Google News Initiative

18 LESSONS 100 MIN TOTAL

Data Journalism

This course will help you unlock the powerful world of data journalism to tell deep, insightful stories. You'll learn to find, analyze, interpret and visualize data in compelling new ways.

Tools Used:
Google Permissions, Google Public Data Explorer, Google Surveys, Google Crisis Map, Global Forest Watch, Election Databot, Tilegrams, Google Data GIF Maker, Flourish, Google Trends, Google Fusion Tables, Google Sheets, Google Data Studio

Google News Initiative

LESSON 01

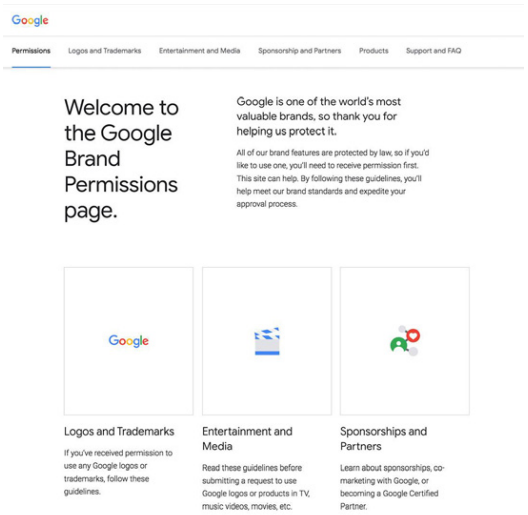
Permissions: Source Google data

Learn proper usage and citations for Google products.

Lesson overview

How to use the Google brand in your content.

The Google Permissions website is your one-stop-shop to learn how to properly use and cite our products in your stories. It highlights common use cases, basic trademark guidelines and gives instructions on using our logos, images, maps and graphics across all media.



1 Citing maps sources.

2 Giving Credit where it's due.

For more Data Journalism lessons, visit:

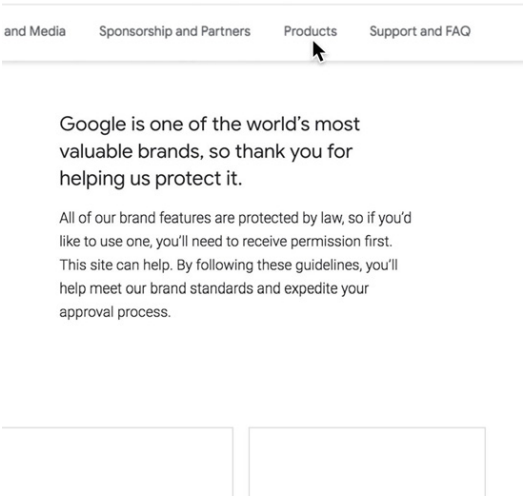
newsinitiative.withgoogle.com/training/course/data-journalism

Citing maps sources.

From satellite images to maps, journalists around the world use our tools to help tell their stories. And we're glad. We simply ask that you follow some usage rules to ensure they're used fairly and properly.

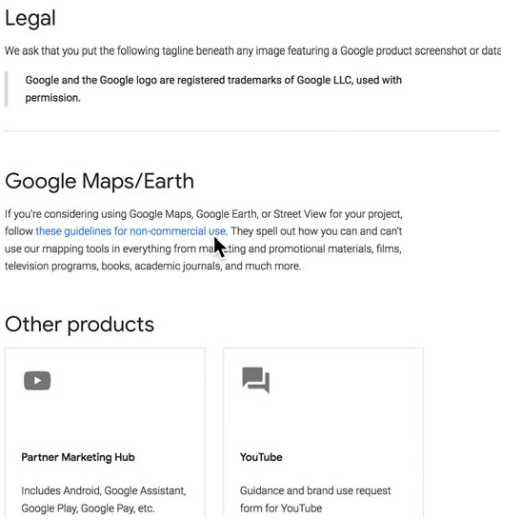
STEP 1 OF 2

Let's say you're publishing a web infographic using an image from Google Earth. Go to google.com/permissions and click Products.



STEP 2 OF 2

Scroll down until you see Google Maps/Earth and click guidelines for non-commercial use. The General Guidelines section should answer most FAQs for Google map usage.



Giving credit where it's due.

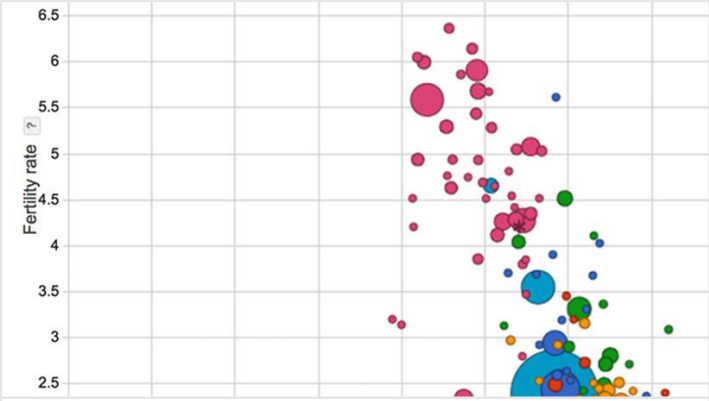
SINGLE STEP

When you're ready to publish, make sure you properly cite your Google source. Many of our products, such as Google Maps and Google Earth, will automatically incorporate an attribution for Google and the data provider. We've also set up an attributions site to answer your more detailed questions.

Congratulations!

You completed “Permissions: Source Google data.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



6 min estimated time

Public Data Explorer: Access a world of data

Use high-quality data sets to create compelling visuals.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 02

Public Data Explorer: Access a world of data

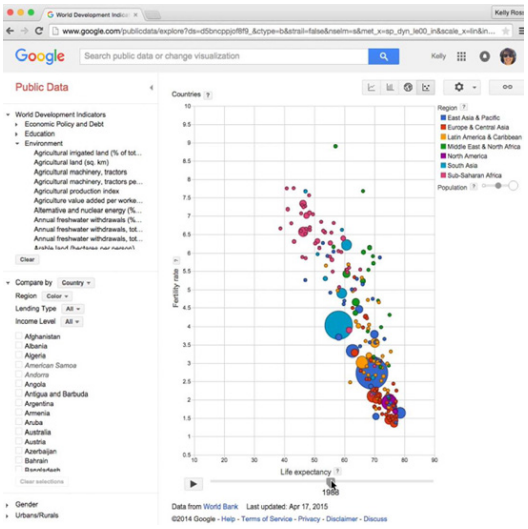
Use high-quality data sets to create compelling visuals.

Lesson overview

Find and visualize high-quality data.

When you're researching a story or on a tight deadline, finding quality datasets can be a roadblock. Google Public Data Explorer helps you find, interpret and share data to show how our world is changing.

It aggregates datasets from trusted sources and gives you simple tools to create sophisticated visualizations. With Google Public Data Explorer, you can monitor change over time, identify trends, compare metrics and strengthen your story using data.



1. A single source for quality data.
2. A library organized for fast, easy search.
3. Tell your story through charts, graphs or maps.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

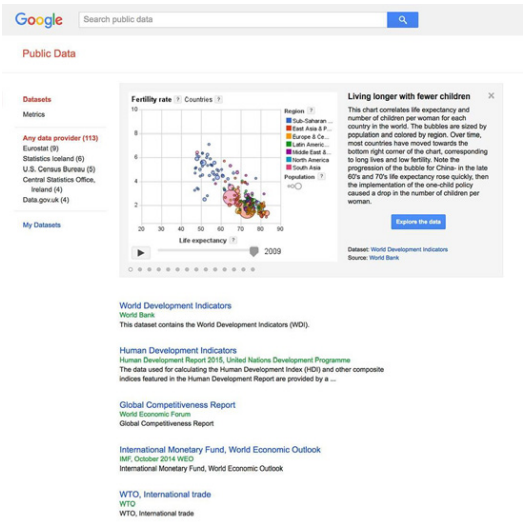
A single source for quality data.

With datasets from the World Bank, IMF, Eurostat and more, Public Data Explorer provides global statistics on the environment, economics, labor, health, education, poverty and more. You'll also find more granular data from state and local governments, universities and nonprofits. So, whether your search is broad like "global CO2 emissions" or narrow like "high school dropout rates in Texas," there's a wealth of data to support your story.

Public Data Explorer can also help you uncover new data sources.

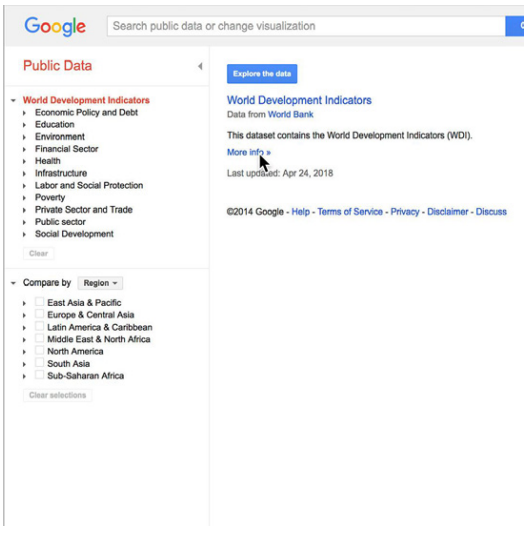
STEP 1 OF 2

To learn when the data was published and who created it, click the blue links.



STEP 2 OF 2

To go to the site where the dataset is hosted, and look for different file formats, click **More Info**.

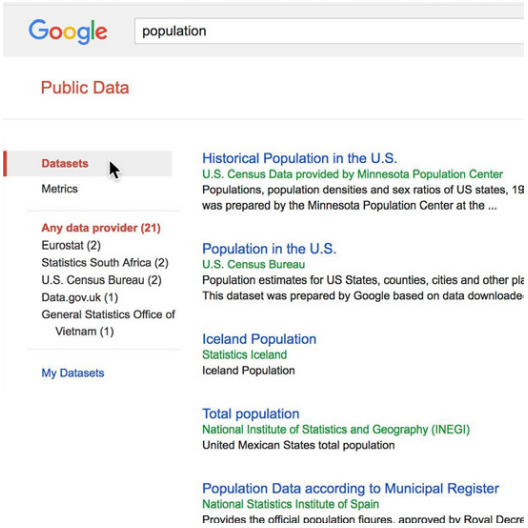


A library organized for fast, easy search.

The Google Public Data Explorer helps you search datasets and metrics by keywords as quickly as you would with Google Search.

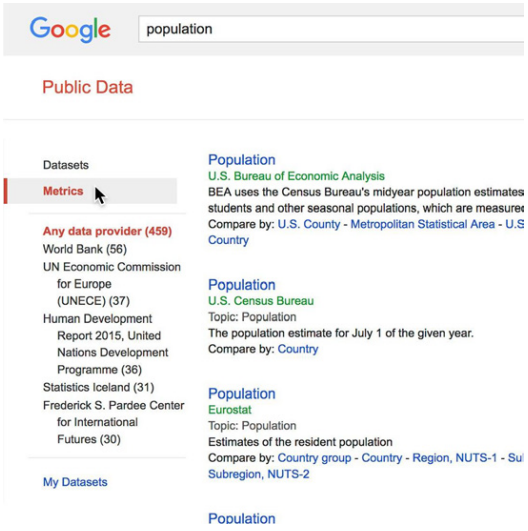
STEP 1 OF 2

A **Dataset** is a bundle of statistics created by a single data provider. For example, "Population of the United States," from the US Census Bureau, and "World Development Indicators," from the World Bank.



STEP 2 OF 2

Metrics are statistics that are components of a larger dataset. These include topics like “population,” “unemployment rate,” and “GDP.” By default, search results appear in **Metrics** mode. You can switch modes by clicking **Datasets** on the left side of the page.

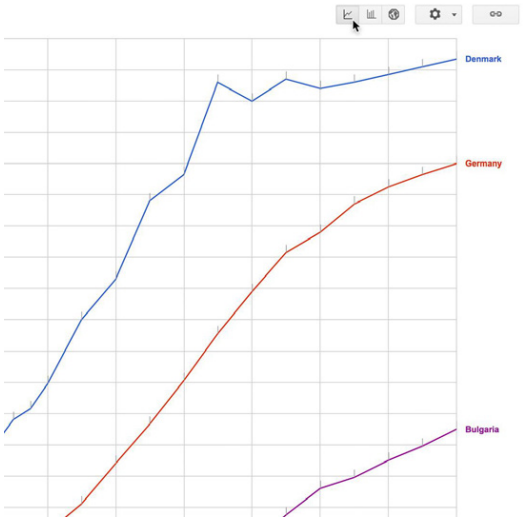


Tell your story through charts, graphs or maps.

When it comes to statistics, visual representations can be powerful. In Google Public Data Explorer, the visualizations are dynamic, so you can watch them move over time, change topics, highlight different entries and alter the scale. You can easily publish a visualization with your story.

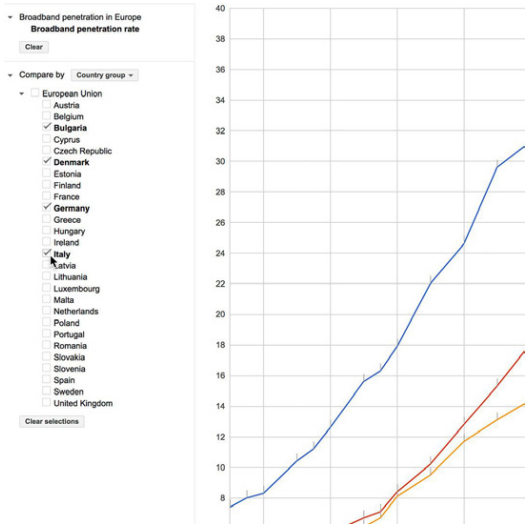
STEP 1 OF 4

Select a visualization type (line, bar, map, bubble).



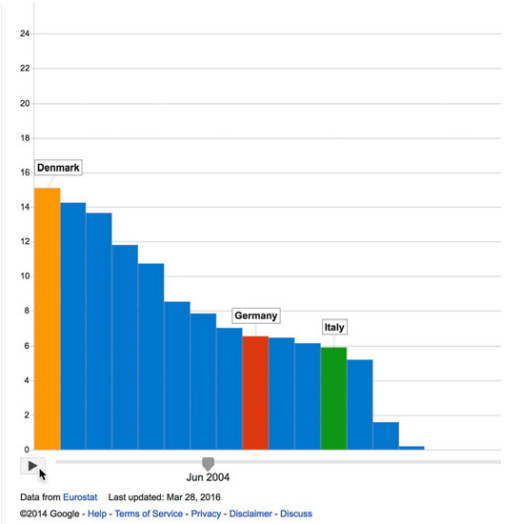
STEP 2 OF 4

Choose statistics to show, compare and filter.



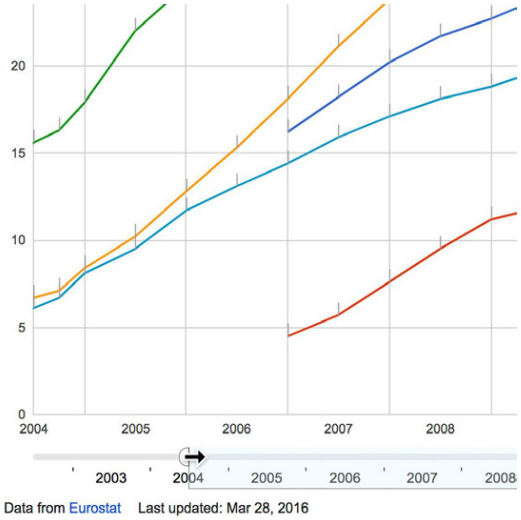
STEP 3 OF 4

In a bar, map or bubble chart, click **Play** to animate it over time.



STEP 4 OF 4

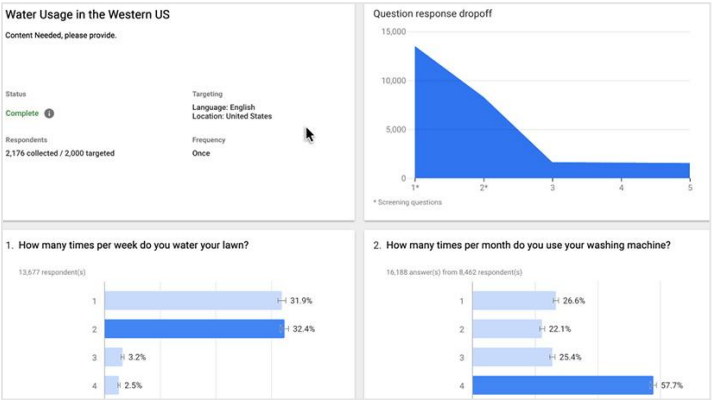
In a line chart, you'll adjust the x-axis time range by sliding the tabs in the timeline.



Congratulations!

You completed “Public Data Explorer: Access a world of data.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



5 min estimated time

Google Surveys: Gain insights

Gather data from real people by creating your own surveys.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

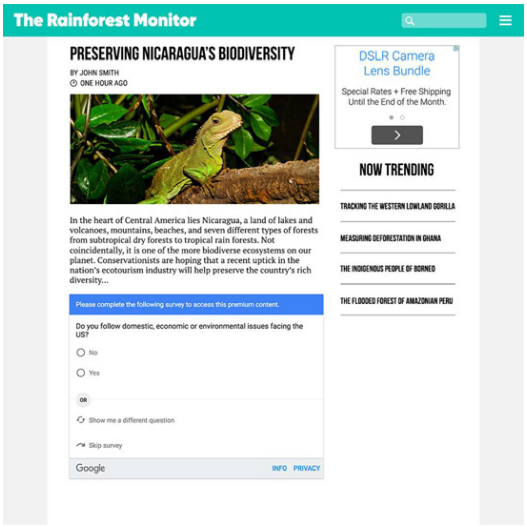
LESSON 03

Google Surveys: Gain insights

Gather data from real people by creating your own surveys.

Lesson overview

Conduct your own research by creating a survey.



Google Surveys is useful for getting a clearer picture of people's opinions and perspectives to backup your story. You can create a survey on any topic and put it in front of people in real time.

For example, if you're researching how drought in the western United States affects people's water usage, you can gather data through a geo-targeted survey.

Results are quick and accurate: you'll begin receiving responses from a validated representative sample within 24 hours. Pricing starts at 10 cents per completed response.

1. Pick your audience.
2. Write your questions and answers.
3. Field and pay for your survey.
4. Track your surveys.
5. Interpreting survey results for your story.
6. Survey your own readers.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

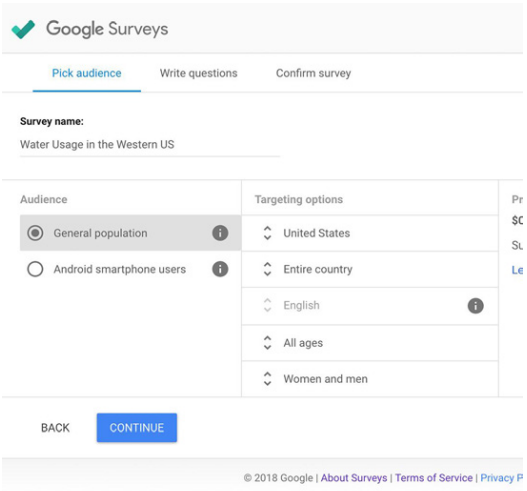
Pick your audience.

SINGLE STEP

Who do you want to answer your questions? To reach the general population, you can run your survey on our network of online publishers. Or, you can select more specific groups like Android smartphone users or audience panels.

Then, you can target participants based on demographics, like age, gender, and location. You can further narrow your audience with screening or pre-qualification questions.

To get started, go to g.co/surveys

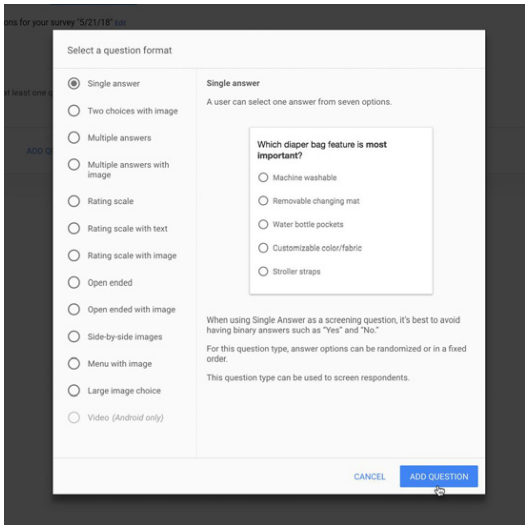


Write your questions and answers.

You can choose from a variety of question formats including single answer, multiple answer, and rating scale. You may write up to 10 questions, but bear in mind that shorter surveys yield faster results.

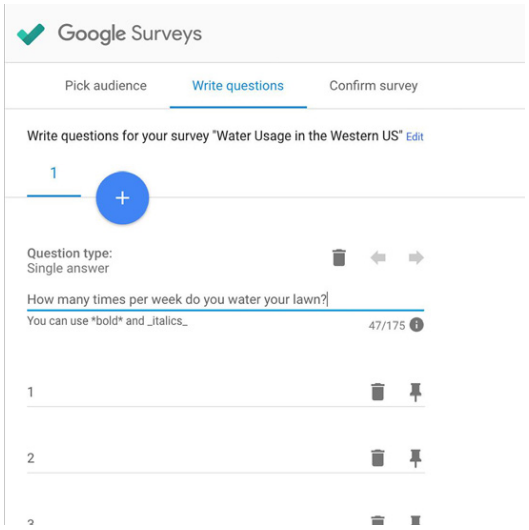
STEP 1 OF 4

Choose your format, then click **Add question**.



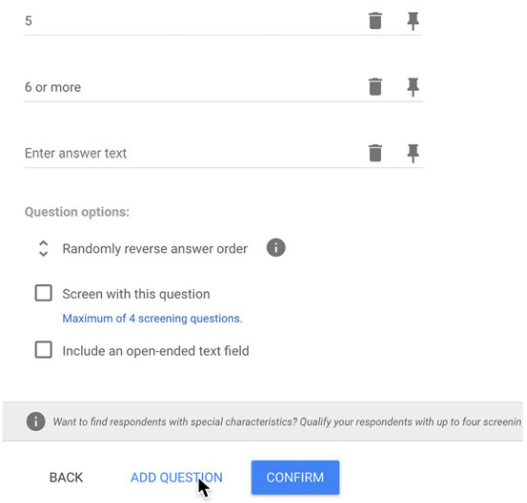
STEP 2 OF 4

Type in a question.



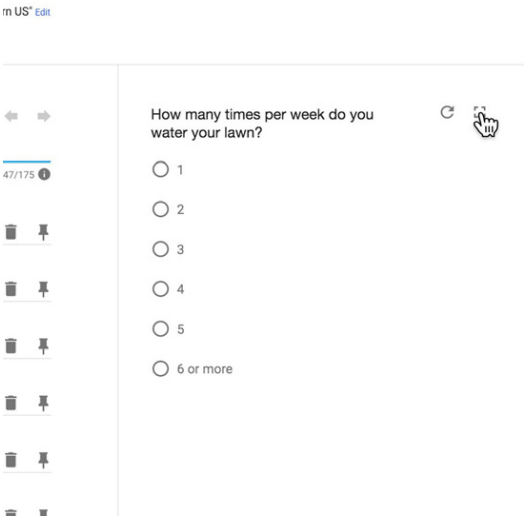
STEP 3 OF 4

Type in your answer options and click **Add question** to build out your survey.



STEP 4 OF 4

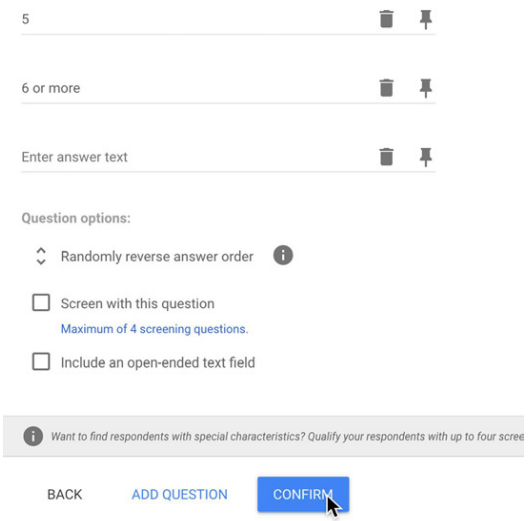
To preview your survey on desktop or mobile, click the brackets.



Field and pay for your survey.

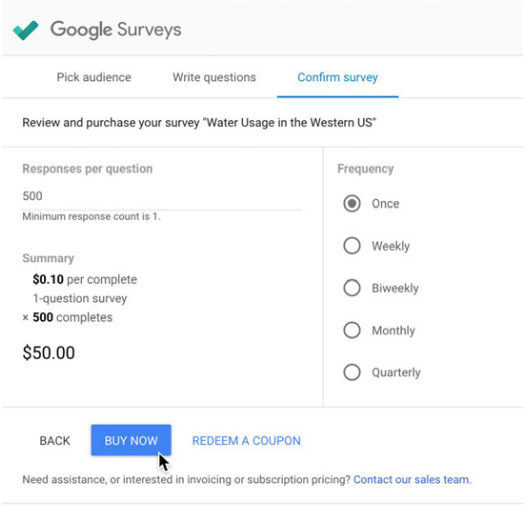
STEP 1 OF 2

When you are satisfied with your survey, click **Confirm** and review all of your information, including the number of respondents you'd like.



STEP 2 OF 2

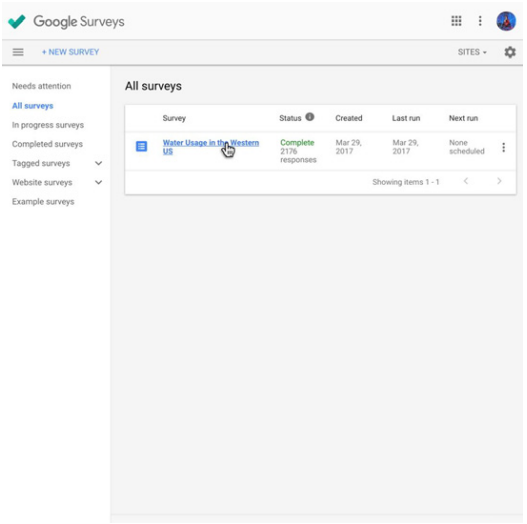
Enter your payment information, select frequency, then click **Buy Now**.



Track your surveys.

