map. (Note: Only one basemap can be used at time. You can change the basemap, even after you have added map layers.)

- World Oceans*—suited toward topics such as ocean depths, sea life populations, ocean plastic pollution, and ocean currents.
- Vibrant*—best for a stand-alone basemap featuring the data in the map as the centerpiece. It's hard to see layers clearly on top of this base because it's so colorful.
- Terrain*—without labels, this layer shows mountains, rivers, and lakes; the colors show natural environments such as forests, deserts, snow, and also developed areas.
- National Geographic*—a colorful base that includes topographic features and detailed labels.
- Light Gray*—ideal for adding multiple layers. The plain background helps layers stand out.
- Imagery—satellite view showing real-world features.
- Black Line*—simplified map for printing and coloring or adding labels such as state

names.

Basemaps may not reflect National Geographic's current map policy.

A note about map projections: There's no perfect way to turn a round planet into a flat, rectangular map. Something will always be distorted. Professional map makers, called cartographers, use different methods for projecting maps, depending on the map's purpose. MapMaker features Web Mercator, largely because of software requirements. These resources help explain map projections:

- [The Cartographer's Dilemma](#) video compares the challenges of map projection to peeling and flattening the skin of an orange. [This classroom activity](#) featuring the video provides additional instructional guidance.
- The [Selecting a Map Projection](#) video explains how National Geographic cartographers selected an appropriate map projection for the magazine's
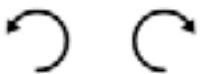
September 2021 issue.

ANNOTATION TOOLS

Create or save a map to activate a set of annotation tools useful for highlighting locations, features, and other key information.

ANNOTATION TOOLS

ICON	ACTIVITY	DESCRIPTION
	Draw a Point	Select the pin icon in the toolbar then select the map to draw a point. Select and drag the point to move it anywhere on the map.
	Draw a Polyline	Mark a route, trail, path, or any other continuous line made up of multiple segments. Select the line segment icon, then select the map to drop the first point. Move in any direction to create a segment and tap at the desired end point. Keep adding segments as needed, then finish by double-tapping on the end point.
	Draw a Polygon	Create a closed shape such as a triangle or hexagon to mark a specific area. Select the polygon icon then tap on the map where the first point should be and continue marking segments. Double tap on the final point to close the shape.
	Draw a Rectangle	Select the square icon and then tap on the map.
	Draw a Circle	Select the circle icon and then tap on the map.
	Delete a Feature	Tap on a feature to make the trash can icon appear in the annotation toolbar, then tap on the trash can to remove that feature.
	Undo/Redo	Select these icons to undo or redo the previous action.
	Changes Saved	A checkmark in the circle indicates all changes have been saved. A red exclamation point indicates there are changes that have not been saved—check your internet connection.

To move a shape, select and drag it. Expand, contract, widen, or lengthen a shape by selecting it and dragging the handles on the corners or sides. To edit a shape, click on the shape to make changes.

WORKING WITH YOUR MAPS

Customized maps can be found under *Menu > My Maps*. Select a map card to open it, or tap on the trash can icon to delete it. Other common tasks include:

* **Share:** Open the map and copy its URL to share it via a web page, digital learning platform, email, or other method. Or use the Export Map feature described below.
* **Print or download:** Go to *Menu > Ex-*

port Map and a dialogue box will appear. *Choose Layout* (includes a white border) or *Map Only* (map fills the entire page).

* **Layout:** Name the file, choose the page setup, and select the file format (PDF, JPG, TIFF, etc.), Choose *Advanced Options* to set the scale, add author and/or copyright information, choose the DPI (resolution), and decide whether to include the map legend. Tap the yellow *Export* button when finished.
* **Map Only:** Name the file, choose the file format (PDF, JPG, TIFF, etc.), and adjust the width and height, if necessary. Choose *Advanced Options* to set the scale, DPI (resolution), and to include or exclude the map attribution (sources of the map data). Tap the yellow *Export* button when finished.

Exported files appear underneath the *Export* button. Select the link to open the file. From here, the PDF can be downloaded, printed, or shared. When you close the *Export* dialogue box or leave the page, the exported files are cleared.

RECREATE A MAP FROM LEGACY MAPMAKER

Unfortunately, there is not a way to import a map from previous versions of MapMaker due to updates in the software. We hope you will be able to recreate the map using the simpler, more intuitive interface of the new version!

REMEMBER THE KEY PARTS OF A MAP

Title (What's featured on this map?)

Orientation (Which direction is north?)

Author (Who made the map/who is the cartographer?)

Date (When was this map made?)

Scale (What is the relation of distance on this map to the real world?)

Symbols (Are the symbols on the map defined in the legend?)

ADDING MAP LAYERS

Choose from a variety of map layers to view on the basemap. These layers provide rich data about topics in Earth Science, Environmental Science, Human Geography, Ecology, Economics, Oceanography, and more.

View multiple map layers at a time, changing their order and transparency as you wish, to analyze relationships among phenomena.