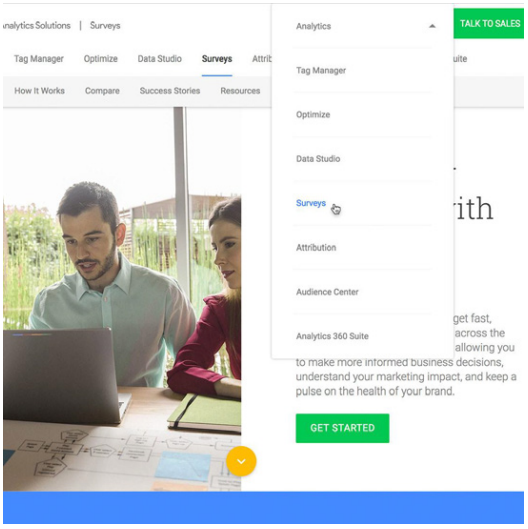
STEP 1 OF 2

The Google Surveys dashboard keeps all of your information in one place. You can monitor surveys in progress and review past surveys.



STEP 2 OF 2

To return to your dashboard, go to g.co/surveys, sign in to your account and select **Surveys**.

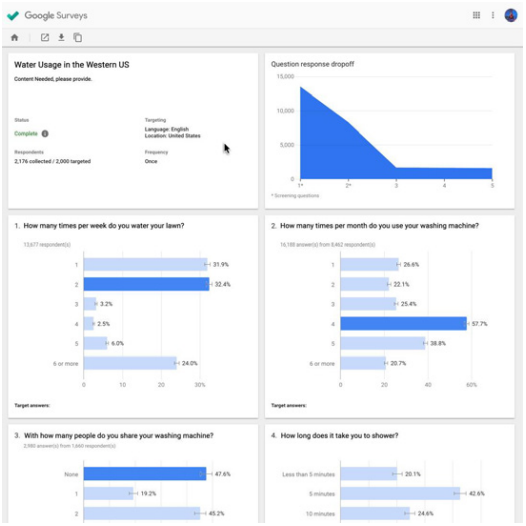


Interpreting survey results for your story.

Full survey completion typically takes a few days to a week.
To learn more about Google Surveys, click here.

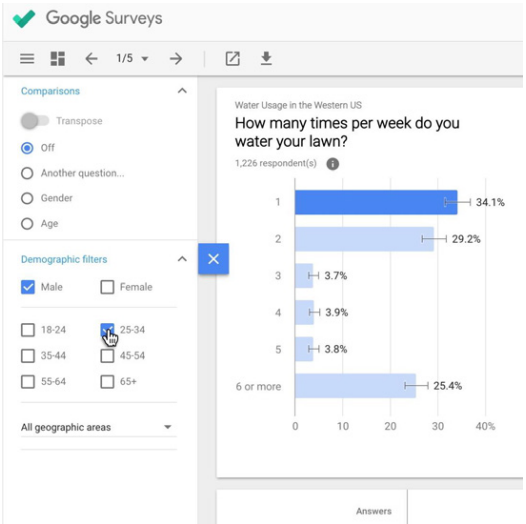
STEP 1 OF 2

As results roll in, Google automatically aggregates and analyzes responses, sending you data through a simple online interface.



STEP 2 OF 2

It includes interactive histograms, clickable demographic segmentation and comparisons, and significant insights — all easily shareable with your colleagues.



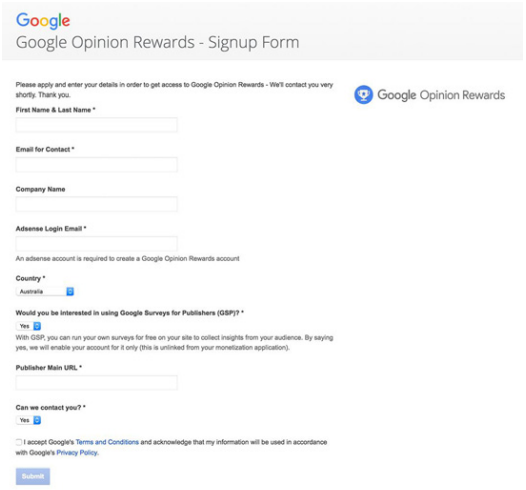
Survey your own readers.

Want to find out what your readers think? Use Google Surveys to ask them questions on your own site. It's free of charge and offers the same functionality as the paid solution.

You have sign up to this program, get approved by Google and embed some code onto your site.

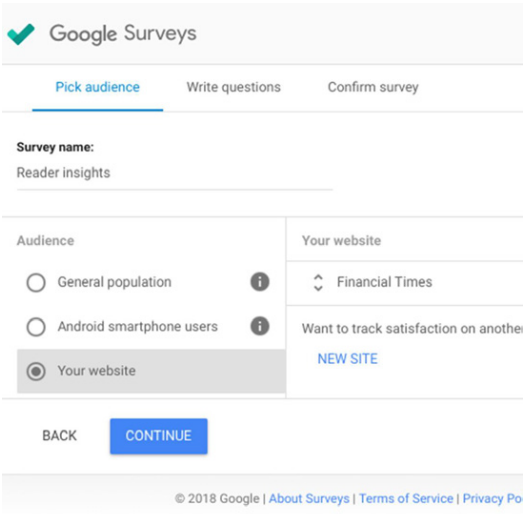
STEP 1 OF 2

To begin this process, first sign up for Google Opinion Rewards here.



STEP 2 OF 2

Then, go back into Google Surveys and follow the same process you would for a paid survey, except under **Audience**, choose **Your website**. You will also go through the same "buying" process but you will not be charged a fee.



Congratulations!

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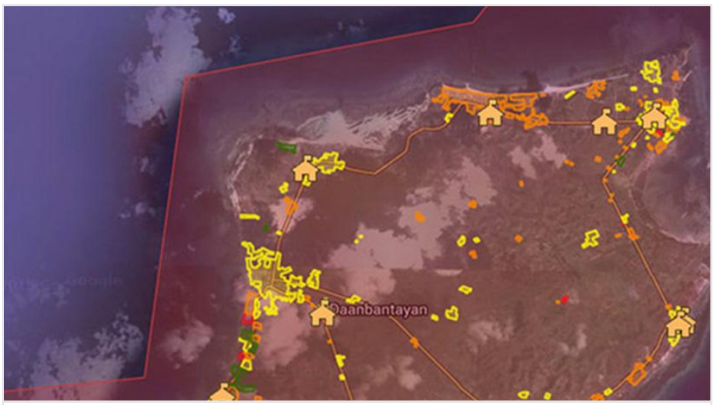


10 min estimated time

Google Crisis Map: Diagramming a disaster and its response

See the latest crisis-related data and customize it for your story.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 04

Google Crisis Map: Diagramming a disaster and its response

See the latest crisis-related data and customize it for your story.

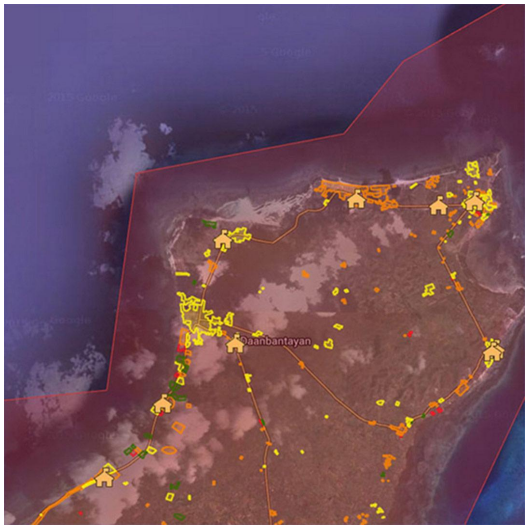
Lesson overview

About the Crisis Map.

When a disaster strikes, Google Crisis Response helps ensure that accurate information is available to those affected.

The Google Crisis Response team works directly with authoritative emergency organizations such as the Red Cross, NOAA and many others to create and update the Google Crisis Map, which features helpful information regarding disasters all over the world.

The Crisis Map can help journalists visualize and share crisis-related data, and includes relevant information such as shelter locations, weather, evacuation zones, post-event satellite imagery and more.



1. Explore archived Crisis Maps.
2. Customizing the Crisis Map.
3. Customization for advanced users.
4. Sharing the Crisis Map.
5. Receive alerts for new Crisis Maps.

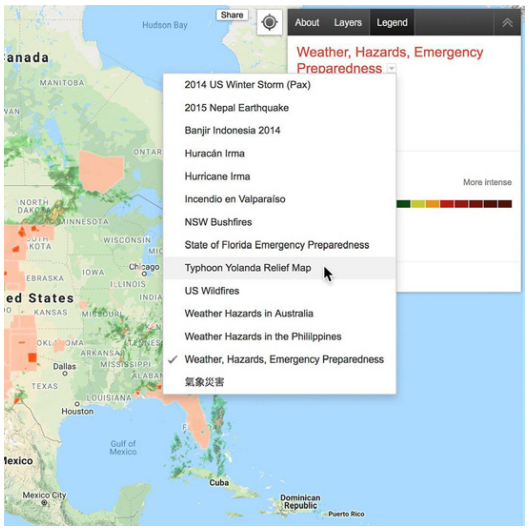
For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Explore archived Crisis Maps.

SINGLE STEP

To get to know the tool, go to https://google.org/crisismap. Then start by exploring a growing collection of archived Crisis Maps. Just click the dropdown arrow next to the title of the current map.

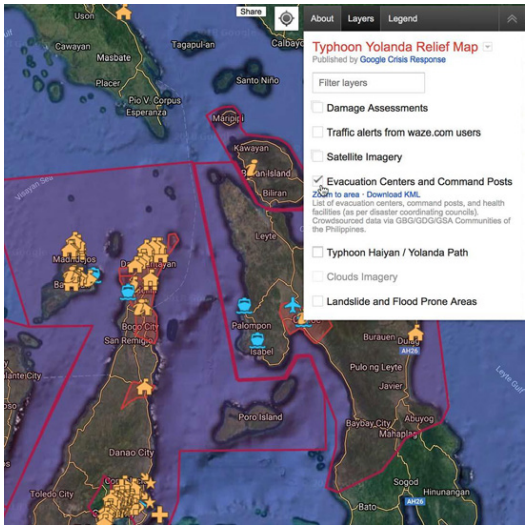


Customizing the Crisis Map.

By default the Crisis Map displays multiple layers of information. But it's easy to customize the map and highlight only specific information.

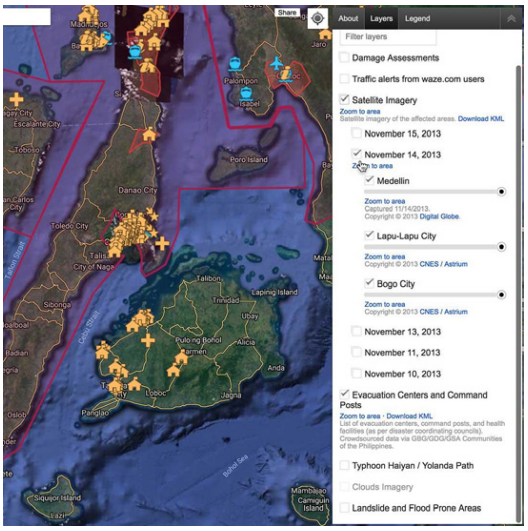
STEP 1 OF 3

Let's say you were writing about Typhoon Yolanda, which hit Southeast Asia in 2013, and wanted to feature a map of just Evacuation Centers in your story. You would just open the **Layers** panel and uncheck boxes to remove information you don't want to appear. Whatever layers you check will be displayed on the map when you copy and share its URL or embed code, which will be explained in an upcoming screen.



STEP 2 OF 3

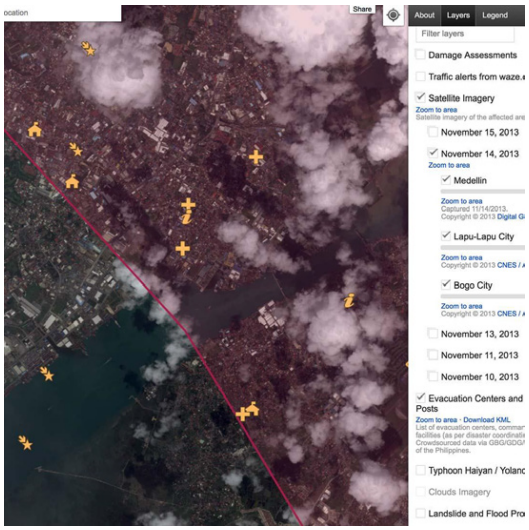
You can also choose a specific area of the map to display, and select satellite imagery based on the date it was collected. On the **Layers** tab click **Satellite Imagery**, then the date.



STEP 3 OF 3

To better feature this imagery, click **Zoom to area** and position your map. Use the Zoom tool to get closer to the details in the satellite imagery.

The final layer and position you choose will be saved and appear in the map when you share it.

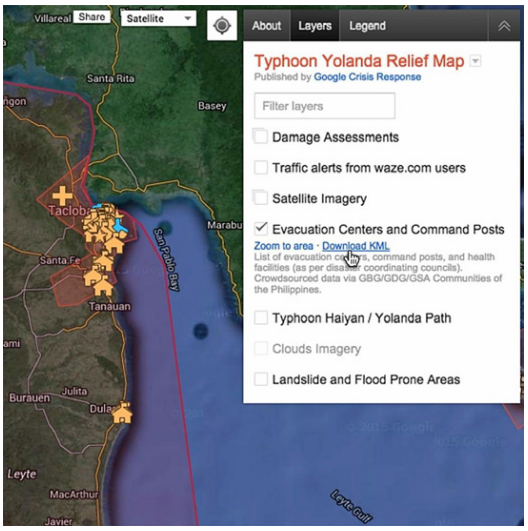


Customization for advanced users.

SINGLE STEP

Whenever possible, Crisis Response provides a download link with individual information layers on the Crisis Map so that it can be downloaded as KML (Keyhole Markup Language) data.

A reporter can, for example, use that KML data in Google Earth Pro to help create a customized video tour of the crisis area. See our Google Earth lesson for information about creating, customizing and exporting video tours for news reports.

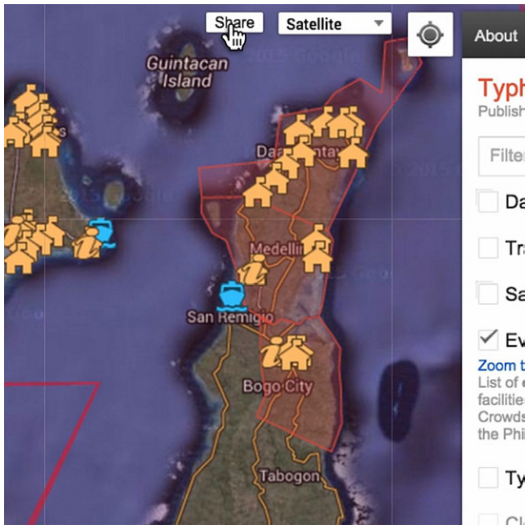


Sharing the Crisis Map.

The Google Crisis Response team makes it easy for trusted news sources to share and embed Crisis Maps as part of their coverage.

STEP 1 OF 2

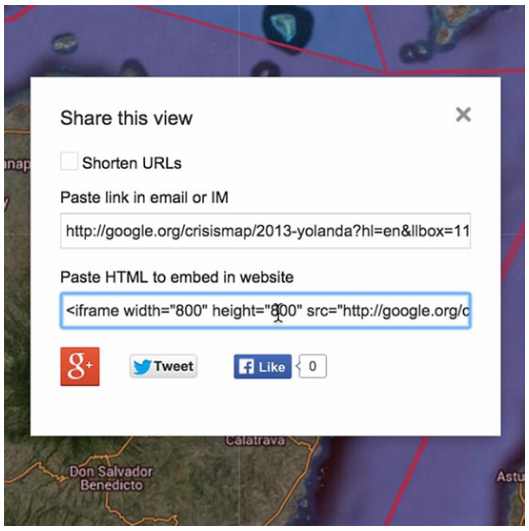
Once you've customized the Crisis Map with the information and area you want to feature, click **Share** at the top of the map.



STEP 2 OF 2

In the pop-up window you can share the map on social media or copy the map's URL.

You can also embed the map on your website using the iframe provided. In that code, you can customize the height and width of the map embed.

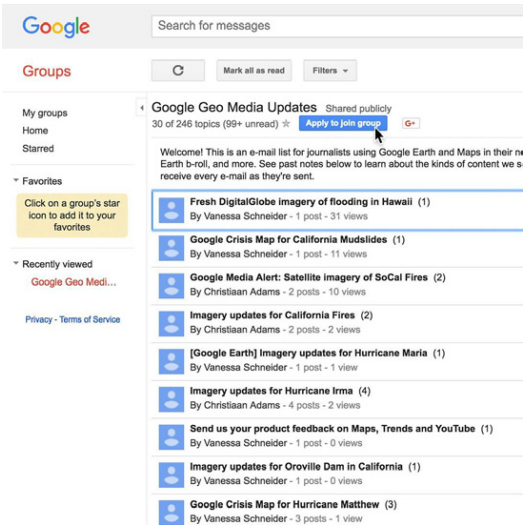


Receive alerts for new Crisis Maps.

To find out when the Google Response Team launches a new Crisis Map, sign up for our Google Geo Media Updates group.

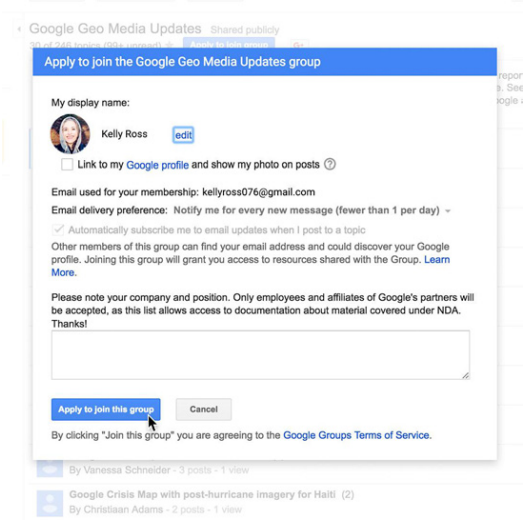
STEP 1 OF 2

To sign up, go to https://groups.google.com/forum/#!forum/geomedia-updates and click **Apply to join group**.



STEP 2 OF 2

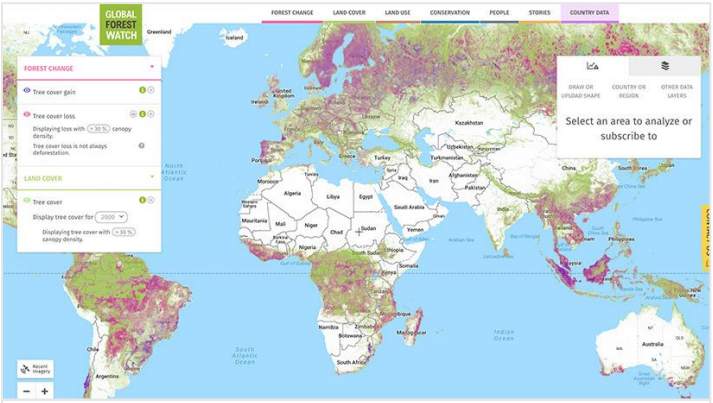
Edit your display information, email preferences, and provide your company info. Then click **Apply to join group**.



Congratulations!

You completed “Google Crisis Map: Diagramming a disaster and its response.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



5 min estimated time

Data Source: Global Forest Watch

Deforestation data and monitoring tools.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 05

Data Source: Global Forest Watch

Deforestation data and monitoring tools.

Lesson overview

What is Global Forest Watch?

Global Forest Watch (GFW) is a remarkable collaboration of the World Resources Institute, Google, the Jane Goodall Institute and other partners that provides data and tools to help journalists, governments and researchers understand harmful forest loss and its effect on climate change.

In the past, people have struggled to understand when and where forests are cleared, why it happens, and who is responsible. Using satellite data and cloud computing, GFW monitors the world's forests in near real time—delivering data about deforestation, fires, climate and commodities that would have formerly taken years to gather and process.

1 Reporting on climate change.

2 Interactive map of forest change.

3 Customize your interactive map.

4 Country profiles.

5 Monitoring fires on GFW.

6 Analyze commodity supply chains.

7 Learn more about GFW.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Reporting on climate change.

SINGLE STEP

The GFW platform will help you report on climate change by providing timely, in-depth information on carbon emissions from tropical deforestation. You can explore landscapes and analyze carbon data on our interactive map, as well as customize reports to show only the data you want to see and share it with your story.

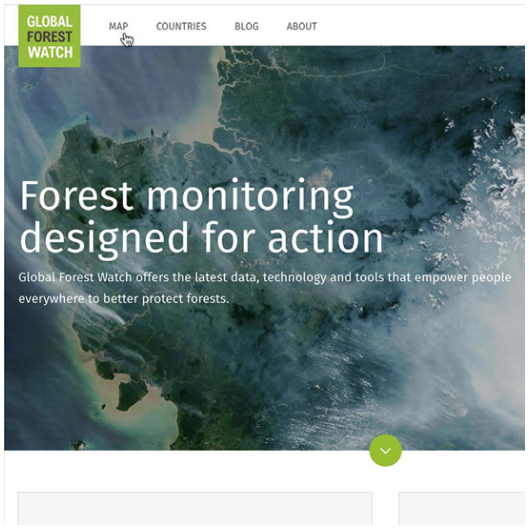
Several tools also help you monitor change over time and compare countries, jurisdictions and areas of interest. You can even monitor deforestation in conjunction with carbon emissions, and look at data on canopy density, carbon stores in trees and carbon stores in soil.

Interactive map of forest change.

The central tool of GFW is an interactive map depicting the world's forest change (tree cover and loss) powered by data sets that stretch from 2000 to 2018.

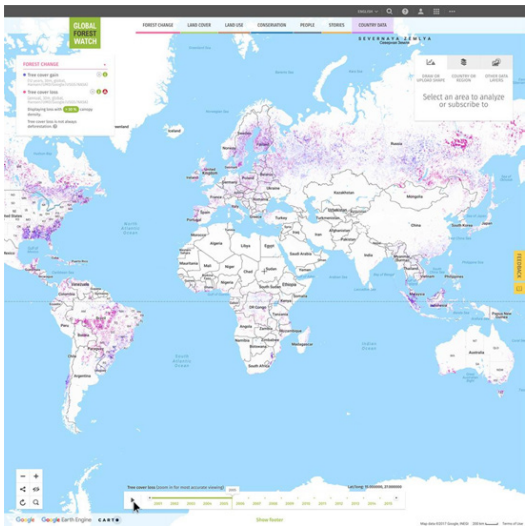
STEP 1 OF 4

To explore the interactive map, first go to globalforestwatch.org, then **Map**.



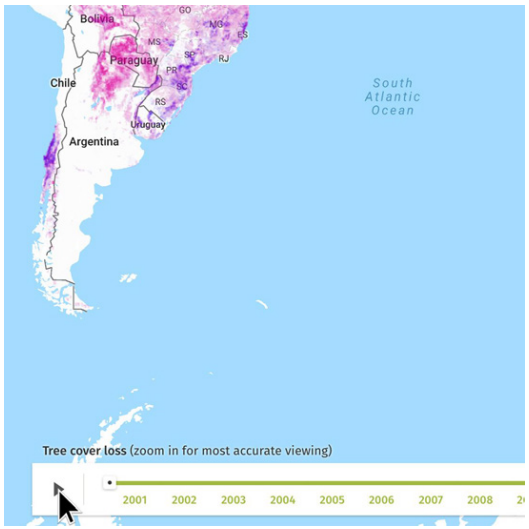
STEP 2 OF 4

Use the map to look at forests around the world.



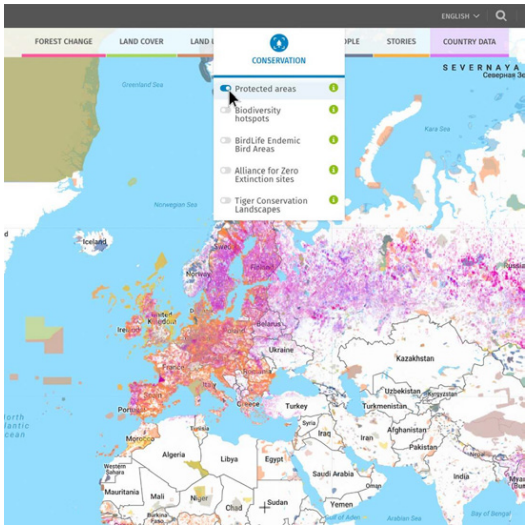
STEP 3 OF 4

To focus on subsets of time, use the slider at the bottom of the map.



STEP 4 OF 4

Turn specialty layers on or off to show factors such as conservation areas, land use, and intact forest landscapes.

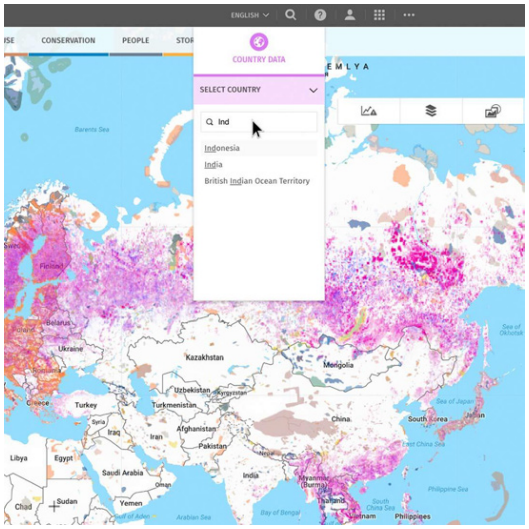


Customize your interactive map.

The interactive map also allows you to get more granular views of impacts in specific regions you may be covering and to modify the look of the map per your needs.

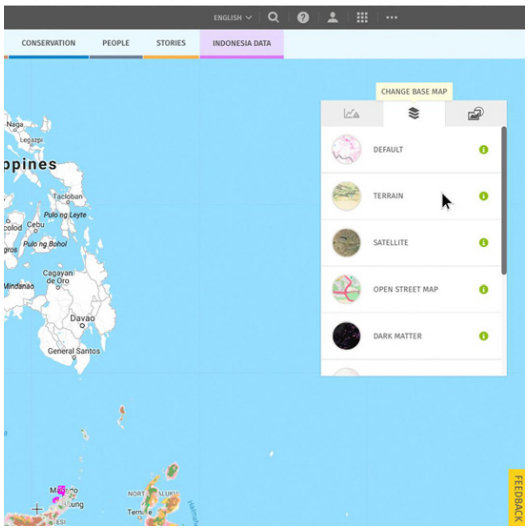
STEP 1 OF 2

Customize your map view by clicking **Country Data** and selecting a country or region or drawing your own area to analyze.



STEP 2 OF 2

Choose from a variety of base map options such as satellite, terrain or road maps.

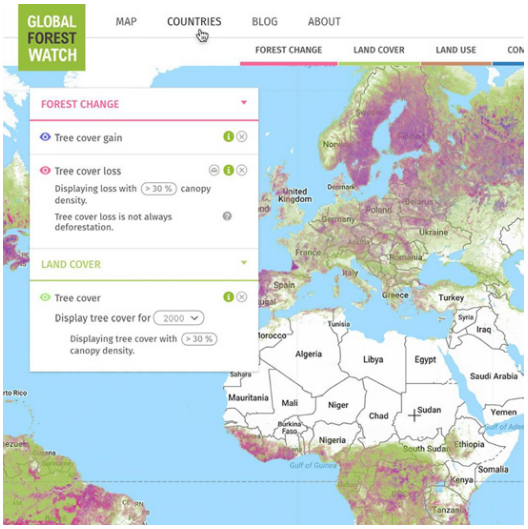


Country profiles.

If you know what country you want to research, you can go straight to its profile. GFW carries data on 204 countries.

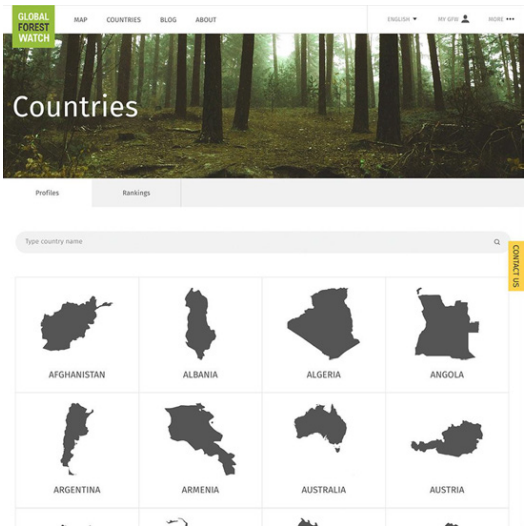
STEP 1 OF 5

Rollover the navigation bar to reveal the top nav. Then click **Countries**.



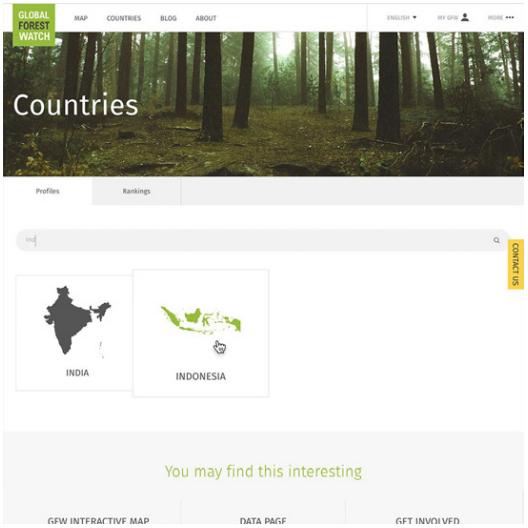
STEP 2 OF 5

Choose from the 204 countries



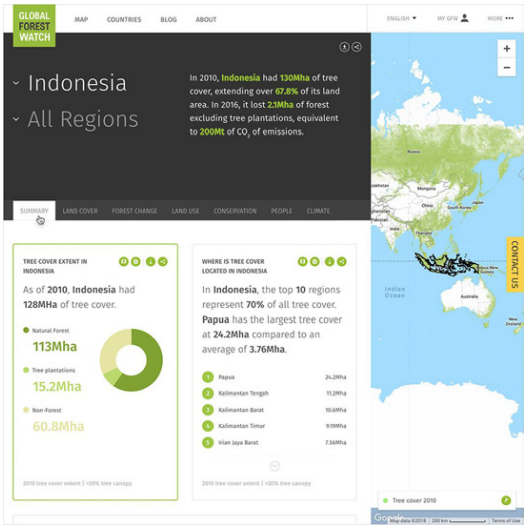
STEP 3 OF 5

Using Indonesia as an example, you can see a remarkable amount of data.



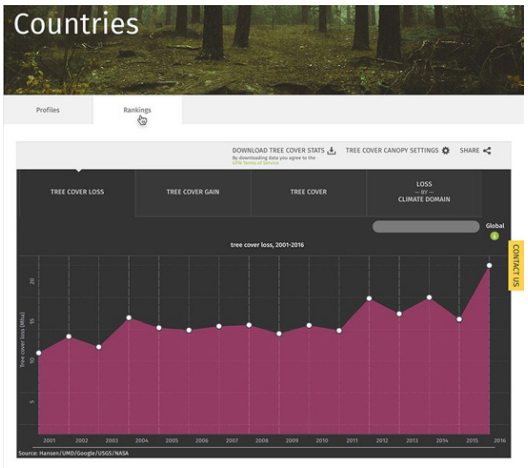
STEP 4 OF 5

Click through the tabs to reveal statistics on land cover, forest loss and management, economic impact and employment related to forests, governmental management, reforestation, CO2 emissions, carbon stocks and international agreements.



STEP 5 OF 5

You can also see a country's forest profile in context with other countries by choosing **Rankings.** This shows the countries with greatest tree cover loss at the top: Russia, Brazil and Canada.



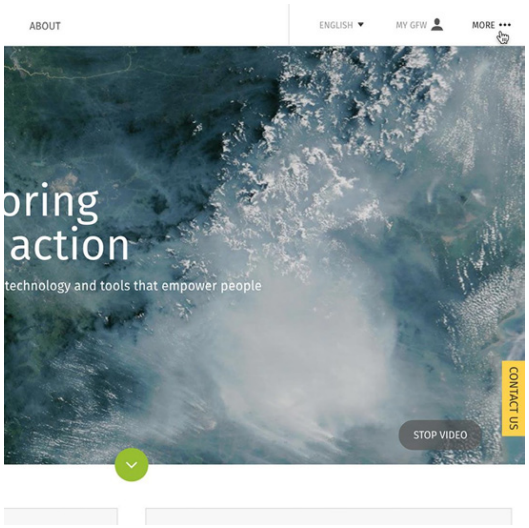
Countries with greatest tree cover loss (2001-2016)

Monitoring fires on GFW.

GFW Fires is a tool to monitor emerging fires, identify potential causes, and analyze impacts of fires on forests and people.

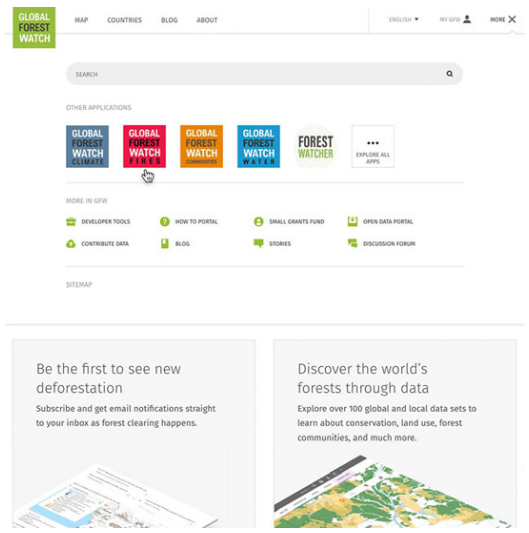
STEP 1 OF 5

From any page, you can click **More** to access additional GFW apps.



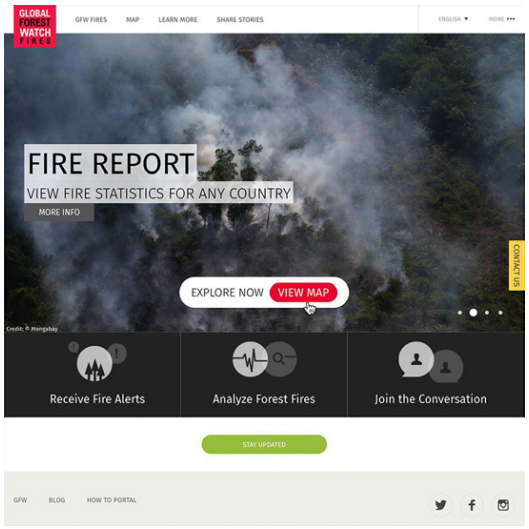
STEP 2 OF 5

Select **Global Forest Watch Fires**.



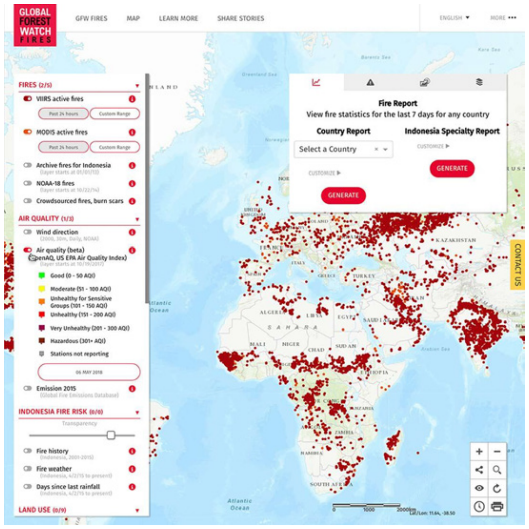
STEP 3 OF 5

Click **View Map.**



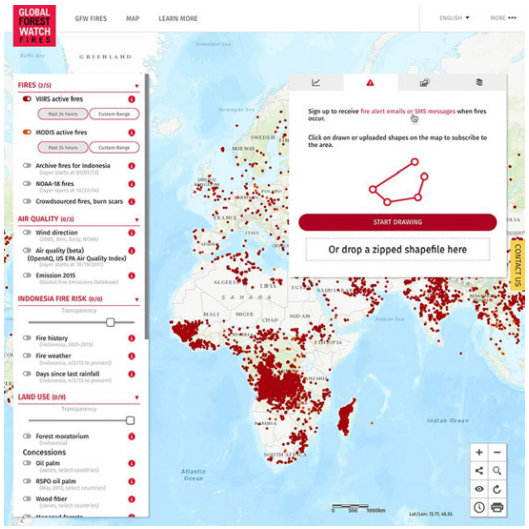
STEP 4 OF 5

Here you can see fires around the world, look at air quality and haze, and quickly access a fire report for any country in the past seven days.



STEP 5 OF 5

You can also sign up to receive fire alerts via SMS or email for any region you need. Just click **Start Drawing** and outline the desired area. Then click the **fire alerts email or SMS messages** link.

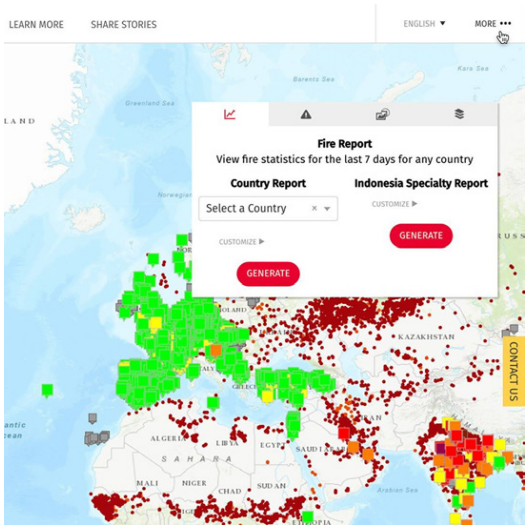


Analyze commodity supply chains.

The GFW Commodities tool illuminates deforestation related to commodity supply chains for palm oil, soy, beef, wood pulp, and other products. For example, you can monitor activity in Indonesia near palm oil mills to see if there is corresponding forest loss in the area. This tool may be extremely useful for journalists covering the intersection of business interests and environmental preservation.

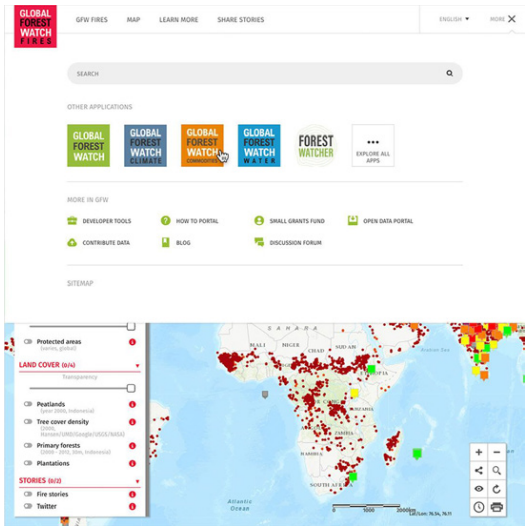
STEP 1 OF 6

From any page, you can click **More** to access additional GFW apps.



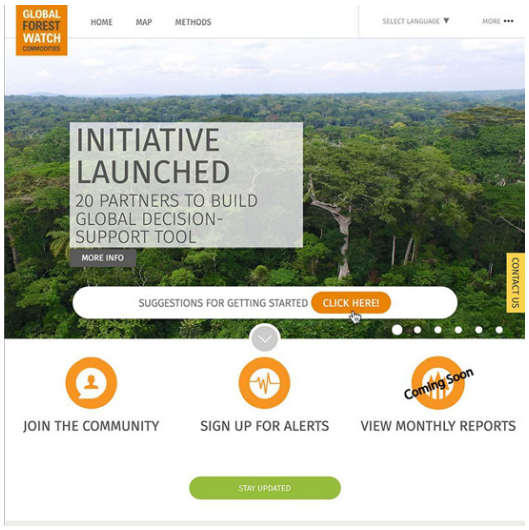
STEP 2 OF 6

Click **Global Forest Watch Commodities**.



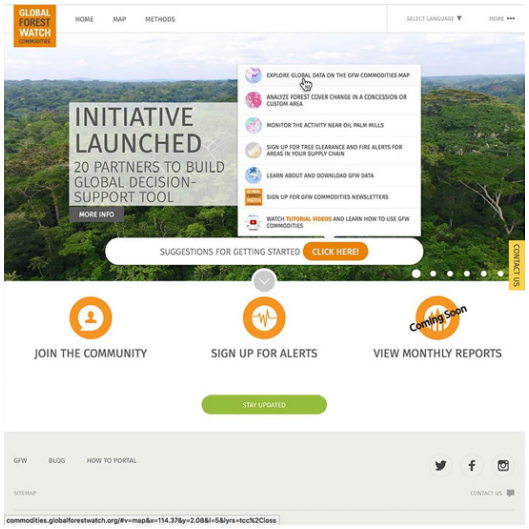
STEP 3 OF 6

Click the **Click Here!** button.



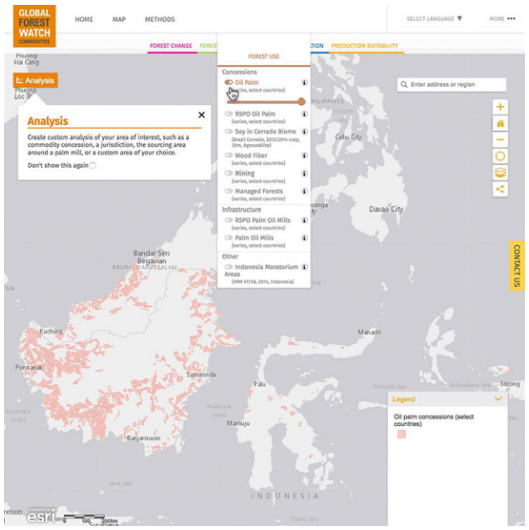
STEP 4 OF 6

Select **Explore Global Data on the GFW Commodities Map.**



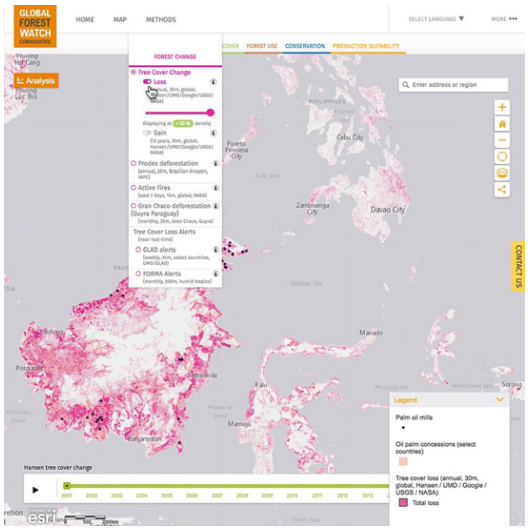
STEP 5 OF 6

Under **Forest Use**, turn on **RSPO Palm Oils Mills** and **Palm Oil Mills**.



STEP 6 OF 6

Under **Forest Change**, turn on **Loss** to see the Tree Cover Change in that area. You can adjust the opacity of the layer with the slider so you can continue seeing the details beneath.

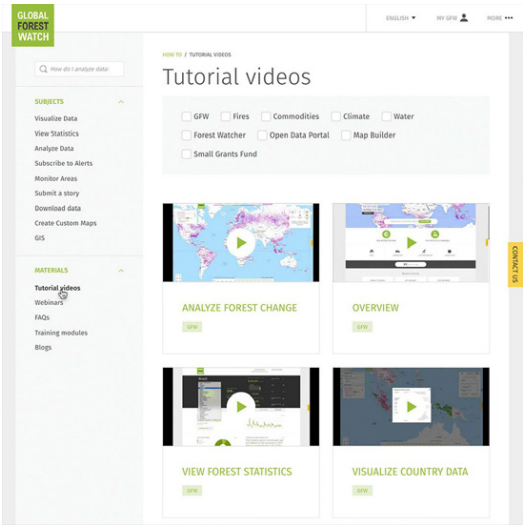


Learn more about GFW.

SINGLE STEP

The GFW platform is an incredibly rich source of information for journalists. While this lesson provides an overview of its tools, there are many video tutorials you can watch to dive deeper.

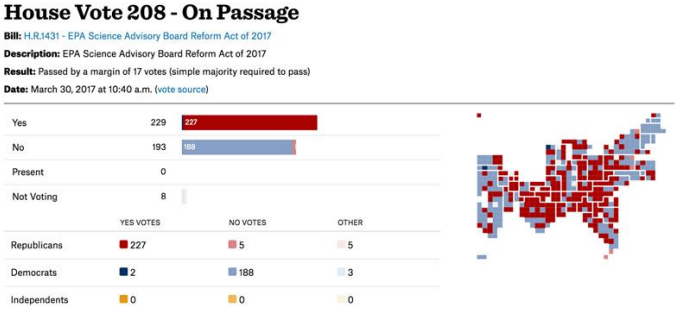
For videos on analyzing forest change, visualizing country data, comparing countries and much more, watch Global Forest Watch Tutorial videos.



Congratulations!

You completed “Data Source: Global Forest Watch.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



5 min estimated time

Data Source: Election DataBot

A robust tool to help journalists cover U.S. elections

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

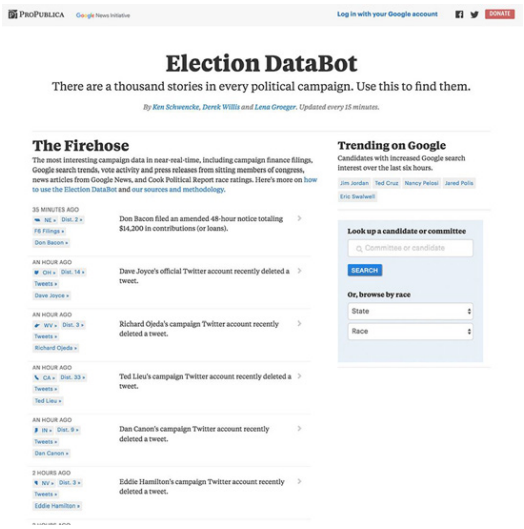
LESSON 06

Data Source: Election DataBot

A robust tool to help journalists cover U.S. elections

Lesson overview

An election data hub created by ProPublica and Google News Initiative.



There are countless stories to tell about U.S. political campaigns—and data can help you tell them. In collaboration with the public interest journalism nonprofit ProPublica, we created Election Databot to help you find the most interesting data in near real time about presidential and congressional candidates in the U.S.

1. Stay up to date with "The Firehose."
2. Analyzing campaign finance data.
3. Knowing what organizations are spending money in a race.
4. Seeing shifts in campaign donations.
5. Tracking data from polls.
6. Learn from Google Trends search data.
7. Setting alerts for races you care about.
8. More ways to learn about Election DataBot.

For more Data Journalism lessons, visit:

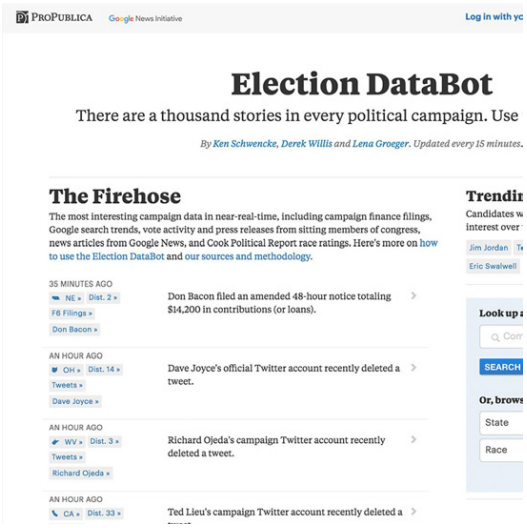
newsinitiative.withgoogle.com/training/course/data-journalism

Stay up to date with "The Firehose."

SINGLE STEP

The centerpiece of the Databot is the Firehose, a stream of information related to U.S. elections that is updated every 15 minutes and pulled from a variety of sources. Here, you'll find the most interesting data including campaign finance filings, Google search trends, new polls, forecasts from FiveThirtyEight, Cook Political Report race ratings and vote activity from sitting members of Congress. It will tell you when a super PAC spends money in a race you care about, when an incumbent member of Congress is the only person to vote against a piece of legislation, when key polls change, and much more.

The Databot uses information from multiple high-quality, nonpartisan sources, including government and commercial websites. To learn about our methodology, read this article on our sources.

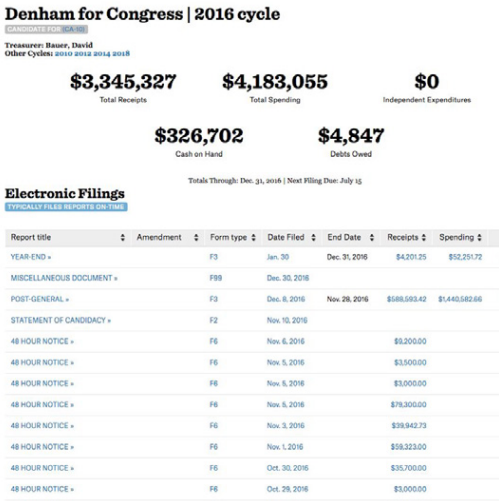


Analyzing campaign finance data.

Our Firehose draws from a companion tool, the Federal Election Commission (FEC) Itemizer, to provide detailed data about campaign finance filings. Learning to differentiate and interpret these filings can help you find stories.

STEP 1 OF 3

Comparing candidates and races. Election Databot ranks House and Senate candidates in terms of money raised and spent, both within their states and nationally.

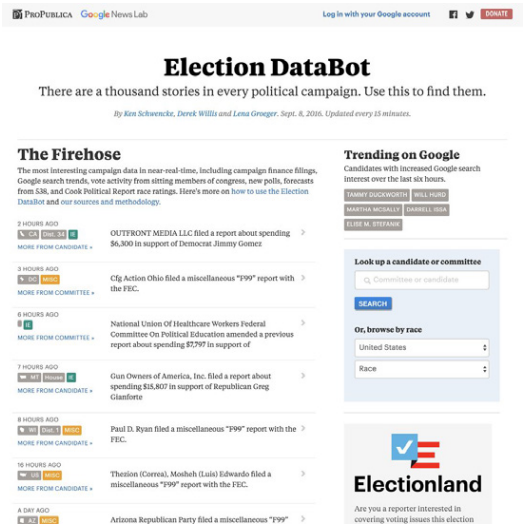


STEP 2 OF 3

Knowing what organizations are spending money in a race. You can track a race or candidate, so you get alerts when super PACs, and/or other committees spend money to influence an election. You also can track individual committees, seeing where and when they spend money in races.

STEP 3 OF 3

Seeing late shifts in campaign donations. In the final weeks before a state or general election, House and Senate candidates are required to file reports to the FEC within 48 hours of receiving a contribution of $1,000 or more. These “48-Hour” reports can show that a candidate’s campaign is seeking donations from congressional colleagues, family members and out-of-state donors and can be an indication that a campaign believes it has a more difficult race than expected. For example, the string of 48-Hour reports by then incumbent Kansas Republican Tim Huelskamp included contributions from his mother. Soon after, Huelskamp lost his primary.



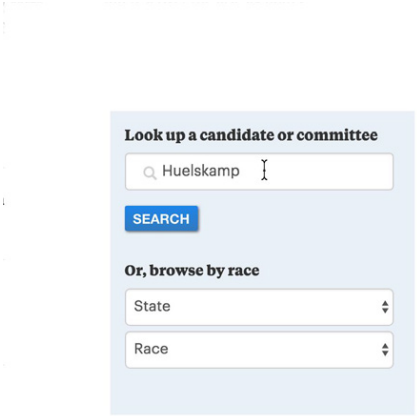
Knowing what organizations are spending money in a race.

You can track a race or candidate, so you get alerts when super PACs, and/or other committees spend money to influence an election. You also can track individual committees, seeing where and when they spend money in races.

Say you're writing a story on fundraising for Kansas Republican Tim Huelskamp.

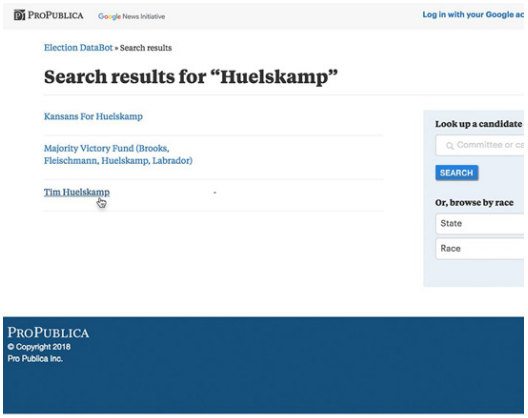
STEP 1 OF 4

On the homepage, type the candidate's name into the search field.



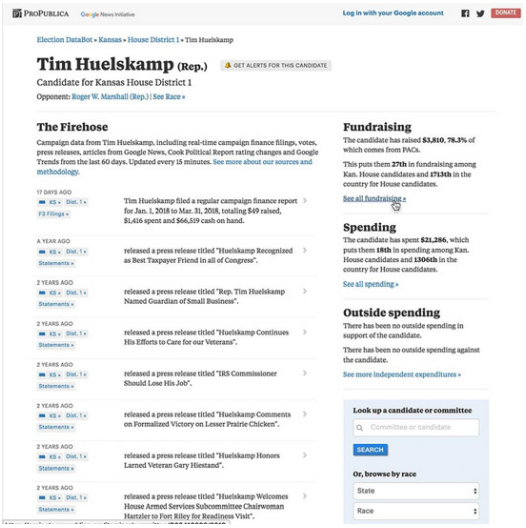
STEP 2 OF 4

You'll land on an overview page that features the latest stories in The Firehose as well as links to detailed spending info in the right sidebar.