Here are some tips for using map layers:

- **Choose a map layer:** Scroll through the options in the layer panel to see the broad range of choices, or type a keyword into the **Search for Layers** field in the layer panel. To learn more about a map layer, select **Layer Details** for a description of the layer, map credits, relevant subject areas, sources, and dates for when the layer was created and last updated. In some cases, there is also a link to more information and classroom resources.
- **Add layers:** Select **Add** and the layer will appear on top of the basemap. It's possible to add multiple map layers, though adding more than three layers might affect the map's loading time.

    If data sets aren't appearing in a layer, try zooming in or out. Some data sets are limited by the scale of the map, so the data might not be visible if the view is zoomed in too close or out too far.

- **View the map legend:** The colors/symbols and what they represent in each added layer appear in the map legend, which automatically appears when you add the first layer. In the legend you can:

    - Change the order of the layers using the arrows to the left of the layer title.
    - Select the opacity icon to lighten or darken the colors on the map layer.
    - Hide or show the legend as preferred using the **Hide Legend** or **Show Legend** buttons.

- **Remove a map layer:** Select **Remove** in the legend or in the layer panel to delete a layer.
- **Hide the layer panel:** For a full screen view of the map, hide the layer panel by selecting **Hide Layer Panel** at the bottom of the layer panel. To reveal the layer panel again, select the map title.
- **Request a map layer:** The map layers included in MapMaker have been updated based on feedback from users. You can submit requests for map layer content via the feedback feature: **Menu > Get Help > Share Feedback**.

ACTIVITIES TO USE WITH MAPMAKER

MapMaker offers a creative approach to visualizing and contextualizing information, helping to tell a data-driven story that is memorable and meaningful. There are many ways to apply Map-Maker to lessons related topics such as science, geography, social studies, math, literacy, and world languages. For example:

A Latitude/Longitude Puzzle —Use latitude, longitude, and research on characteristics of different states and regions to solve a puzzle. (Grades 3-4)

Guess the Place—Play a guessing game, using questions and maps, to identify the name of a city, state, country, or major physical feature in a continent of your choosing, or in the United States. (Grades 3-12+)

Tectonic Plates and Physical Features—Use an online map to guide students through an analysis of Earth's tectonic plates, how they interact, and the shape and location of physical features. (Grades 4-10)

Backyard BioBlitz—Observe and identify living things in your community and then document what you found and where. (Grades 1-8)

Energy Use Over Time—Discover how energy use has changed in countries worldwide over the past 40 years. Understanding how each region of the world is consuming energy makes it possible to learn how to use energy in more efficient ways. (Grades 5-12+)

Preserving Biodiversity Through Protected Areas—Explore marine and terrestrial areas currently protected in an effort to preserve Earth's biodiversity. Consider how scientists, businesses, and governments use this information to make good policy decisions. (Grades 5-12+)

Find more activities using MapMaker and get inspired to create new activities of your own.

FAQ'S

1. I forgot my username or password. What should I do?
Your username is the email address used to sign up for the account. If you have trouble logging in, make sure the email address is the one you used to set up your account. If you forgot your password, select *Menu > Get Help > Technical Help* and follow the prompts. Learn more in the [Support Center](#).

2. How do I save a map?
If you are logged in, MapMaker saves your map automatically. A check mark in the circle next to the annotation toolbar means that all changes have been saved. If you see a red exclamation point in the circle, it means there are unsaved changes. Double-check your internet connection.

3. How do I share a map?
Once you are logged in, there are multiple ways to share a map. The simplest is to open the map and copy the URL. You can also go to *Menu > Export Map* to create a shareable PDF or image.

4. How do I choose a basemap?
Your basemap choice depends upon the purpose of your map. You can change the basemap at any time, even if you have added map layers to it. See more detailed information [here](#).

5. I hid the map legend/layer panel. How do I get it back?
To reveal the map legend, select the *Show Legend* button on the map. To reveal the layer panel, select the map title in the upper left corner of the map.

6. A layer isn't loading properly. Is it broken?
Some layers are data-intensive and require extra time to load. If your map includes more than three map layers, that can also impact the loading time. If a layer does not seem to be loading properly, even after you have given it a reasonable amount of time, refresh the page, if that does not help, select *Menu > Get Help > Technical Help* and follow the prompts.

7. How do I annotate a map?
Marking a map with points, lines, polygons, and other shapes is simple using the annotation toolbar in the upper right corner of the map. Find detailed information about the tools available and how to use them [here](#).

8. I'm having trouble using the polyline/polygon tool. What do I do when I'm finished making the shape I want?
When using the polyline and polygon tools in the annotation toolbar, be sure to double-click when you're finished to end the shape.

9. I see a way to improve MapMaker. How do I submit feedback?
We welcome your suggestions for how to improve MapMaker. Submit your ideas at *Menu > Get Help > Share Feedback*.

NEED MORE HELP?

Get Help: Having trouble signing into your account, or have other technical issues with MapMaker? Go to *Menu > Get Help*.

Submit Feedback: Want to suggest a new feature or map layer? Have an idea for a way to improve MapMaker? Share your ideas at *Menu > Get Help > Share Feedback*.