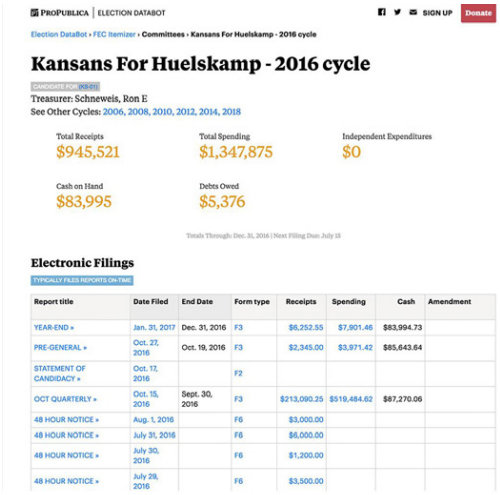
STEP 3 OF 4

Click **See all fundraising** in the right sidebar.



STEP 4 OF 4

Here you'll find how much he's received in contributions and how much has been spent campaigning.



Seeing shifts in campaign donations.

SINGLE STEP

In the final weeks before a state or general election, House and Senate candidates are required to file reports to the FEC within 48 hours of receiving a contribution of $1,000 or more. These “48-Hour” reports can show that a candidate’s campaign is seeking donations from congressional colleagues, family members and out-of-state donors and can be an indication that a campaign believes it has a more difficult race than expected.

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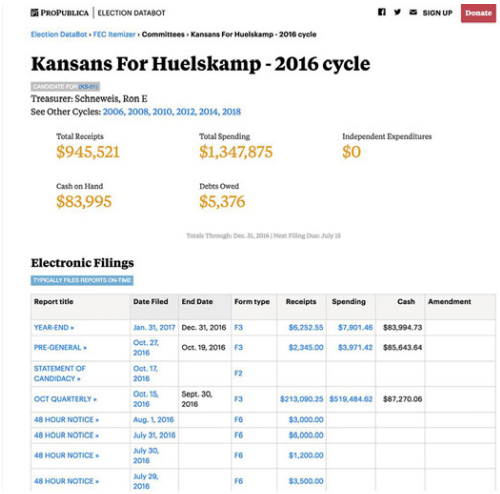


Tracking data from polls.

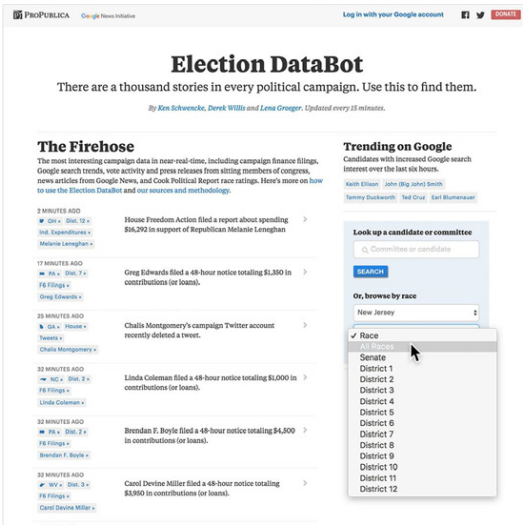
Polling and political analysis are not perfect, but they can both be useful tools for tracking an election. The Databot tracks both, providing alerts on new polls in the presidential and congressional races, election forecasts based on poll analysis, and race ratings.

We use Huffington Post Pollster API for polling data, FiveThirtyEight's Election Forecast to provide win probabilities and the Cook Political Report for independent, nonpartisan analysis that rates each race on a spectrum of "Solid" to "Toss-Up." When a poll or race rating changes, you can use that and other Election Databot information such as campaign finance filings, to try to understand why.

Say you want to see which way New Jersey's senate race is polling.

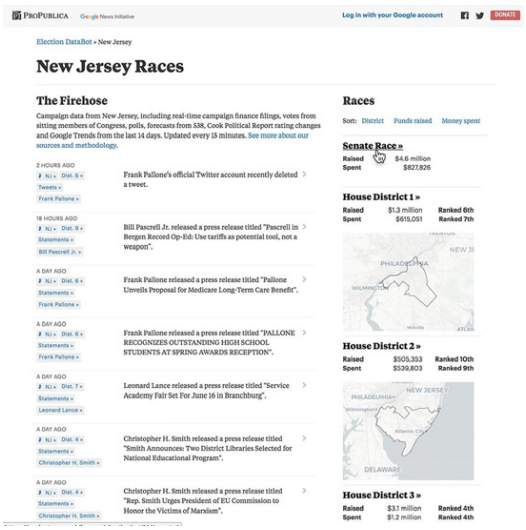
STEP 1 OF 3

Select New Jersey in the search box. Then click **All Races**.



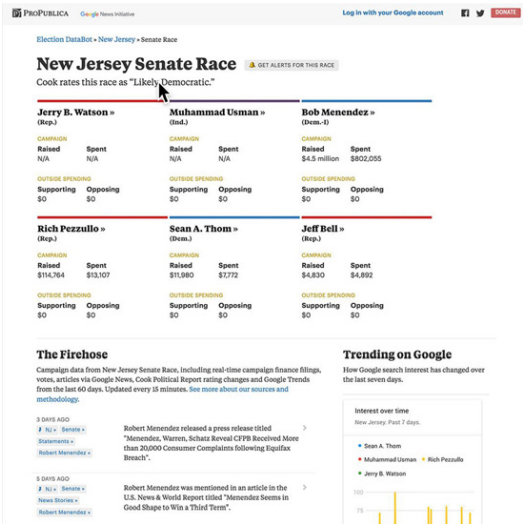
STEP 2 OF 3

Choose the Senate Race.



STEP 3 OF 3

You'll see Cook Political Report rates this as a "Likely Democratic" win.

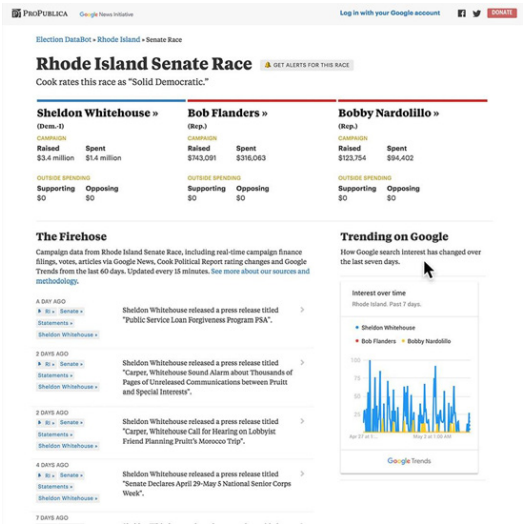


Learn from Google Trends search data.

SINGLE STEP

What internet users search for can be a useful indicator. While search interest is not a perfect predictor of electoral performance, it has caught the attention of researchers. In the 2016 Republican presidential primary, Google search interest tracked closely with results in a number of states.

The Databot uses data from Google Trends to show when search interest — represented by a sample of Google searches — increases for a particular candidate within his or her home state. Many candidates see relatively little search interest, so we try not to surface small increases, instead looking for rising interest over a number of hours.

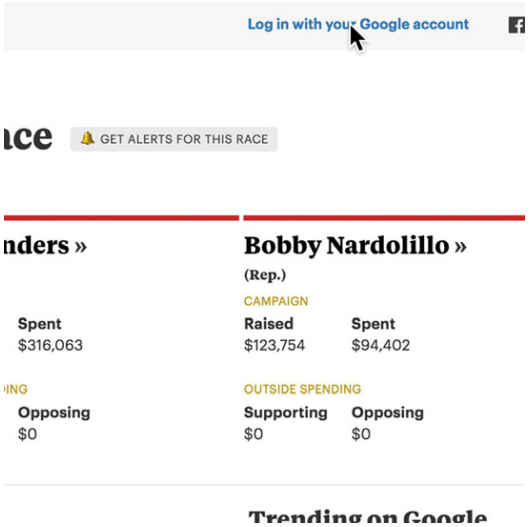


Setting alerts for races you care about.

Following a specific race? You can set alerts to notify you when new filing or data points happen.

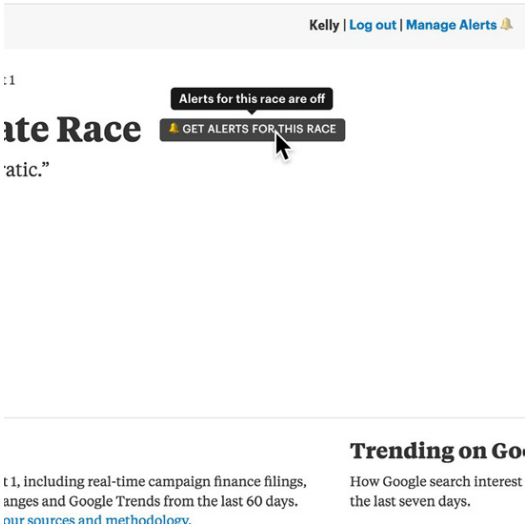
STEP 1 OF 2

Navigate to the race you want to follow and sign into your Google account.



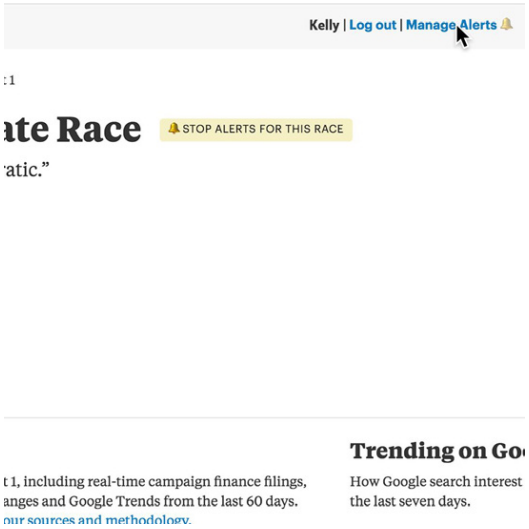
STEP 2 OF 3

Click **Get alerts for this race** to follow.



STEP 3 OF 3

You can edit and manage alerts by clicking **Manage alerts** on the top right. This will enable you to customize the elections you follow and frequency of emails you receive.

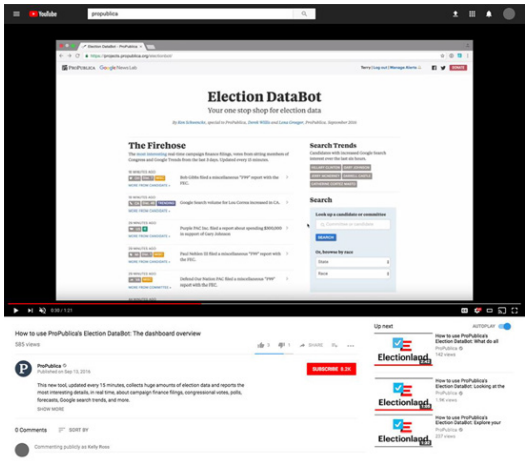


More ways to learn about Election DataBot.

SINGLE STEP

For additional tutorials on Databot, watch our series of YouTube videos.

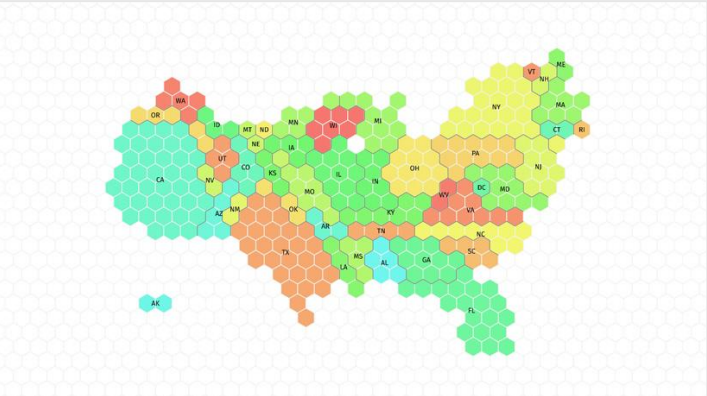
Read our Medium article by Google News Initiative Data Editor Simon Rogers: Election Databot: Harnessing the power of the matrix.



Congratulations!

You completed “Data Source: Election DataBot.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



5 min estimated time

Visualizing Data: Introduction to Tilegrams

A new way to map data.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 07

Visualizing Data: Introduction to Tilegrams

A new way to map data.

Lesson overview

A free data visualization tool.

Short for “tiled cartogram,” a Tilegram is a map made of tiles where regions are proportional to a data set. Tilegrams can represent demographic data more accurately than traditional geographic maps, but still retain a familiar shape. For example, this Tilegram of the United States shows population and better illustrates how many people inhabit each region—yet the U.S. landform is still recognizable.

Tilegrams is not just for population-related data; you can use it to visualize almost any type of proportional comparison in a geographic region. Check out the tool, here https://pitchinteractiveinc.github.io/tilegrams/

1. Access our existing Tilegrams.
2. Refining an existing Tilegram.
3. Adding and removing tiles.
4. Exporting existing Tilegrams.

For more Data Journalism lessons, visit:

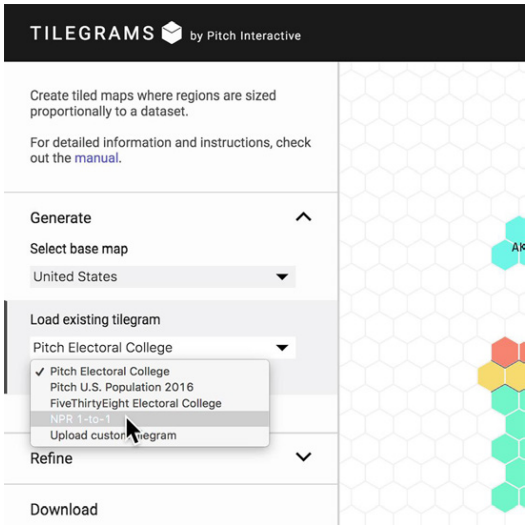
newsinitiative.withgoogle.com/training/course/data-journalism

Access our existing Tilegrams.

Developed by Pitch Interactive, Tilegrams are free for everyone to use.

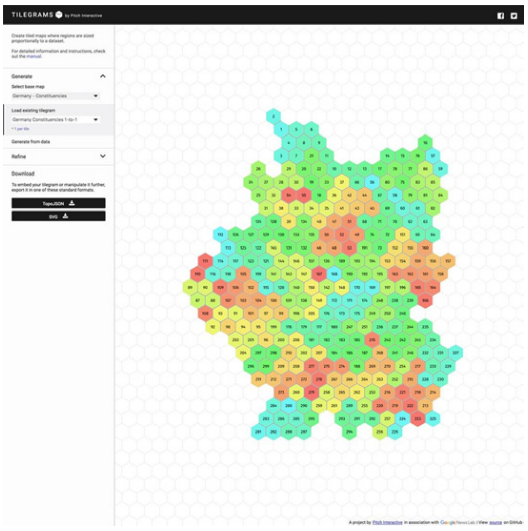
STEP 1 OF 2

You can browse the existing selection of Tilegrams, which includes maps of the U.S. from Pitch, NPR and FiveThirtyEight,



STEP 2 OF 2

There are also maps for Germany, France and a growing list of countries.

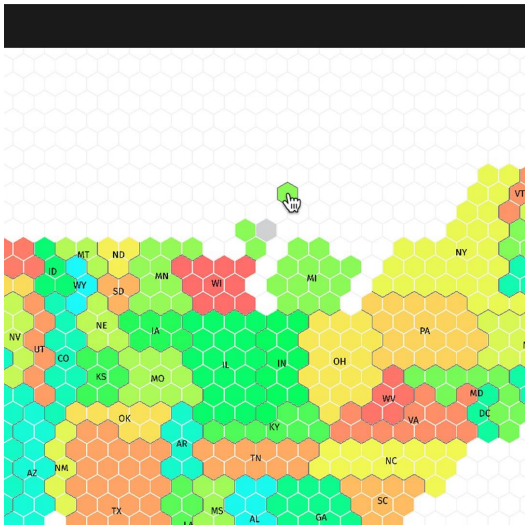


Refining an existing Tilegram.

Tilegrams use algorithms to compile visuals, so it's inevitable that they may display visual inaccuracies. To tell a complete and accurate story, there are many ways you can modify your Tilegram. If you've loaded one, there are many ways you can modify it.

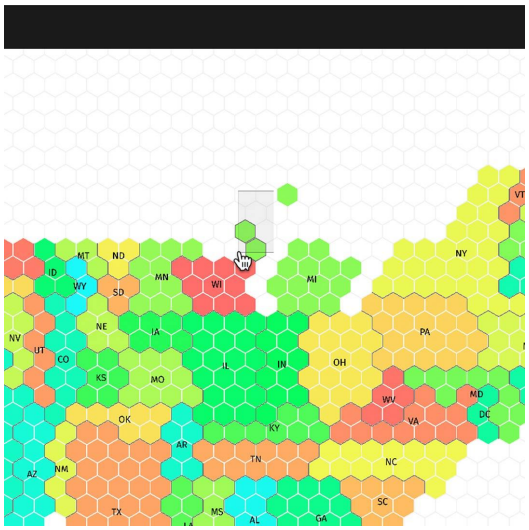
STEP 1 OF 4

Click and drag any tile to move it around.



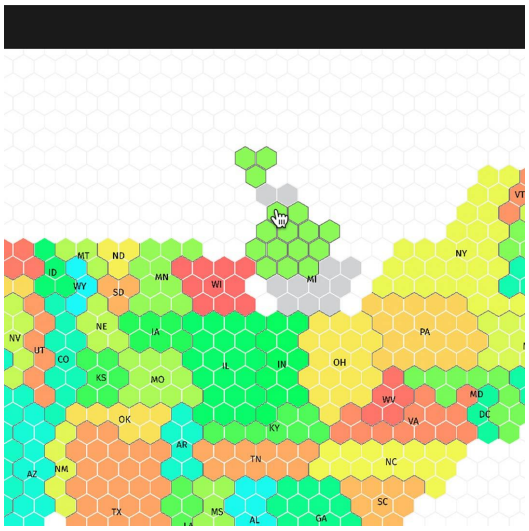
STEP 2 OF 4

To move multiple tiles, click and drag a rectangular marquee around them and then drag them around.



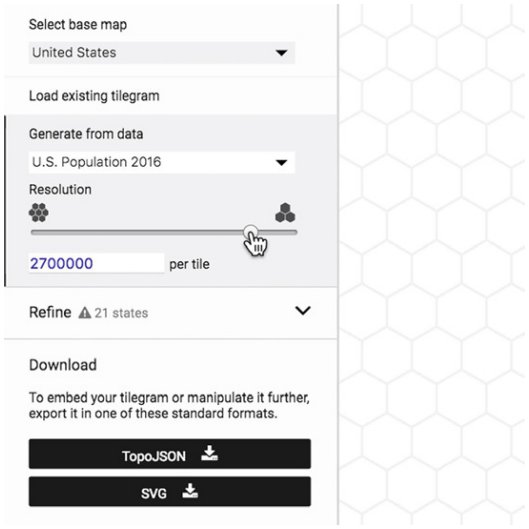
STEP 3 OF 4

To move a specific region, double click any tile in it to select them all and then drag the whole region.



STEP 4 OF 4

To adjust the resolution, click the **Generate from data** button and use the slider.



Adding and removing tiles.

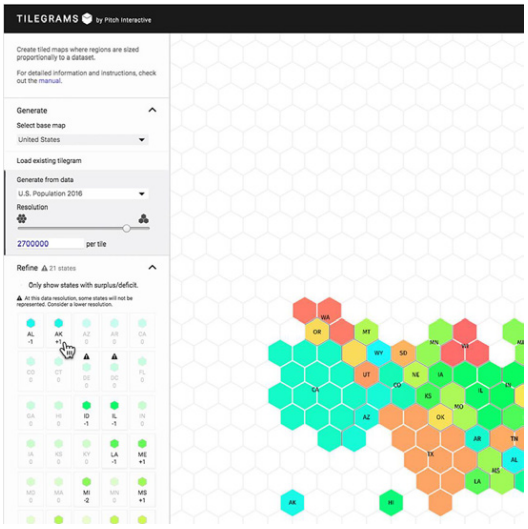
As you make refinements to your data, the map will change and may reveal some inaccuracies. This a normal occurrence in Tilegrams because it is difficult to produce both accurate and recognizable results. As you begin to make your own, you'll experience the trade-offs involved.

STEP 1 OF 4

Click **Refine.**

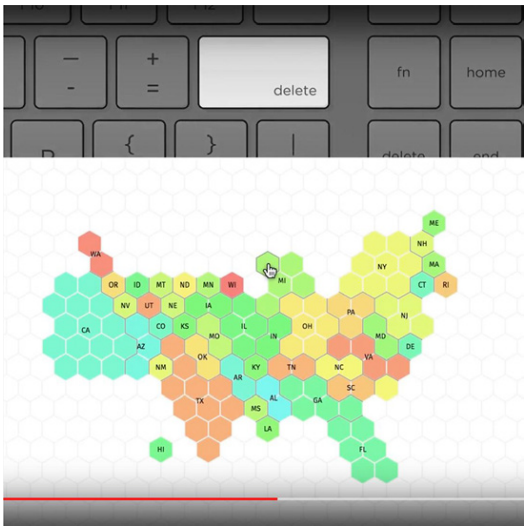
STEP 2 OF 4

Under **State Tiles** you'll see a list of each state with a number and a hexagon. The number indicates the difference between the number of tiles that region currently has on the map and how many it should have, based on the dataset. If the number is positive, that region has too many tiles on the map. If it's negative, it doesn't have enough. If there's a warning sign, then the region doesn't have enough data for even a single tile on the map at the chosen resolutions.



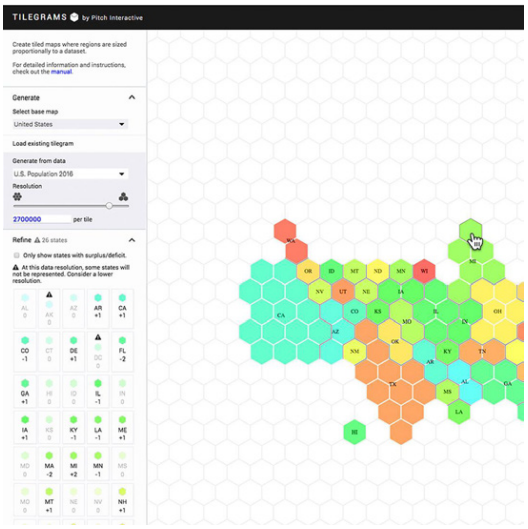
STEP 3 OF 4

To remove a tile from the map, click it and hit “delete” on your keyboard.



STEP 4 OF 4

To add a tile, select **Refine**, click on a hexagon from the left sidebar and drag it onto the map.

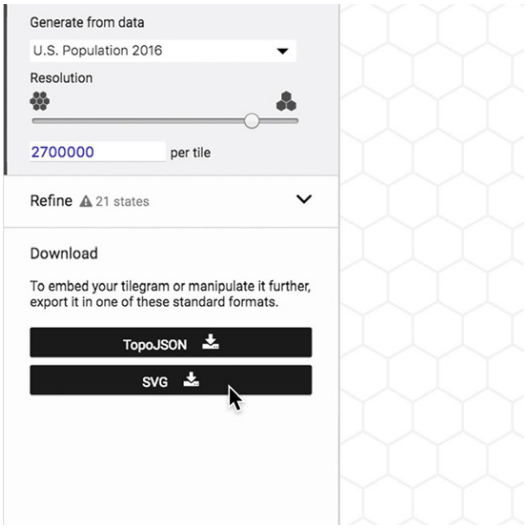


Exporting existing Tilegrams.

SINGLE STEP

When you are happy with your Tilegram, you can export it. For use in design software, choose the file type SVG using the buttons at lower left. Developers should select TopoJSON to export it into their web applications.

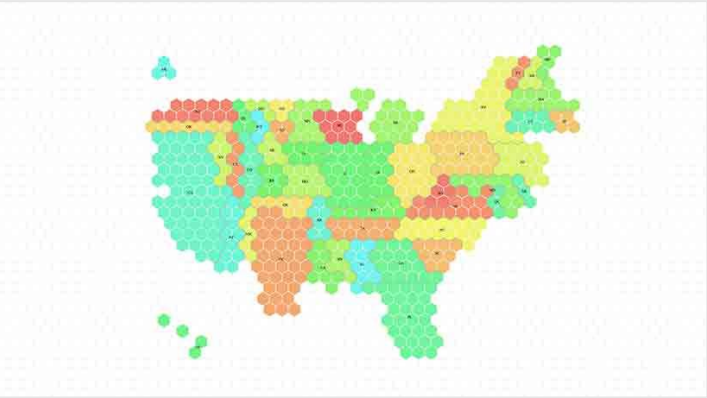
For more on Tilegram basics, see the tool and read our post on Medium.



Congratulations!

You completed “Visualizing Data: Introduction to Tilegrams.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



5 min estimated time

Visualizing Data: Advanced Tilegrams

Generate your own Tilegram from data.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 08

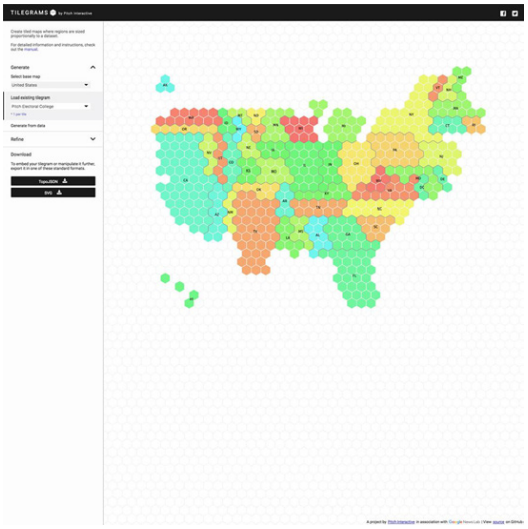
Visualizing Data: Advanced Tilegrams

Generate your own Tilegram from data.

Lesson overview

Generating new Tilegrams.

You can produce a truly custom Tilegram by modifying the data in the available base maps or by uploading your own data.



1 Starting with data.

2 Finding Geo ID codes for different regions.

3 Formatting your Custom CSV.

4 Making your Tilegram.

5 Adjusting and downloading.

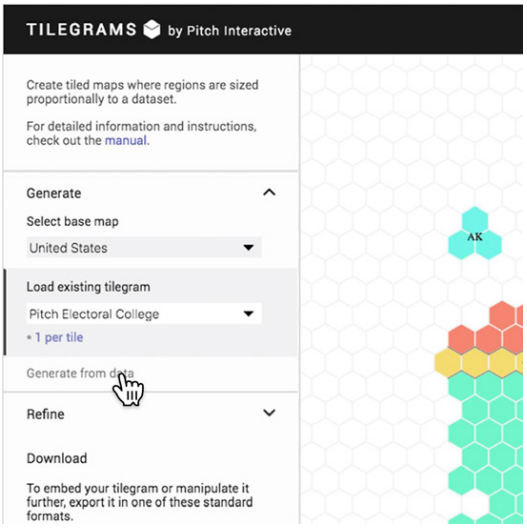
For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Starting with data.

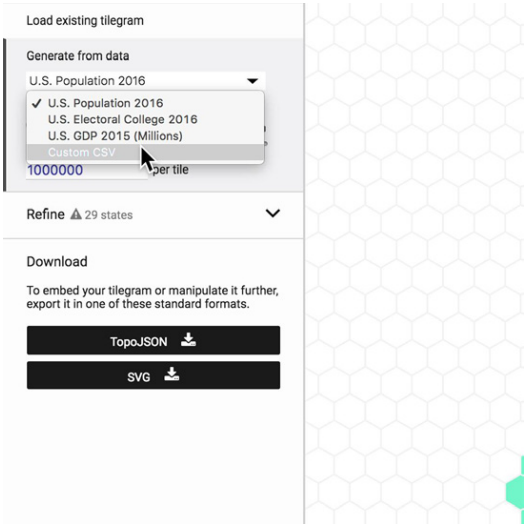
STEP 1 OF 3

Begin by selecting **Generate from data.**



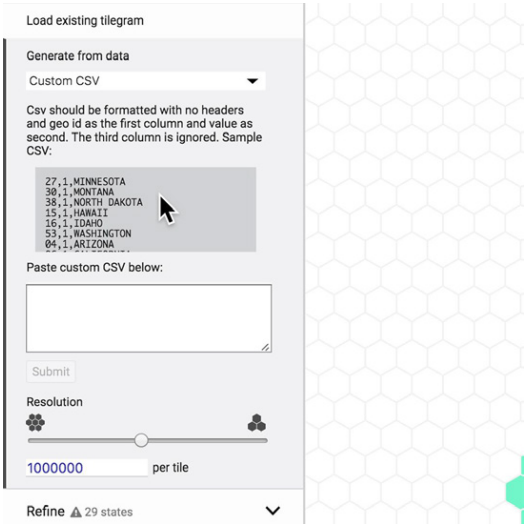
STEP 2 OF 3

Click on the dropdown menu, and you'll see that you can choose from a few data-driven U.S. Tilegram base maps.



STEP 3 OF 3

You can also choose **Custom CSV** to upload your own data set.



Finding Geo ID codes for different regions.

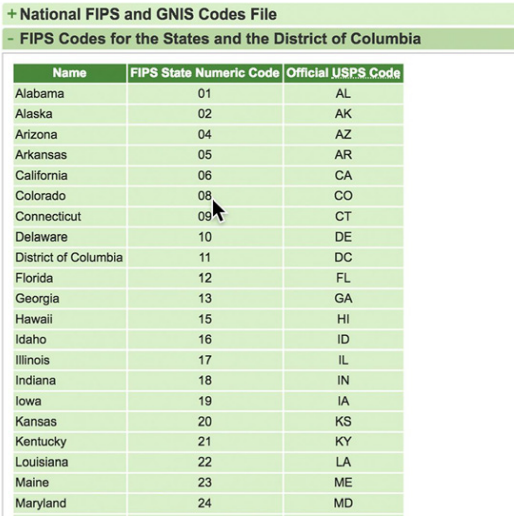
To generate a new Tilegram, you'll need to know its Geo ID coding; these are the inputs that give your Tilegram the right geographic shape. For example, the US uses FIPS state codes to identify its 50 states and additional territories. France and Germany use ISO-3166-2 codes.

STEP 1 OF 5

On the homepage, click **FIPS Codes for the States and the District of Columbia**.

STEP 2 OF 5

You'll find the individual state codes in the center column.



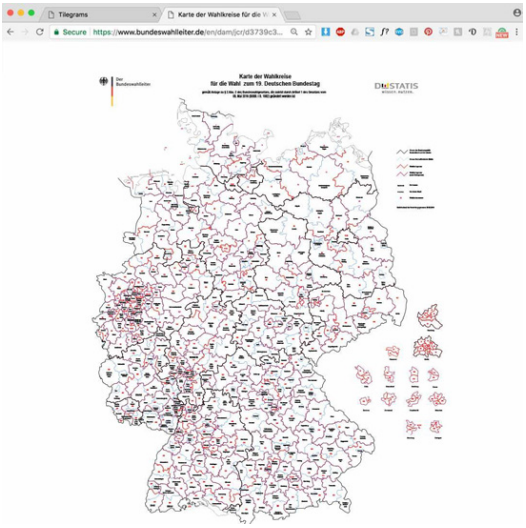
+ National FIPS and GNIS Codes File

- FIPS Codes for the States and the District of Columbia

Name	FIPS State Numeric Code	Official USPS Code
Alabama	01	AL
Alaska	02	AK
Arizona	04	AZ
Arkansas	05	AR
California	06	CA
Colorado	08	CO
Connecticut	09	CT
Delaware	10	DE
District of Columbia	11	DC
Florida	12	FL
Georgia	13	GA
Hawaii	15	HI
Idaho	16	ID
Illinois	17	IL
Indiana	18	IN
Iowa	19	IA
Kansas	20	KS
Kentucky	21	KY
Louisiana	22	LA
Maine	23	ME
Maryland	24	MD

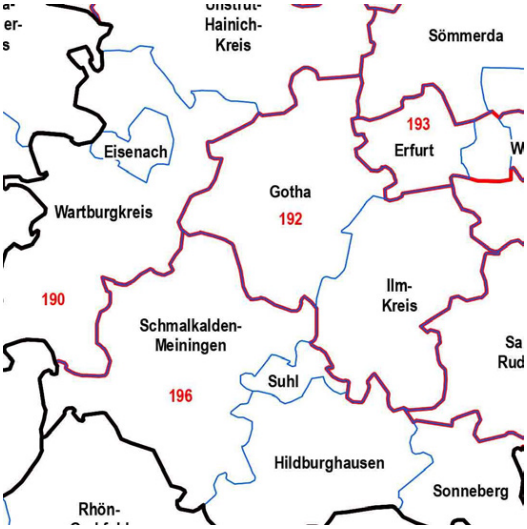
STEP 3 OF 5

Click the Germany Geo ID link above and you'll arrive at a map of German constituencies



STEP 4 OF 5

Zoom in on the map to reveal the code for each constituency



STEP 5 OF 5

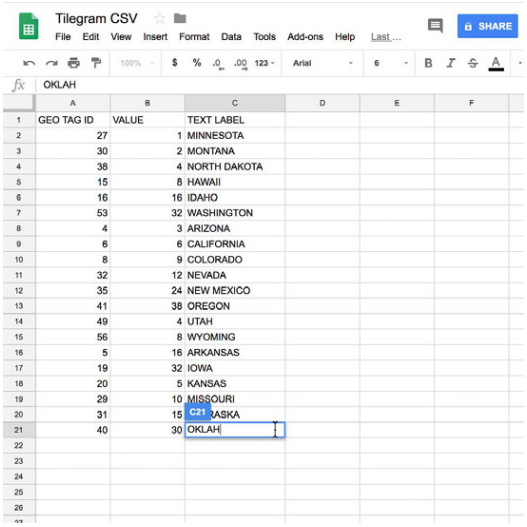
Click the France Geo ID link above and you'll find the region codes under the column labeled GN

	ISO-3166-2	Fips	GN	Name of Subdivision	Type	Capital	Po
1	ARA	C2	84	Auvergne-Rhône-Alpes	region	Lyon	7
2	BFC	C3	27	Bourgogne-Franche-Comté	region	Dijon	2
3	BRE	A2	53	Bretagne	region	Rennes	3
4	COR	A5	94	Corse	territorial collectivity	Ajaccio	
5	CVL	A3	24	Centre-Val de Loire	region	Orléans	2
6	GES	C4	44	Grand Est	region	Strasbourg	5
7	HDF	C5	32	Hauts-de-France	region	Lille	5
8	IDF	A8	11	Île-de-France	region	Paris	11
9	NAQ	C7	75	Nouvelle-Aquitaine	region	Bordeaux	5
10	NOR	C6	28	Normandy	region	Rouen	3
11	OCC	C8	76	Occitanie	region	Toulouse	5
12	PAC	B8	93	Provence-Alpes-Côte d'Azur	region	Marseille	4
13	PDL	B5	52	Pays de la Loire	region	Nantes	3
no longer exists:							
14	A	C1	C1	Alsace	region	Strasbourg	1
15	B	97	97	Aquitaine	region	Bordeaux	3
16	C	98	98	Auvergne	region	Clermont-Ferrand	1
17	D	A1	A1	Bourgogne	region	Dijon	1
18	G	A4	A4	Champagne-Ardenne	region	Châlons-	

Formatting your Custom CSV.

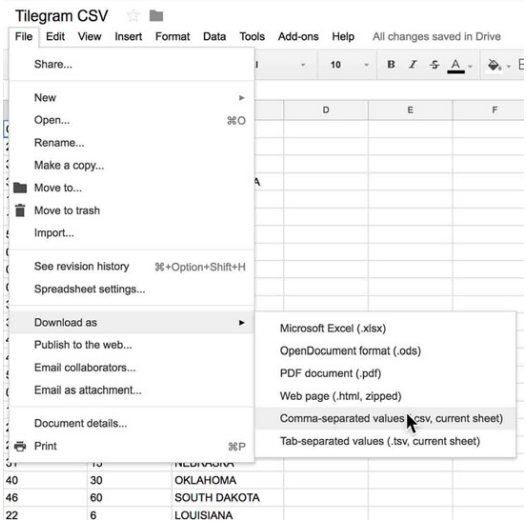
STEP 1 OF 2

Open a spreadsheet editor. To create your Comma Separated Values (CSV) data source, you will use a three-column model. Column 1: The Geo ID tag for the area. This tells our software “where.” Column 2: The value you want to assign. This tells our software “how many.” For example, population, GDP, etc. Column 3: A text label describing the territory such as “California” or “New York”. This does not affect the shape of the Tilegram in any way.



STEP 2 OF 2

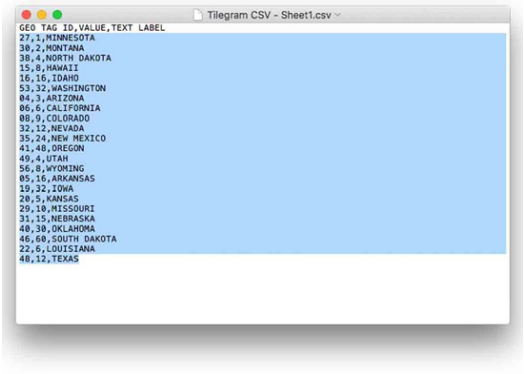
Export as a CSV.



Making your Tilegram.

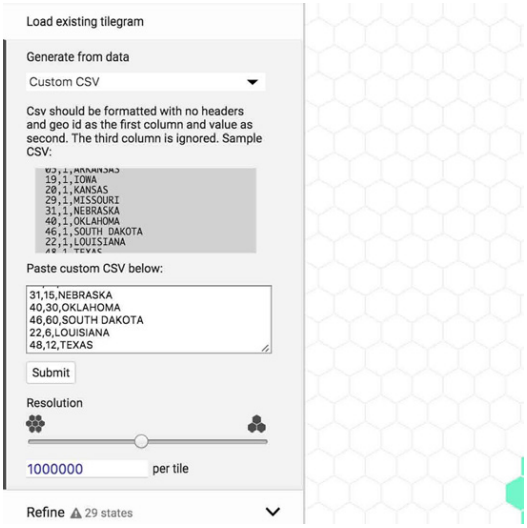
STEP 1 OF 3

Once your data source is properly formatted and ready, select all and copy.



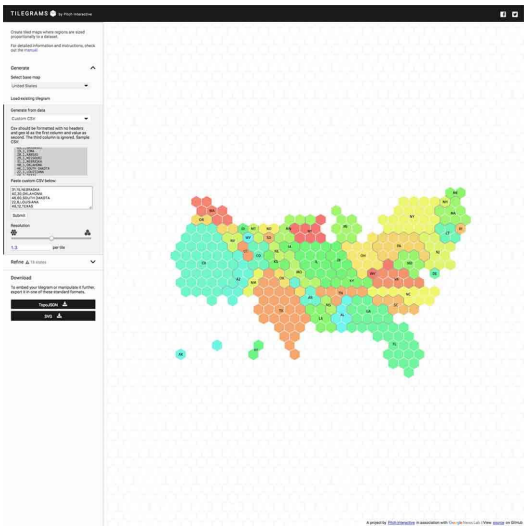
STEP 2 OF 3

Paste the values into the window labeled **Paste Custom CSV below:**.



STEP 3 OF 3

Your Tilegram should begin automatically generating in the window to the right.



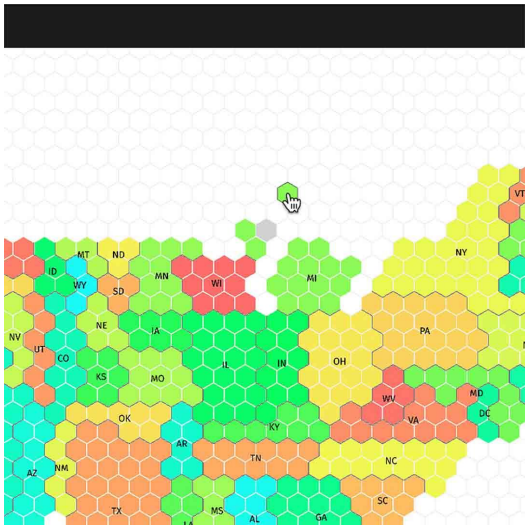
Adjusting and downloading.

Now, you can follow the same steps you would use for an existing Tilegram.

For a detailed look at how Tilegram was created, read Pitch Interactive's blog post.

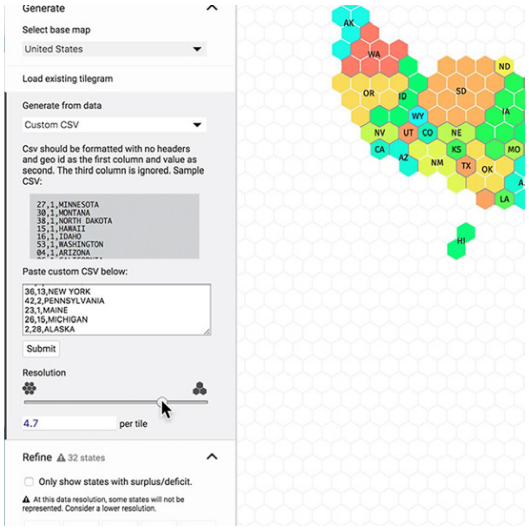
STEP 1 OF 2

Drag tiles around.



STEP 2 OF 2

Adjust the resolution to find the right balance to keep your creation statistically accurate and geographically recognizable.



Congratulations!

You completed “Visualizing Data: Advanced Tilegrams.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:

5 min estimated time

Google Data GIF Maker

Visualize data comparisons in minutes.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

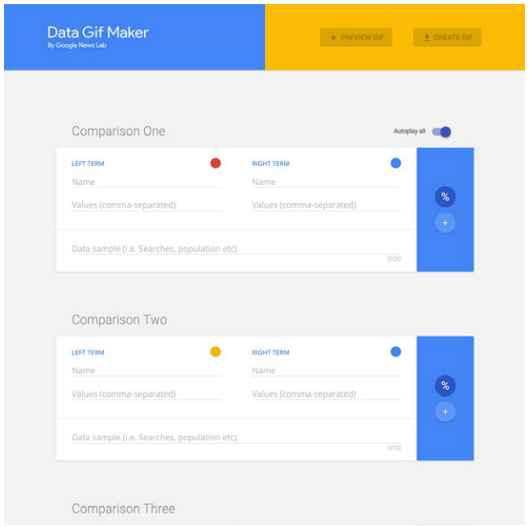
LESSON 09

Google Data GIF Maker

Visualize data comparisons in minutes.

Lesson overview

A simple tool for showing data comparisons.



Data visualizations are an essential storytelling tool in journalism, and though they are often intricate, they don't have to be complex. In fact, with the growth of mobile devices as a primary method of consuming news, data visualizations can be simple images formatted for the device they appear on.

The Google Data Gif Maker helps journalists make visuals that show share of interest for two competing topics. It is designed for desktop use on Chrome and may not function properly on mobile devices or other browsers. To begin, go to datagifmaker.withgoogle.com, where you can make up to five different GIFs at a time.

1. Choose two data points.
2. Customize your design.
3. To create your GIF, select **Preview GIF.**
4. Download your GIF.

For more Data Journalism lessons, visit:

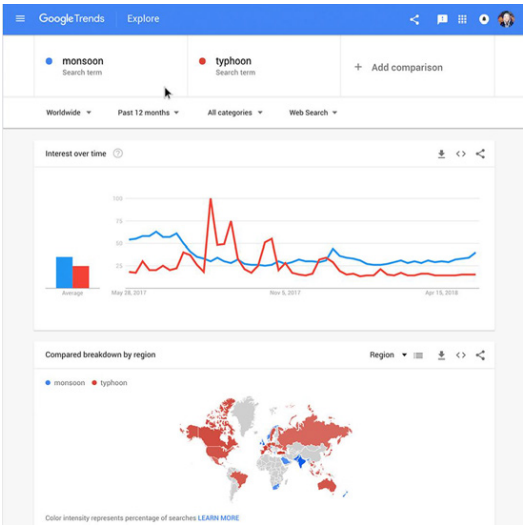
newsinitiative.withgoogle.com/training/course/data-journalism

Choose two data points.

Data GIF Maker is ideal for comparing the relative search interest for two competing terms using the Google Trends **Explore** function.

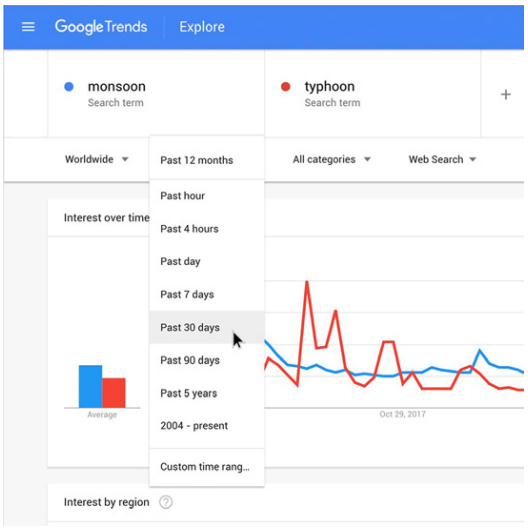
STEP 1 OF 4

In Google Trends, enter two competing terms, such as **Monsoon** and **Typhoon**.



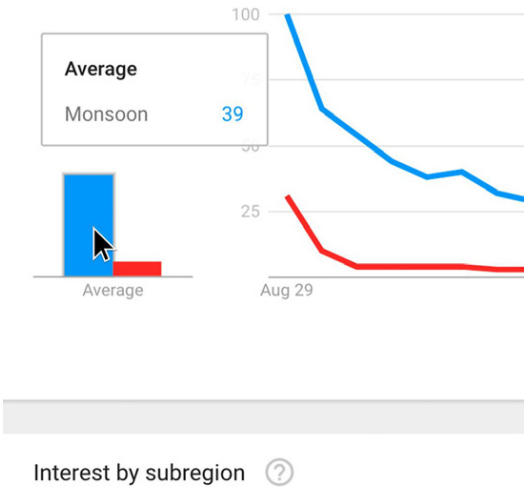
STEP 2 OF 4

Specify the time range and region you want to compare, such as **Past 30 days** and **India**.



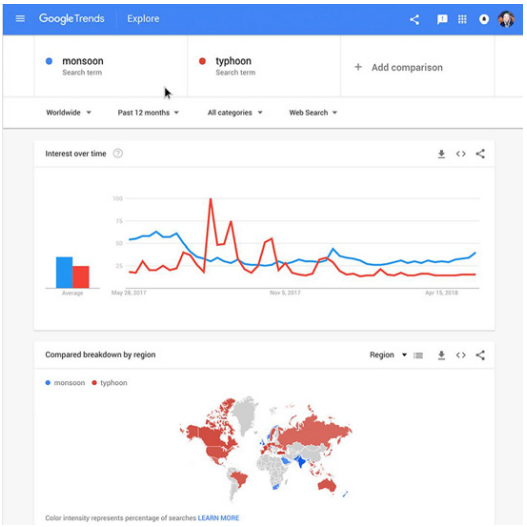
STEP 3 OF 4

You'll see the average relative search interest based on your inputs.



STEP 4 OF 4

You can also use Data GIF Maker to compare any two data points of your choosing such as polling numbers, sales figures, movie ratings, etc. simply by entering the two numbers.

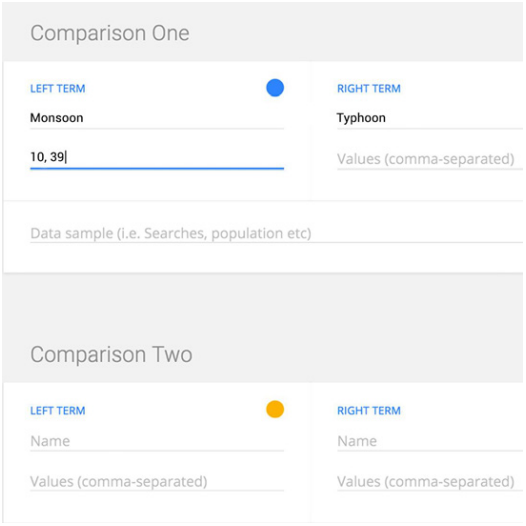


Customize your design.

Now that you've chosen your data points, go to datagifmaker.withgoogle.com to begin creating your GIF.

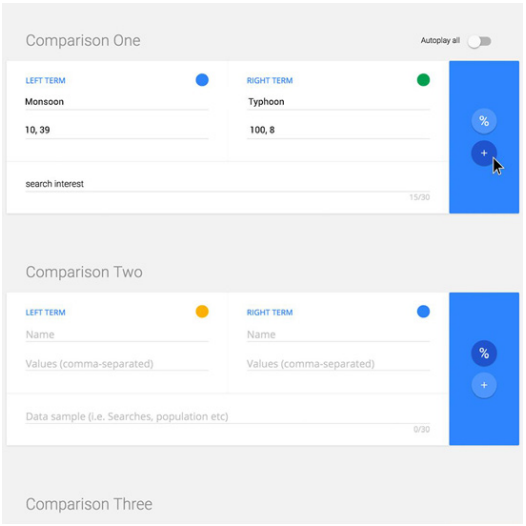
STEP 1 OF 3

Add the name of each of your two data points, the numbers representing your data, and explanatory text at the bottom such as "search interest." Do not use commas within numbers: for example, 1,000,000 would be entered as 1000000. However, you can use comma-separated values to create a toggle effect in the animation.



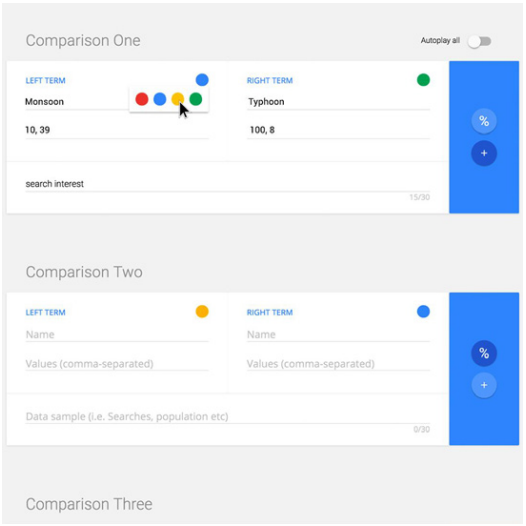
STEP 2 OF 3

Choose whether you want to show terms as numbers or percentages by clicking either the **+** or **%** icon. For percentages, just enter your values and the app automatically calculates the % ratio for you.



STEP 3 OF 3

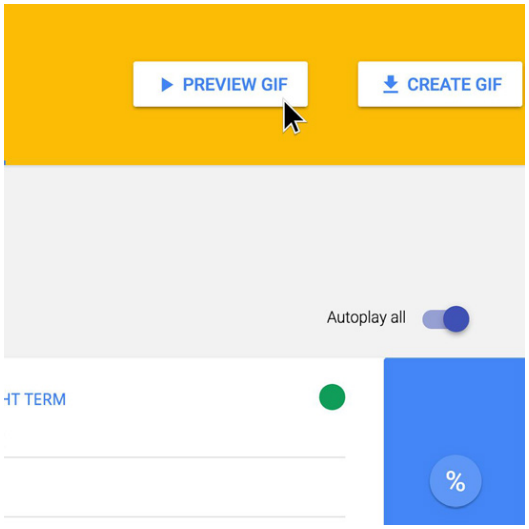
Next, select colors by clicking on the colored dots.



To create your GIF, select **Preview GIF**.

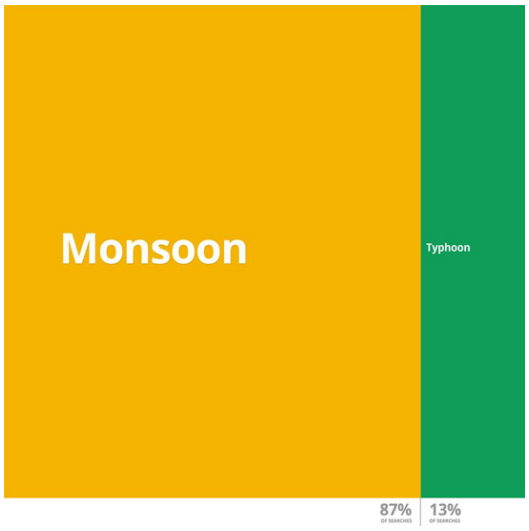
STEP 1 OF 3

To preview single or multiple GIFs, click on **Preview GIF**.



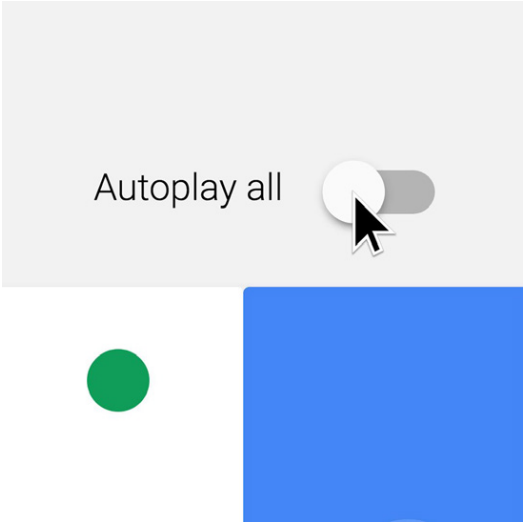
STEP 2 OF 3

The tool will automatically open a new browser window and show you up to five GIFs you've created.



STEP 3 OF 3

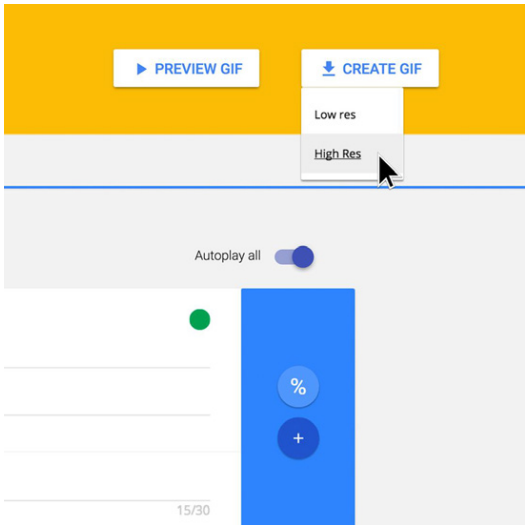
If you'd like to preview each segment or GIF separately, just click **Preview GIF** with **Autoplay All** turned off and then hit the **spacebar** to advance through each visual, step by step.



Download your GIF.

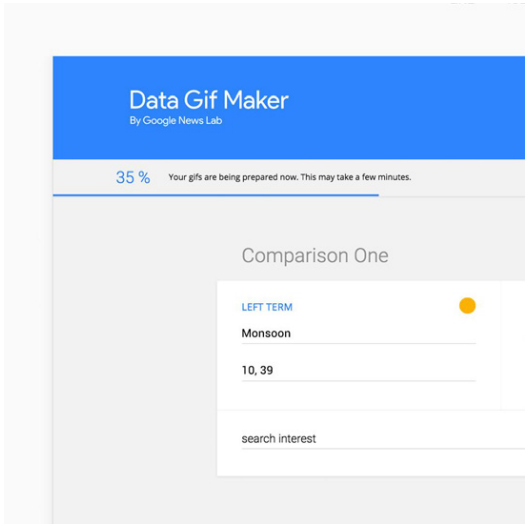
STEP 1 OF 3

When you're satisfied with your creation, click **Create GIF**.



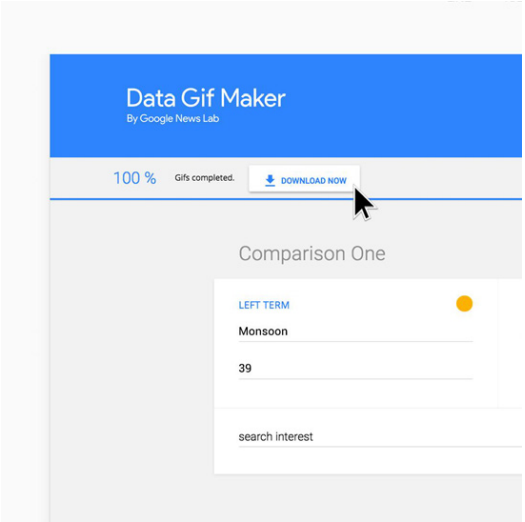
STEP 2 OF 3

The high-resolution download may take a few minutes, but it provides better quality for social sharing. To speed up the process, we recommend that you leave your browser window open on your desktop while it's creating the GIFs.



STEP 3 OF 3

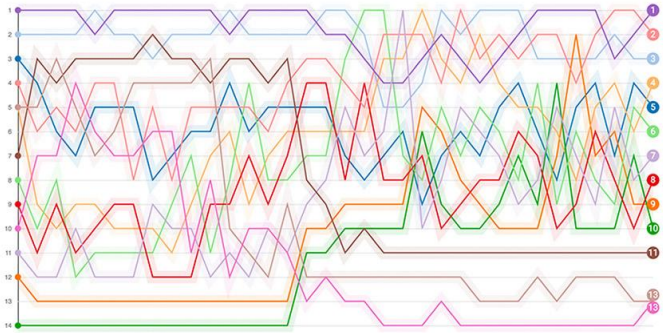
Once it's 100%, click **Download Now**.



Congratulations!

You completed “Google Data GIF Maker.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



7 min estimated time

Flourish: Data Visualization Templates

A simple tool to help newsrooms create beautiful graphics.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

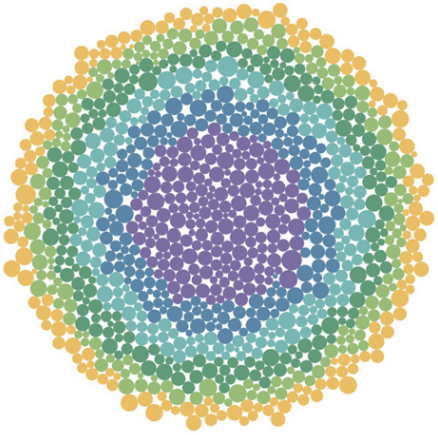
LESSON 10

Flourish: Data Visualization Templates

A simple tool to help newsrooms create beautiful graphics.

Lesson overview

Free data visualization templates for newsrooms.



With its journalism roots, Flourish is designed to help newsrooms increase the quality and quantity of their data stories. Built by London data studio Kiln, Flourish offers beautifully designed data visualization templates. Google News Initiative partners with Flourish to offer the tool for free editorial use in newsrooms. You can customize many aspects of the templates with no coding experience. Or, your developers can use Flourish tools to create and share templates with other publications.

1 Sign up for a free account.

2 Get acquainted with Flourish.

3 Prepare your data set.

4 Starting your project.

5 Customize your visualization.

6 Preview your project on multiple screens.

7 Publish your visualization.

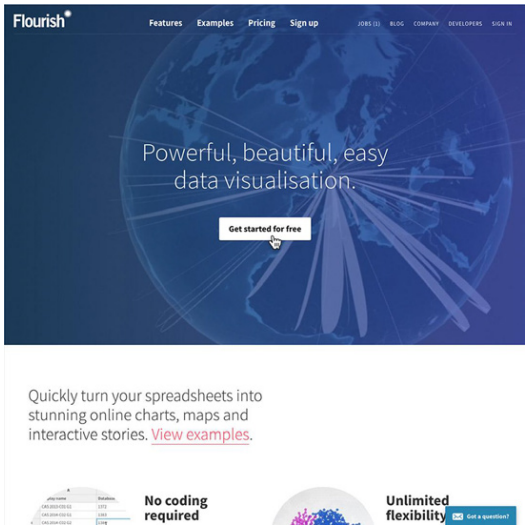
For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Sign up for a free account.

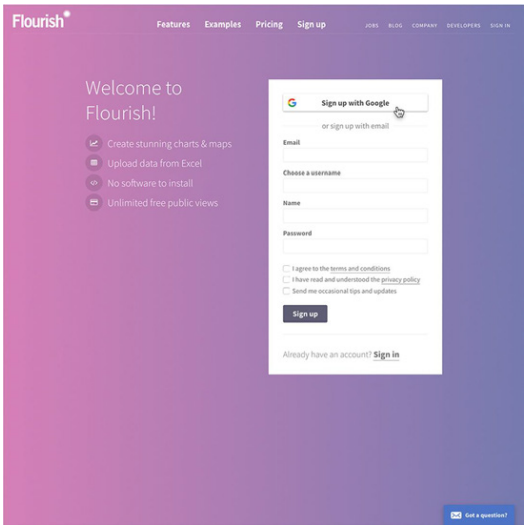
STEP 1 OF 3

To begin, click **Get started for free.**



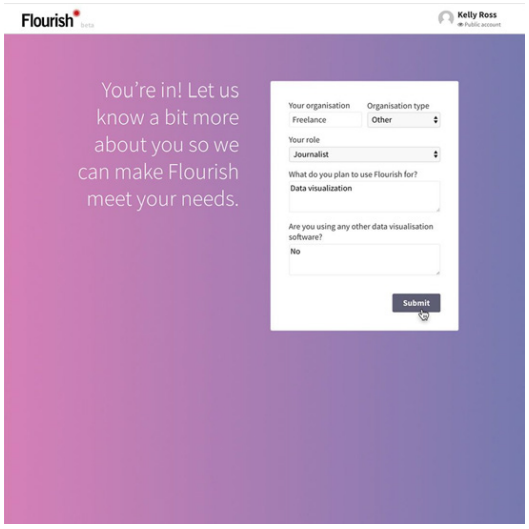
STEP 2 OF 3

Sign in with Google or enter your name and email to create an account.



STEP 3 OF 3

Answer a few simple questions and click **Submit.**

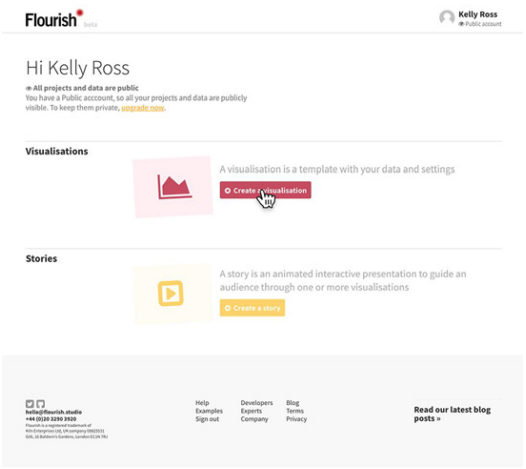


Get acquainted with Flourish.

There are several different types of templates currently available, with more being added all the time. From “horse race” visuals that compare multiple data points over time to renderings of the globe that show relational data, you can choose the right type of visual to tell your story.

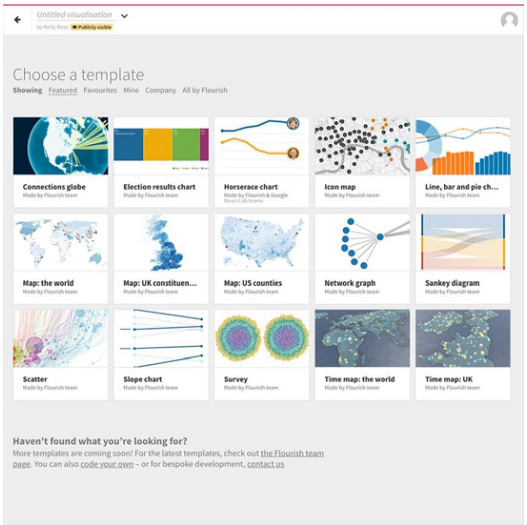
STEP 1 OF 2

To get started, click **Create a visualization**.



STEP 2 OF 2

Find the best template for your story in a growing collection.

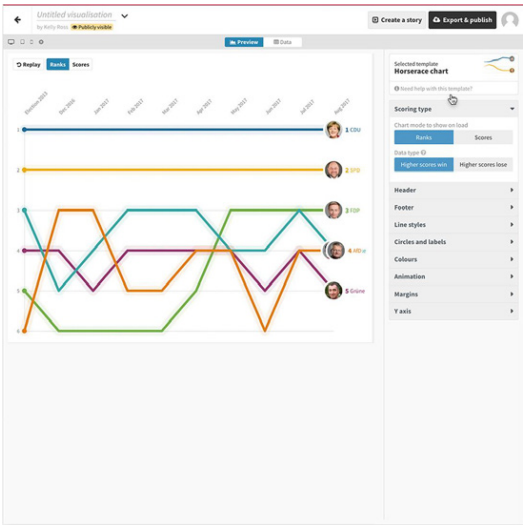


Prepare your data set.

Flourish works with Excel spreadsheets and Comma Separated Value (CSV) files. To save time in the long-term, make sure your data set is organized and free of errors.

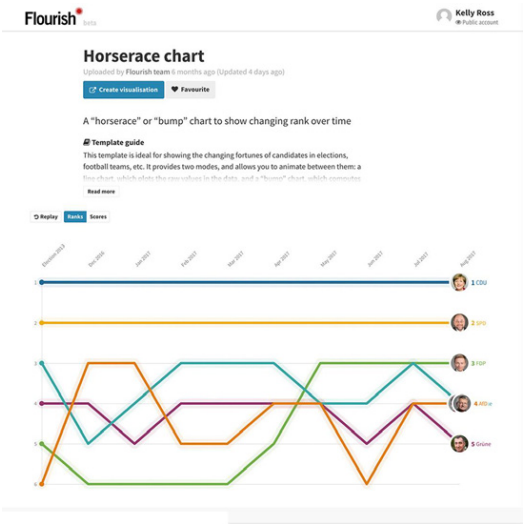
STEP 1 OF 4

To learn more about a template and whether it's right for the type of data you want to visualize, click **Need help with this template?**



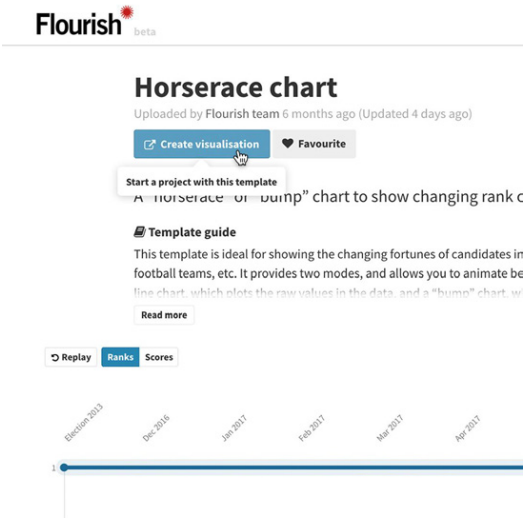
STEP 2 OF 4

The Template Guide is filled with details about best uses, data requirements, and tips.



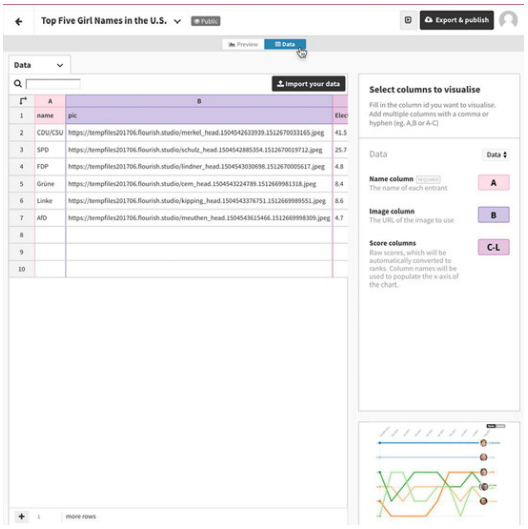
STEP 3 OF 4

Once you choose a template, click on **Create Visualization**.



STEP 4 OF 4

Click **Data** to see how to format your CSV properly.

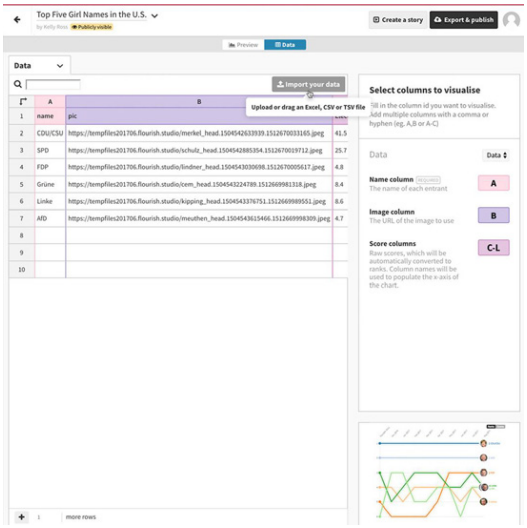


Starting your project.

Let's say you're writing a trend piece analyzing U.S. baby girls' names over time and you want to use a "horse race" template.

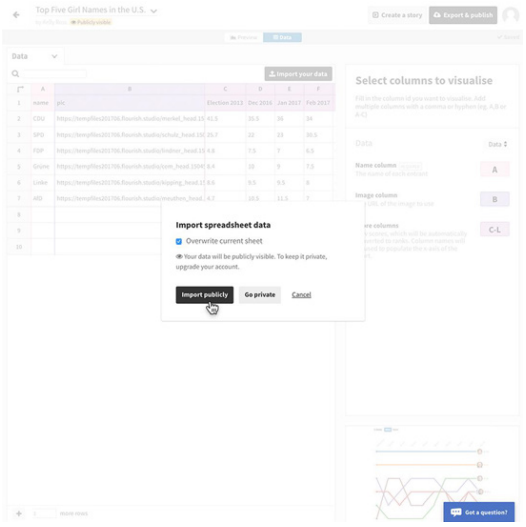
STEP 1 OF 5

Select **Import your data** and be sure to name your data sheet.



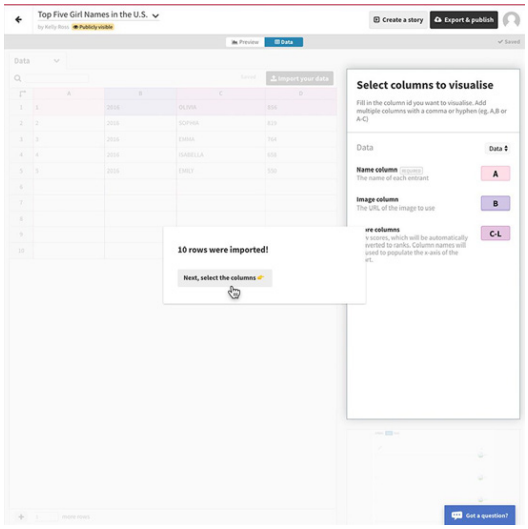
STEP 2 OF 5

Make sure that **Overwrite current sheet** is selected, then click **Import.**



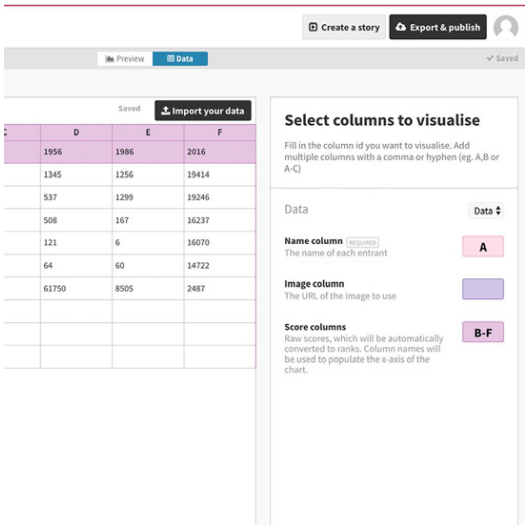
STEP 3 OF 5

Click **Next, select the columns**.



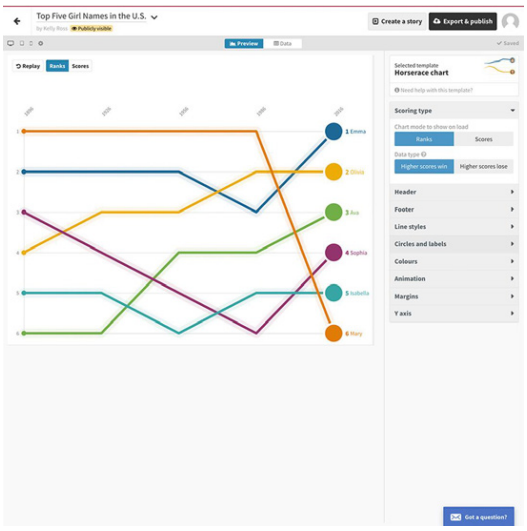
STEP 4 OF 5

Then label the columns you want to visualize. If there is an image you want to associate with the data and the template you chose allows it, click on the **Image column** field and enter the header letter of the column that contains your image URLs. If there's no image, leave the Image column field blank.



STEP 5 OF 5

Click **Preview** to see your data visualized.

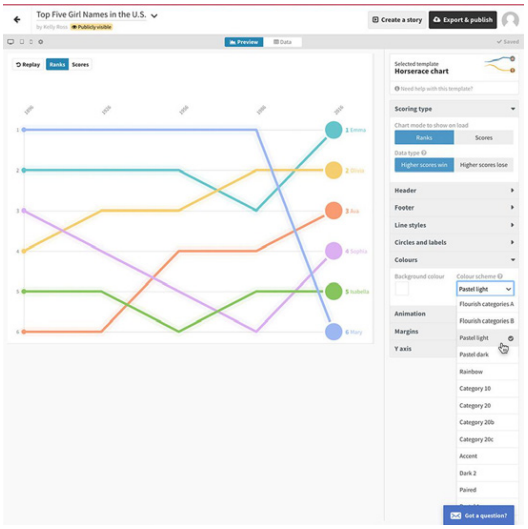


Customize your visualization.

Each Flourish template has multiple design elements you can customize to make your project unique. From colors and shading to font sizes and curve shapes, there are dozens of choices, all created by skilled designers, so no matter what you choose, your visualization will look attractive and professional.

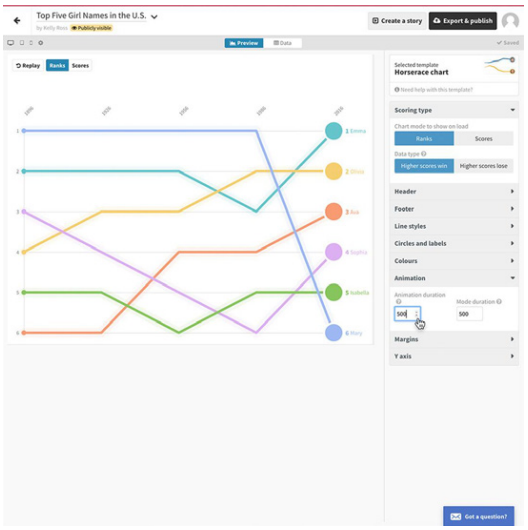
STEP 1 OF 3

Let's say you like the shape of your graphic but you want to change the colors. Click **Colours** to see a designer selection of color palettes. We'll select **Pastel light**.



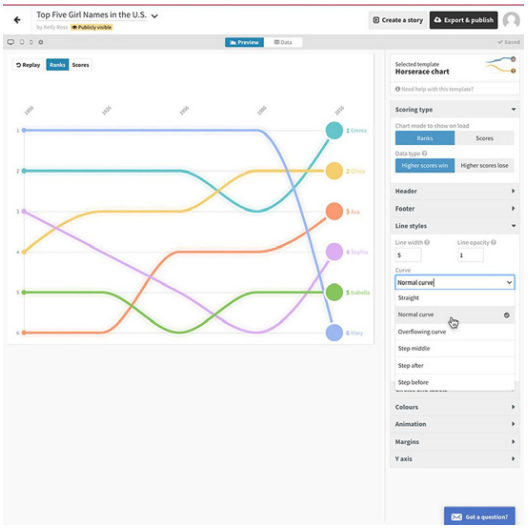
STEP 2 OF 3

To change the speed that the graphic populates, click **Animation**. Then click **Replay** to preview the motion.



STEP 3 OF 3

Altering the shape of the lines is also easy. Simply click on **Curve** under the **Line Styles** menu item and scroll through until you see one you like.

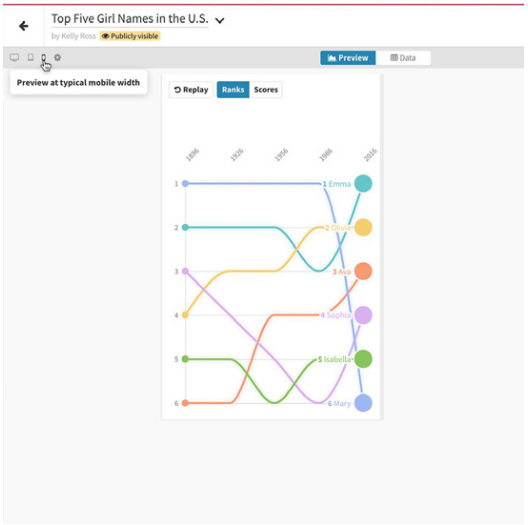


Preview your project on multiple screens.

SINGLE STEP

With more and more readers using mobile devices today, it's very important to preview your data visualization on different screen sizes. A font size that looks great on a desktop may be unreadable on a mobile phone. A graphic that looks beautiful on a phone may look sparse on a full-size screen. Flourish makes it easy to see just how your visualization will appear.

To preview your project on each screen size, click the icons in the upper left corner.



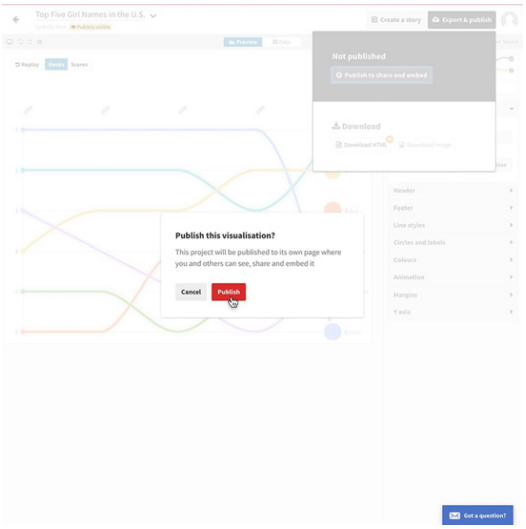
Publish your visualization.

When you're satisfied with your creation, click **Publish** to save it and embed it to your site. Flourish outputs can be published from your own server and will work forever.

If you're using the free version of this program, your visualization will appear with Flourish branding. Publishers using the full, paid version can download the HTML file and embed it without Flourish branding.

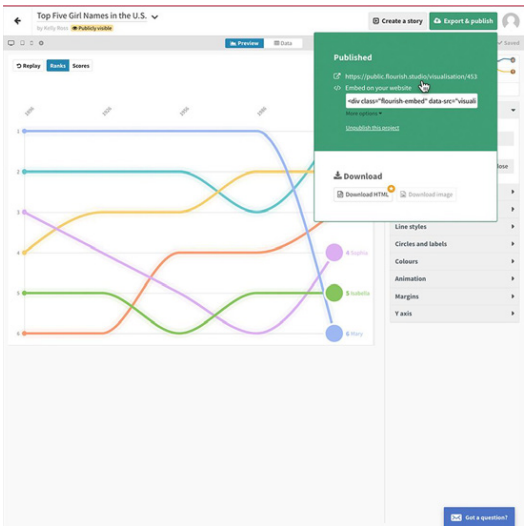
STEP 1 OF 2

Click **Export & publish** > **Publish to share and embed** and then confirm by selecting **Publish.**



STEP 2 OF 2

Click on the URL to view your published animation.



Congratulations!

You completed “Flourish: Data Visualization Templates.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:

6 min estimated time

Google Trends: See what's trending across Google Search, Google News and YouTube

Find stories and terms people are paying attention to.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 11

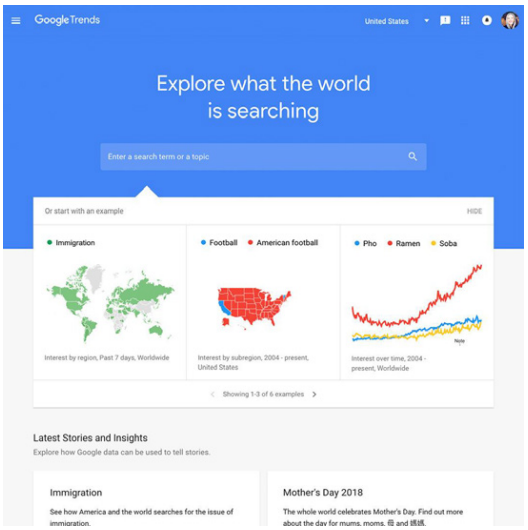
Google Trends: See what's trending across Google Search, Google News and YouTube

Find stories and terms people are paying attention to.

Lesson overview

How Trends works.

Google Trends allows you to see the topics people are—or aren't—following, almost in real time. Journalists can use this information to explore potential story ideas, and can also feature Trends data within news stories to illustrate a general level of interest in, say, a political candidate, social issue or event.



The Google Trends homepage features clustered topics that Google detects are related and trending together on either Search, Google News, or YouTube. Trending Stories are collected based on Google's Knowledge Graph technology, which gathers search information from those three Google platforms to detect when stories are trending based on the relative spike in volume and the absolute volume of searches.

1 On the homepage.

2 Exploring your topics.

3 Comparing groups of terms.

4 Explore by language.

5 Narrowing or expanding your search by geography and time.

6 One final Geo Search check: reverse image search.

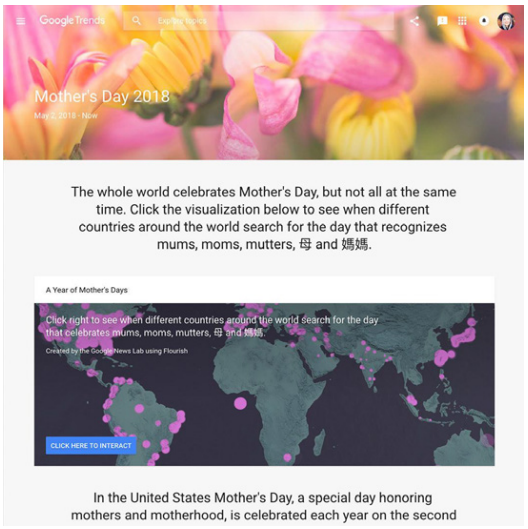
For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

On the homepage.

SINGLE STEP

The Trends homepage indicates what topics are trending right now, which can be helpful when choosing a story to write about. To explore how Google data can be used to tell stories, click one of the examples under **Latest Stories and Insights**.



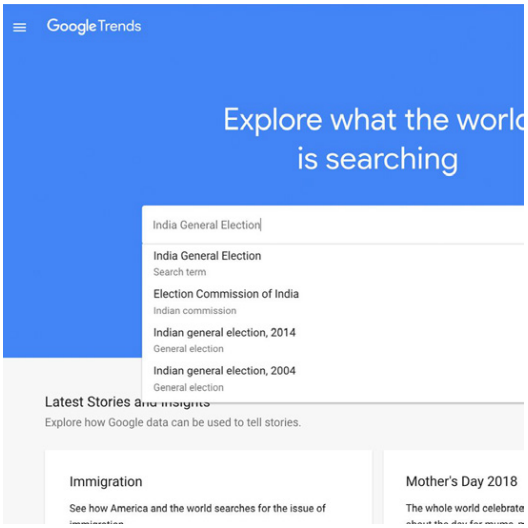
Exploring your topics.

In addition to what you see on the homepage, you can explore and gauge interest in virtually any topic, which can be useful for developing story ideas.

Let's say you're doing a story on the US presidential election, and want to compare the election process with that of India's General elections happening in the same year. Just use the Trends search bar:

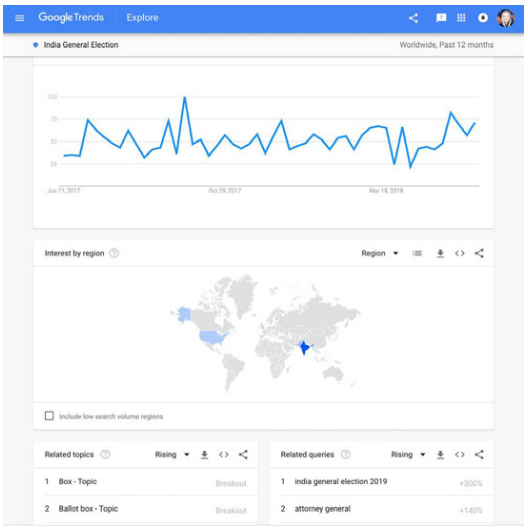
STEP 1 OF 5

Enter the India General Election in the Google Trends search bar at the top of the homepage.



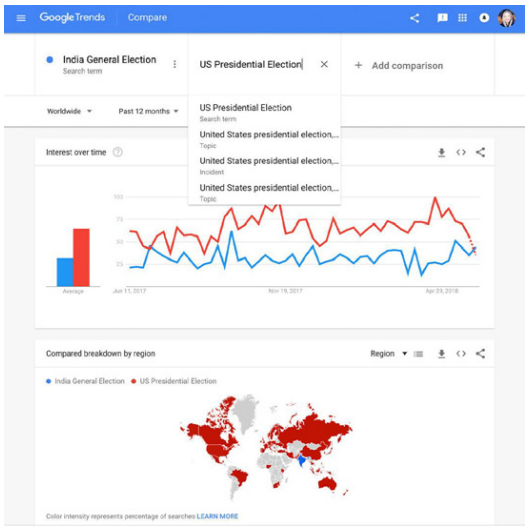
STEP 2 OF 5

Press **Return** to see your results.



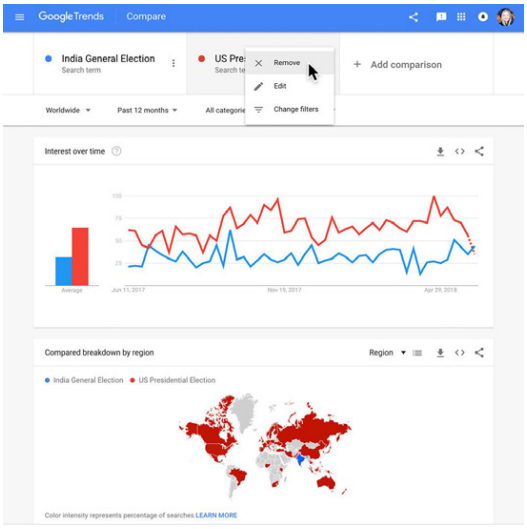
STEP 3 OF 5

Your results page will feature data visualizations for **Interest over time**, **Interest by subregion** and lists of **Related topics** and **Related queries**.



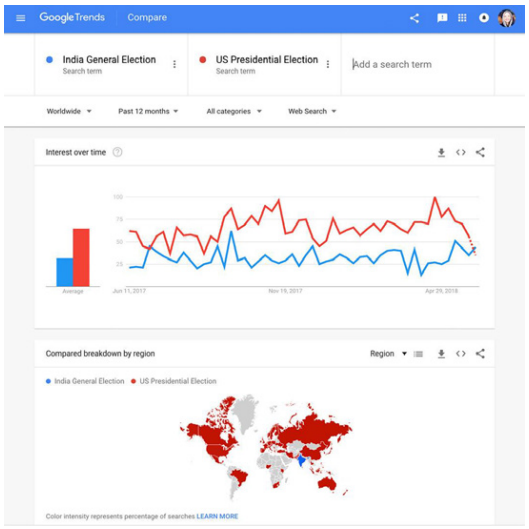
STEP 4 OF 5

You can add topics for simultaneous comparison by clicking **+ Compare** and typing in your search term.



STEP 5 OF 5

To remove or edit a topic, hover over its box and click the three dots that appear. Then click **Remove**.

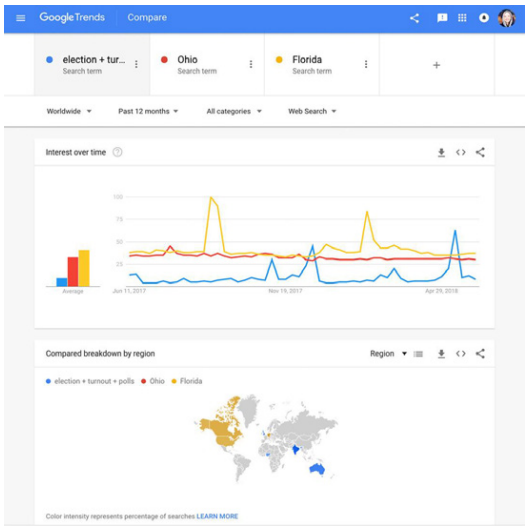


Comparing groups of terms.

SINGLE STEP

You can compare up to five groups of terms at one time and up to 25 terms in each group. Group terms together by using a + symbol.

This could be useful to compare election candidates, or to look at nominees in an awards show.

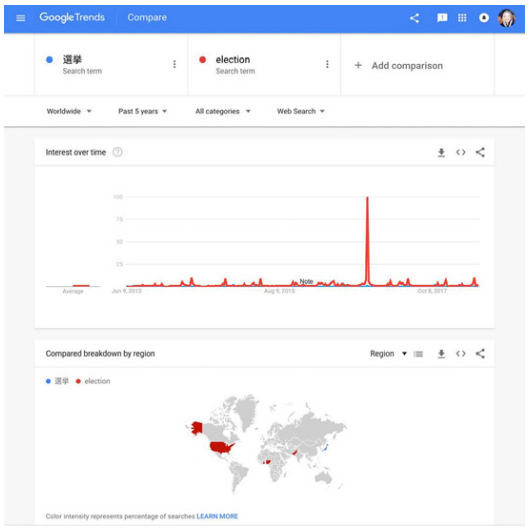


Explore by language.

SINGLE STEP

If you enter a search term using non-Latin characters, you'll see data from all countries or regions that use those characters. For example, if you enter 選挙, the Japanese characters for election, your results will not include much data from the United States.

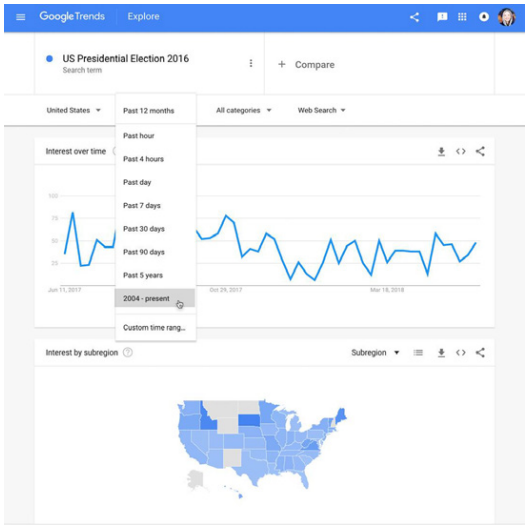
You can easily compare searches of the same term in different languages. Using the election example, just enter search term 選挙 in the first search box, then enter election in the **+ Compare** box.



Narrowing or expanding your search by geography and time.

SINGLE STEP

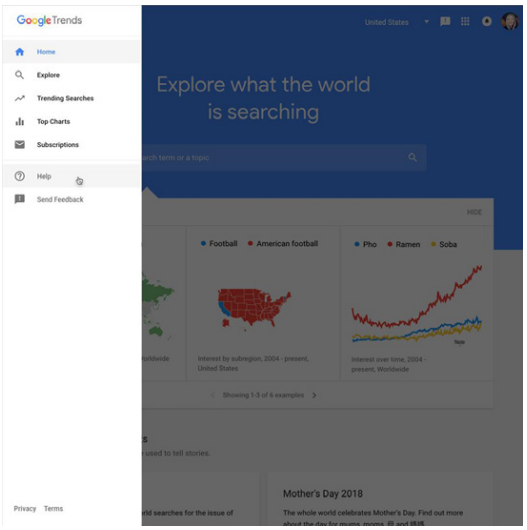
On the results page under the search bar, use the **Worldwide** and **Past 12 months** dropdowns to refine your exploration further by region and/or time period.



More about Trends.

SINGLE STEP

Information on how to better understand Google Trends data and read its charts can be found in our Google Trends: Interpreting the Data tutorial, and also in the Trends Help Center accessible from the menu in the upper left of the homepage.



Congratulations!

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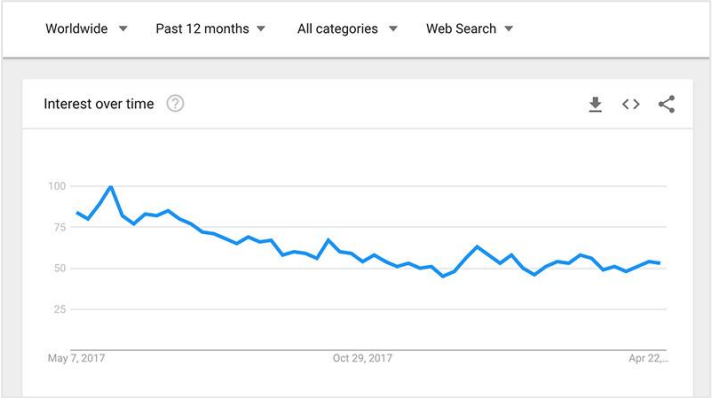
To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



4 min estimated time

Google Trends: Understanding the data

How to interpret Trends results.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 12

Google Trends: Understanding the data

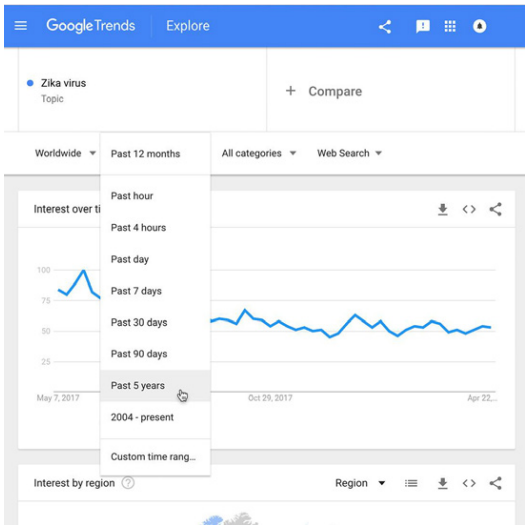
How to interpret Trends results.

Lesson overview

How Trends works.

Google Trends analyzes a sample of Google web searches to determine how many searches were done over a certain period of time.

For example, if you're doing a story about the zika virus and you want to see if there was a recent uptick in searches on the topic, select **Past 5 years**. Trends analyzes a sample of all searches for "zika virus" within those parameters.



1. Reading the Interest Over Time graph.
2. Finding the most searched topic in every region or country.
3. Rising data.
4. Reading the Related searches chart.
5. Data that is excluded.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

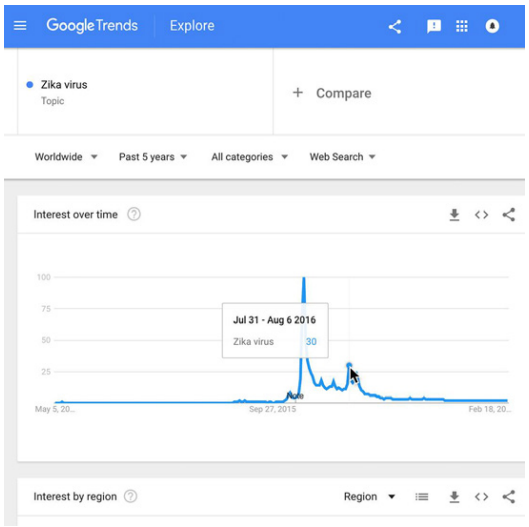
Reading the Interest Over Time graph.

SINGLE STEP

When you search for a term on Trends, you'll see a graph showing the term's popularity over time in (nearly) real time. Hovering your mouse over the graph reveals a number, which reflects how many searches have been done for the particular term relative to the total number of searches done on Google.

Numbers on the graph don't represent absolute search volume numbers, because the data is normalized and presented on a scale from 0-100, where each point on the graph is divided by the highest point, or 100. The numbers next to the search terms at the top of the graph are sums, or totals.

A line trending downward means that a search term's relative popularity is decreasing—not necessarily that the total number of searches for that term is decreasing, but that its popularity compared to other searches is shrinking.

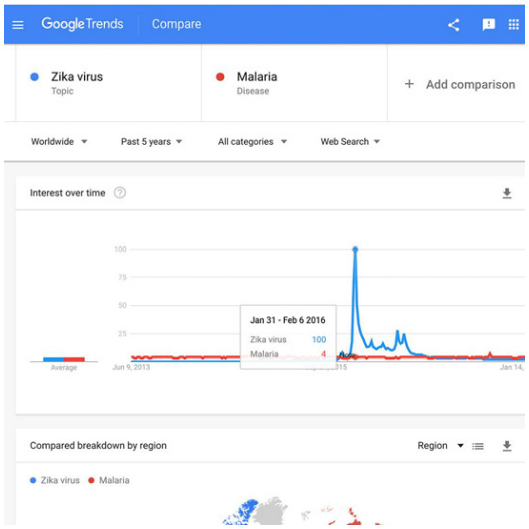


Finding the most searched topic in every region or country.

When you search for multiple terms on Trends, you'll see a comparative map showing which term or topic is most searched in each region.

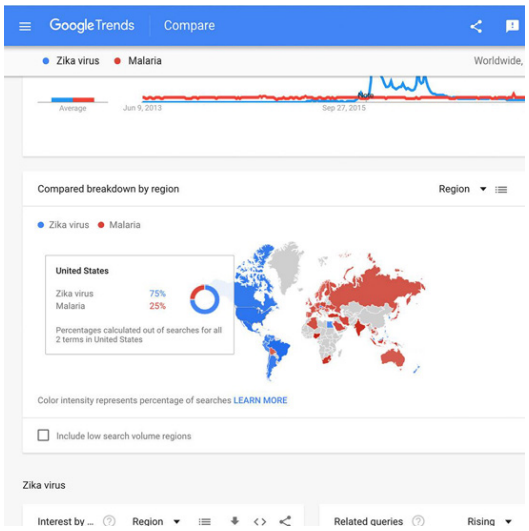
STEP 1 OF 2

Interest over time comparison: Let's compare the search terms Zika virus and malaria. You'll find that over time, malaria experiences a steady query rate while zika was barely searched for until a huge spike in January 2016.



STEP 2 OF 2

Compared breakdown by subregion: The color intensity of each region represents the percentage of searches of the leading search term in that region. This example shows that Zika virus was a more popular search term in the Americas while malaria was relatively more popular in Asia.



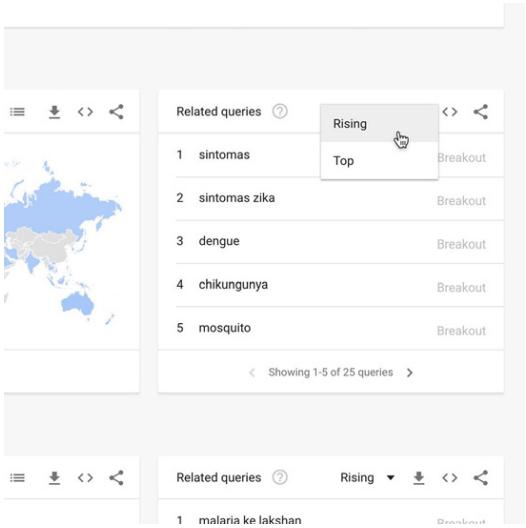
Rising data.

SINGLE STEP

At the bottom of your results page, the Related queries chart can show you the **Top** and **Rising** terms associated with any topic or trending story.

The **Rising** tab represents terms that were searched for with the term you entered and had the most significant growth in volume over the selected time period. You'll see a percentage of the Rising term's growth compared to the previous time period. If you see **Breakout** instead of a percentage, it means that the search term grew by more than 5000%.

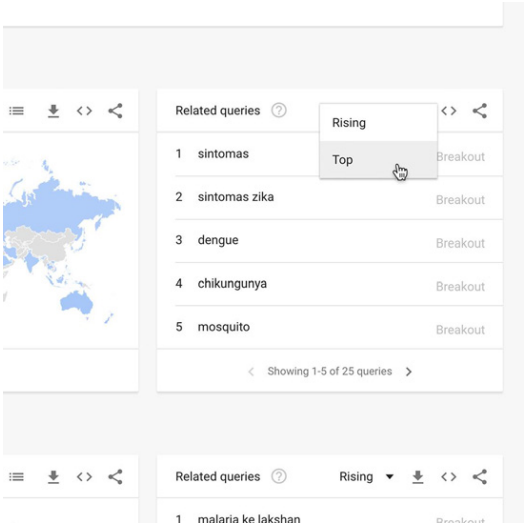
The percentages are based on the percent increase in search interest for the selected time frame. If you're looking at the last 7 days, the benchmark for the rise in searches would be 7 days prior; if it was the last 30 days, the benchmark would be for the 30 days prior. The only exception is when viewing the full history (2004-Present), when the percentages are benchmarked at 2004.



Reading the Related searches chart.

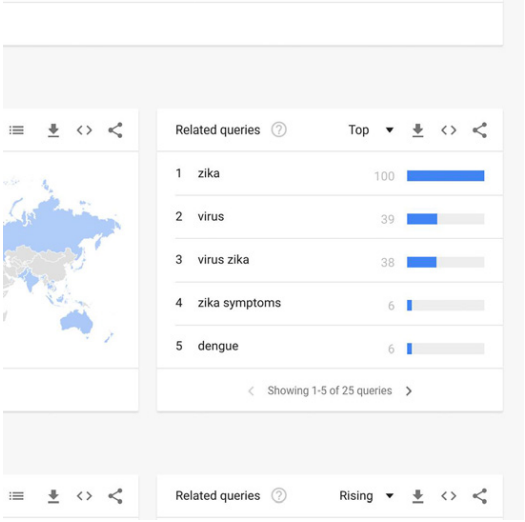
STEP 1 OF 2

Click the dropdown to see **Top** terms.



STEP 2 OF 2

This table shows terms that are most frequently searched with the term you entered, in the same search session, with the same chosen category, country or region. If you didn't choose a search term (and just chose a category or region), overall searches are displayed.



Data that is excluded.

SINGLE STEP

Trends excludes certain data from your searches:

- **Searches made by very few people:** Trends only analyzes data for popular terms, so search terms with low volume appear as 0 for a given time period.

- **Duplicate searches:** Trends eliminates repeated searches from the same user over a short period of time for better overall accuracy.

- **Special characters:** Trends filters out queries with apostrophes and other special characters.

Congratulations!

You completed “Google Trends: Understanding the data.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:

20 min estimated time

Google Trends: Improving search results

Refine your queries to get more useful data.

For more Data Journalism lessons, visit:

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Google News Initiative

LESSON 13

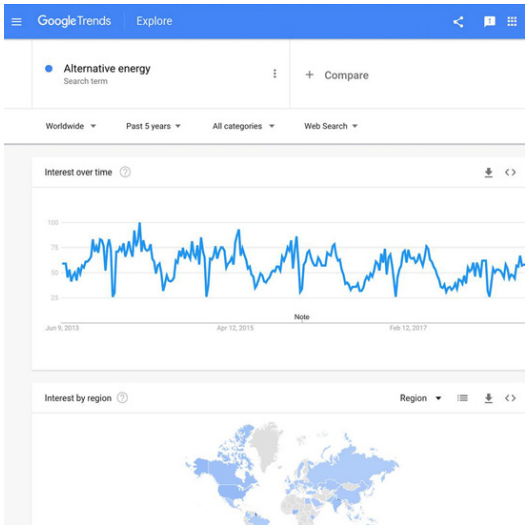
Google Trends: Improving search results

Refine your queries to get more useful data.

Lesson overview

Moving beyond the basics.

Google Trends allows you to easily see the stories and subjects that are drawing attention. Exploring topics is a relatively simple process, and Trends includes some features and options to help refine your results. There are several ways to get the precise data you need to help prompt a story idea or support a point.



1 Refining your search using punctuation.

2 Interpreting YouTube Geo Search results.

3 Refining your search by region.

4 Narrowing or expanding each search topic by geography and time.

5 Exploring US metropolitan areas.

6 Refining your results using categories.

7 Using rising data.

8 Finding related queries.

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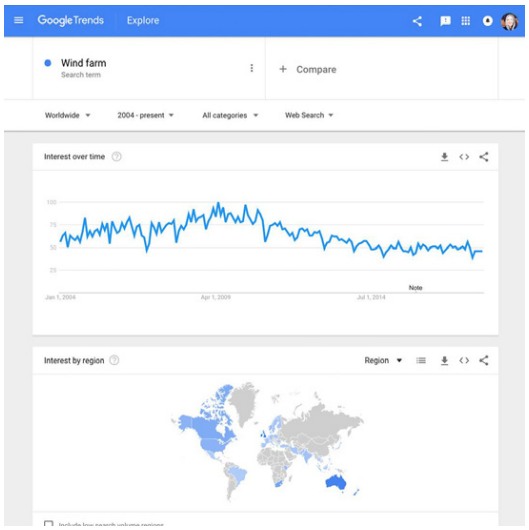
Refining your search using punctuation.

SINGLE STEP

You can use punctuation to filter your Trends search results.

For example, if you're writing a story about alternative energy and search the term wind farm, with no punctuation, your results will contain both words in any order, along with other words (offshore wind farm, new methods to farm wind, wind saves the farm, etc.). No misspellings, spelling variations, synonyms, plural or singular versions of your terms will be included.

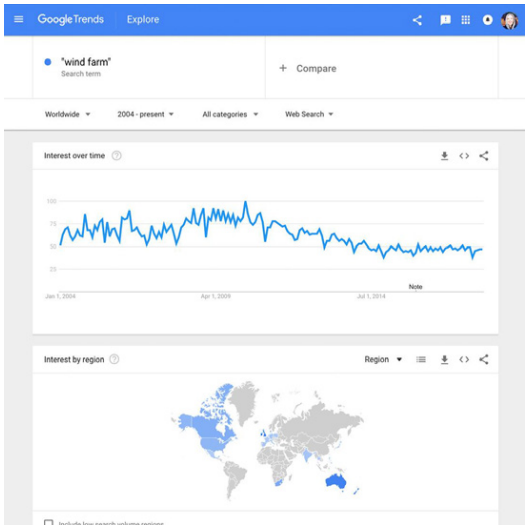


Punctuation guide.

Here's how various punctuation can affect this search:

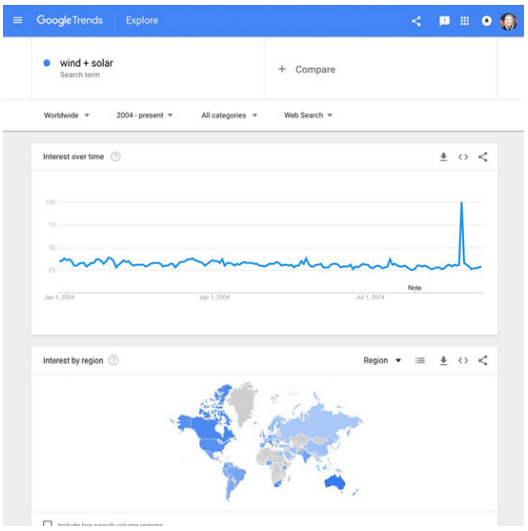
STEP 1 OF 4

"wind farm" – Double quotation marks around your term give results that include that exact term, possibly with words before and after (offshore wind farm, for example).



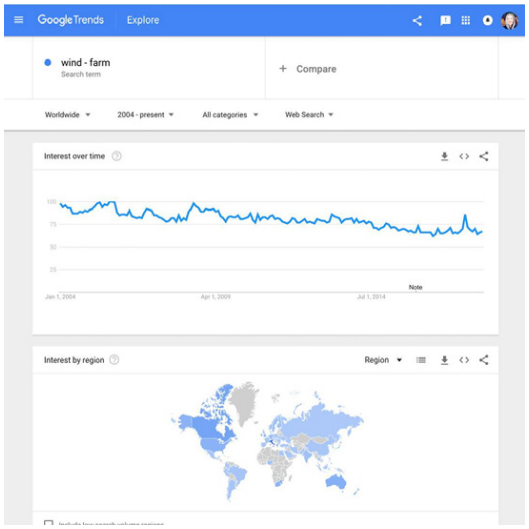
STEP 2 OF 4

wind + solar – Results can include the words wind OR solar.



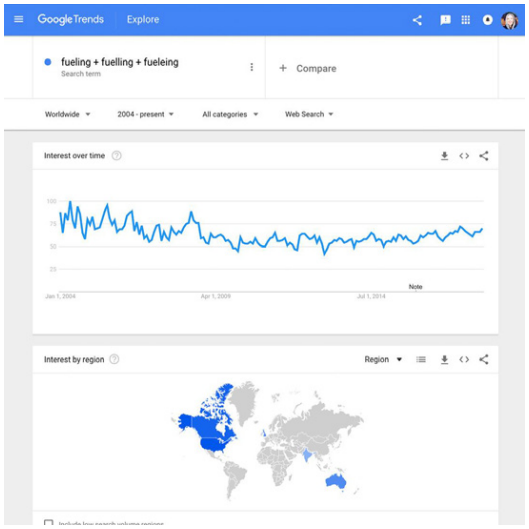
STEP 3 OF 4

wind - farm – Results will include the word wind, but exclude the word farm. This is useful when searching a term that's part of a popular phrase you want to keep from dominating your results.



STEP 4 OF 4

fueling + fuelling + fueleing – Results will include alternative spellings (fueling or fuelling) plus common misspellings (fueleing).

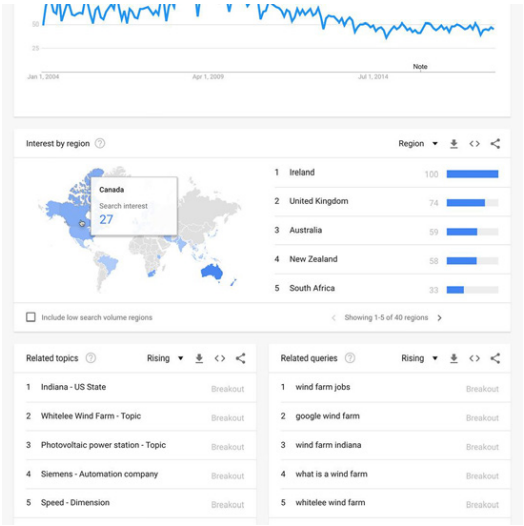


Refining your search by region.

SINGLE STEP

When you search for a term in Google Trends, your results will include a map of the world showing areas where your term is popular. Darker shades indicate where your term has a higher probability of being searched.

Simply hovering over a region will activate a pop-up window that reveals its search volume index. On the right of the map is a list view icon that displays the ranking of top regions or cities based on your term's popularity.

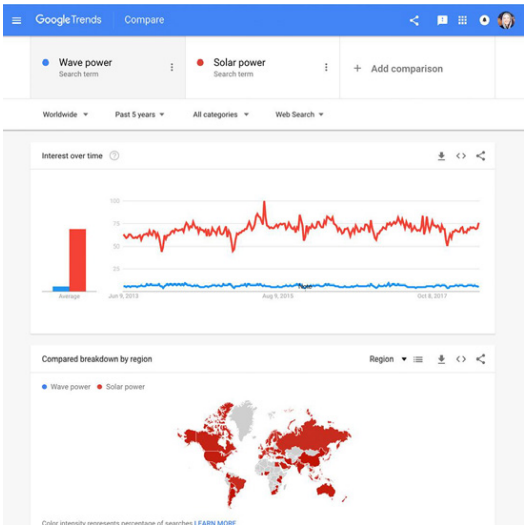


Narrowing or expanding each search topic by geography and time.

On the results page, you can refine your exploration by region and/or time period for each individual search topic.

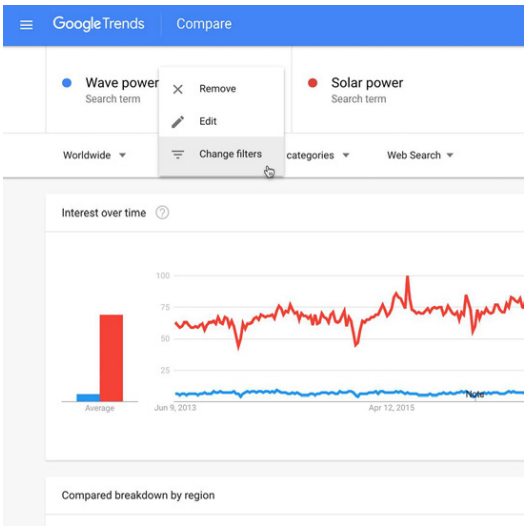
STEP 1 OF 4

For example, if you compare search interest in Wave power and Solar power, you'll find that Solar power typically outpaces the Wave power for worldwide search interest.



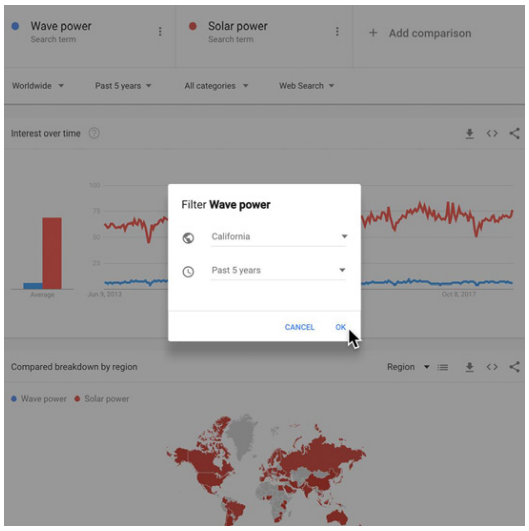
STEP 2 OF 4

If you want to examine local interest in different regions, hover over your search term and click the three dots. Then select **Change filters** from the menu.



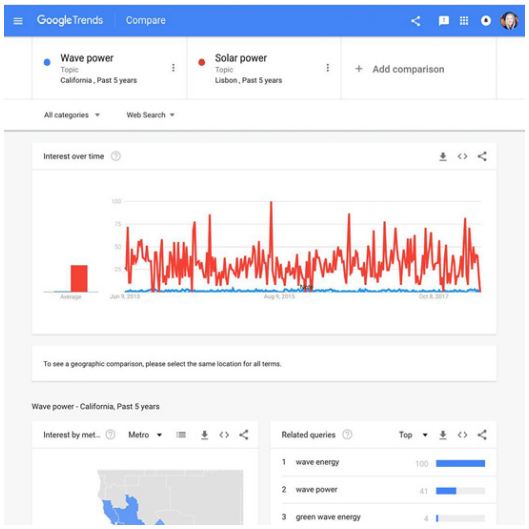
STEP 3 OF 4

Specify the region and time period you want to review.



STEP 4 OF 4

The results may reveal a different relationship between the two search terms than what was shown in the worldwide comparison.

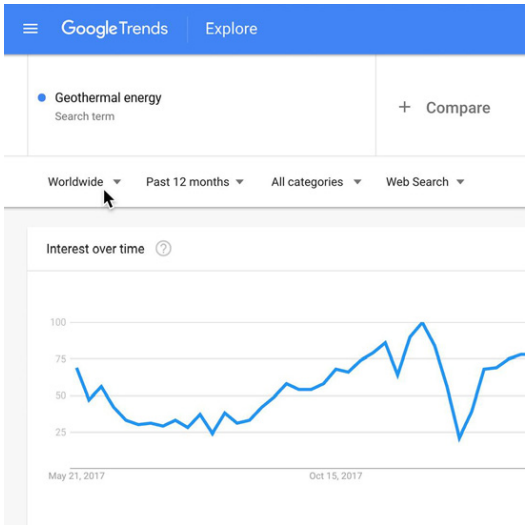


Exploring US metropolitan areas.

Trends even allows you to refine your geographical breakdown to the city level. Metros are geographical areas that generally correspond to U.S. metropolitan areas. Currently, Google Trends only provides metros for the United States. Let's say you are continuing to research a story about energy and you want to look at geothermal energy search trends. You can get information for a specific metro area one of two ways:

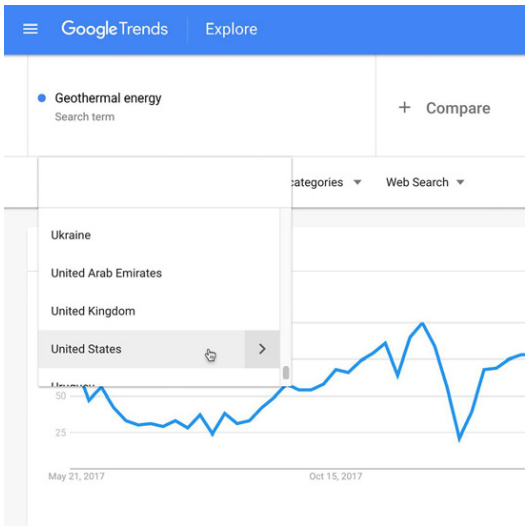
STEP 1 OF 4

Click **Worldwide** at the top of your results page.



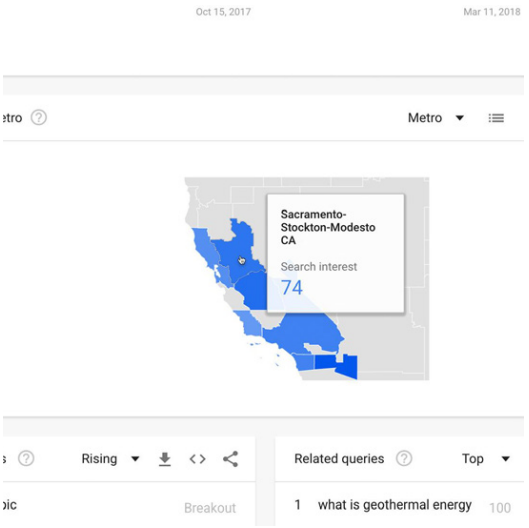
STEP 2 OF 4

Choose **United States**.



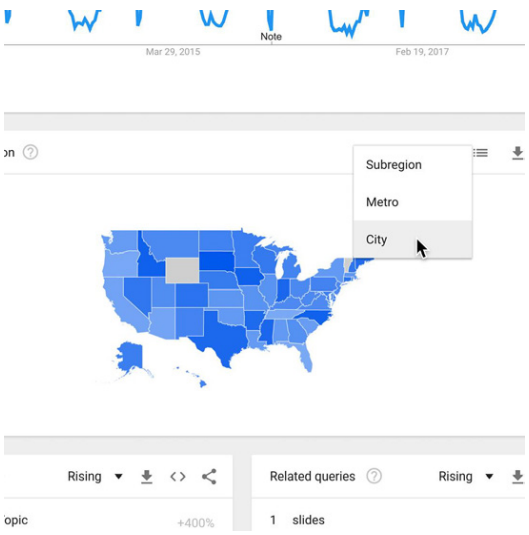
STEP 3 OF 4

To examine the data for each metro area, click a specific state.



STEP 4 OF 4

To view the map by city or metro area, use the **Subregion** menu above the map.

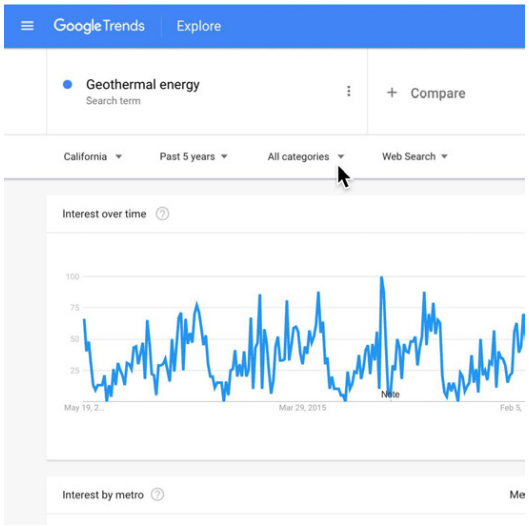


Refining your results using categories.

If you're using Trends to search for a word with multiple meanings, you can filter your results by category to get data for the version you're looking for.

STEP 1 OF 2

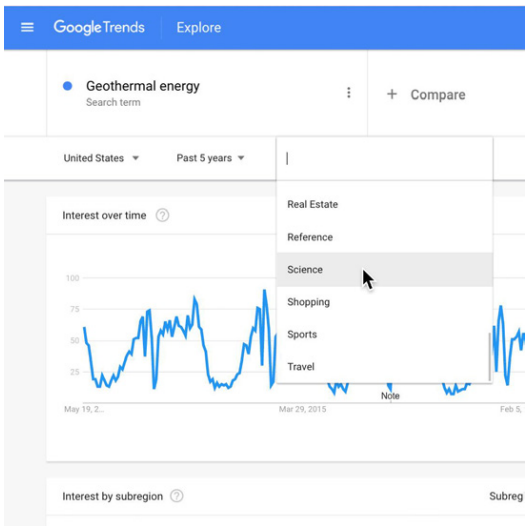
Search for your term, and on the results page, click **All categories** under the search box to reveal your category choices.



STEP 2 OF 2

Choose a category most closely related to the meaning you prefer.

The results will reflect the number of searches for that term in that context.



Using rising data.

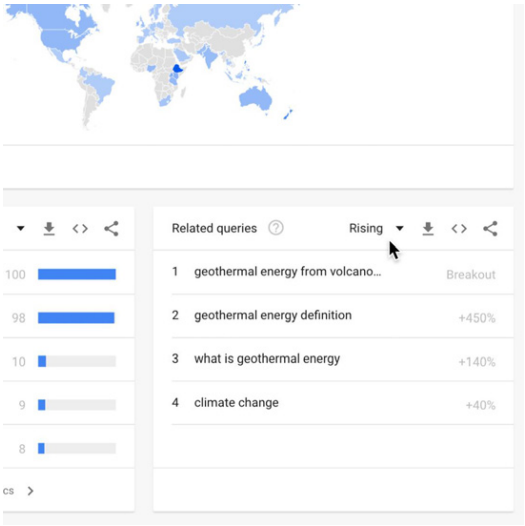
SINGLE STEP

Rising shows terms that were searched for with the term you entered (or overall, if no search term was entered) which had the most significant growth in volume in the requested time period. For each rising search term, you'll see a percentage of the term's growth compared to the previous time period. If you see the term **Breakout**, it means that the search term did not exist in the previous time period, and we have no baseline.

The percentages are based on the percent increase in search interest for the selected time frame.

Using geothermal energy as an example, if we're looking at the last 7 days, the benchmark for the rise in searches for the term geothermal energy would be 7 days prior; if it was the last 30 days, the benchmark would be for the 30 days prior.

The only exception is when viewing the full history (2004-Present), when the percentages are benchmarked at 2004.

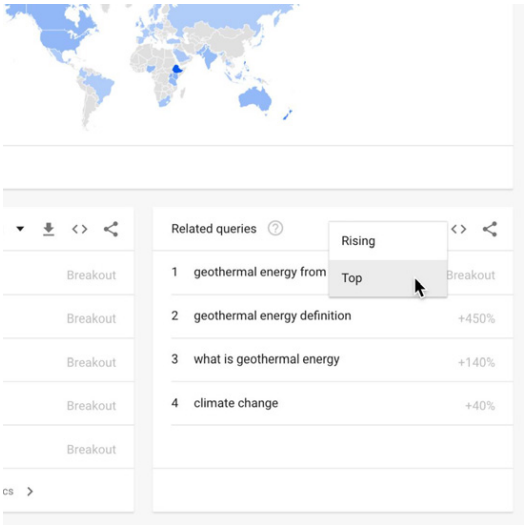


Finding related queries.

When you search for a term, the **Related queries** chart will appear at the bottom of your results page. **Related queries** can be used to determine the top and rising terms associated to any topic or trending story. This can be useful for finding unique angles on a story, for example.

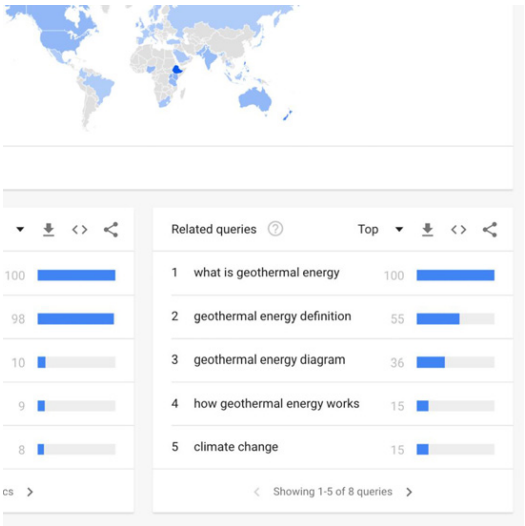
STEP 1 OF 2

On the chart, click the **Rising** tab and select **Top**.



STEP 2 OF 2

Top displays terms that are most frequently searched with the term you entered, in the same search session, with the same chosen category, country or region.



Congratulations!

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10 min estimated time

Google Fusion Tables: Creating intensity maps

Make demographic data easier to understand.

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Google News Initiative

LESSON 14

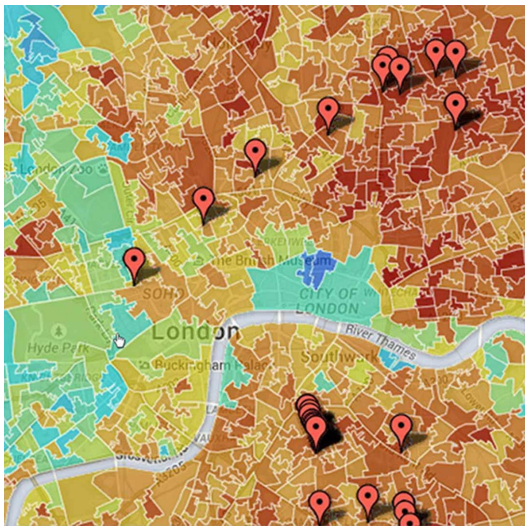
Google Fusion Tables: Creating intensity maps

Make demographic data easier to understand.

Lesson overview

About Google Fusion Tables

Google Fusion Tables has many helpful features, but the most popular by far is its ability to create free choropleth maps (intensity maps) with just a few simple steps. This makes it easy for journalists to visualize and publish demographic data, such as election or population numbers, so that readers can more easily understand the story.



1 Adding Google Fusion Tables to Drive.

2 Importing your data.

3 Review your Fusion Table and basic map.

4 Sourcing boundary data to create customized maps.

5 Arranging your merge (fusion).

6 Aligning your data.

7 View your shaded map.

8 Customizing your shaded map.

9 Sharing and embedding your map.

For more Data Journalism lessons, visit:

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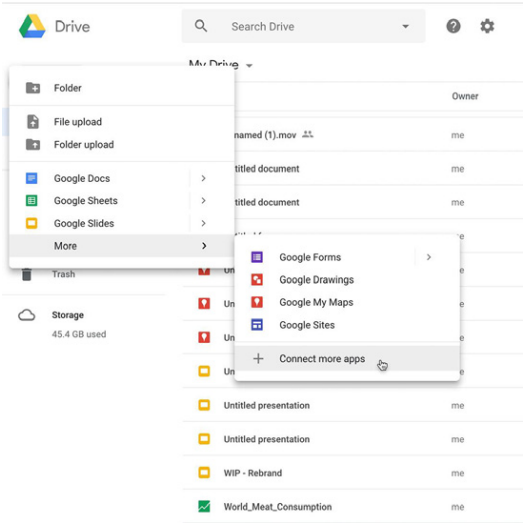
Adding Google Fusion Tables to Drive.

If you've never used Google Fusion Tables before, you'll need to add the app to your Google Drive menu:

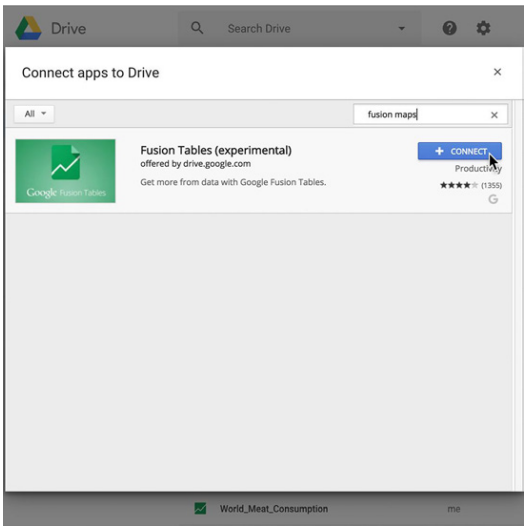
STEP 1 OF 3

Click **New**, then **Connect More Apps**



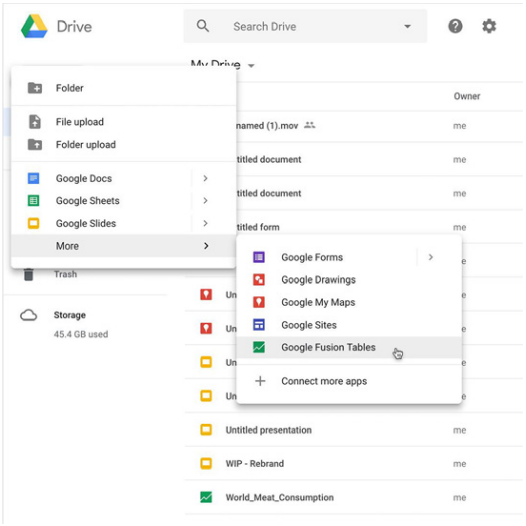
STEP 2 OF 3

Search for Fusion Tables.



STEP 3 OF 3

Once you add the app to your Drive, you'll always see it as an option in the menu.



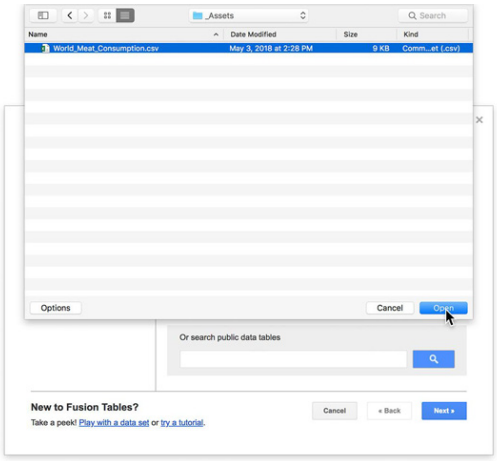
Importing your data.

Fusion Tables can import data in formats including .csv, .tsv, .txt and .kml; or directly from a Google Sheet.

Let's say you're doing a story on the environmental effects of cattle ranching, and want to create a map that represents meat consumption throughout the world. If you'd like to use the same sample .csv file of data that we're using for this exercise — global meat consumption numbers — click here to download it.

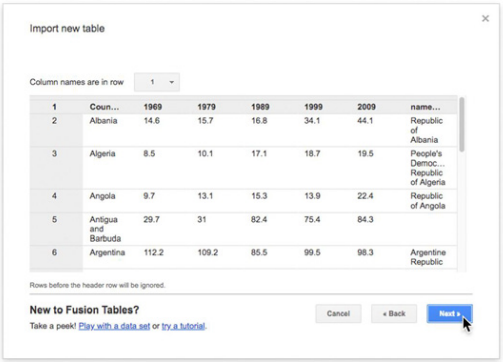
STEP 1 OF 3

Click **Choose File** and select a data file from your computer that you want to import, or **search public data tables.** Then click **Next**.



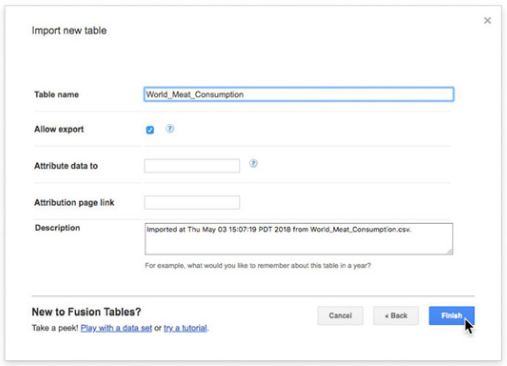
STEP 2 OF 3

Preview your Fusion Table data, then click **Next**.



STEP 3 OF 3

Here you'll have the opportunity to add metadata to your table, including a table name, data attribution details and a description. The Export option, when checked, allows other users to export this data as a file. Click **Finish**.

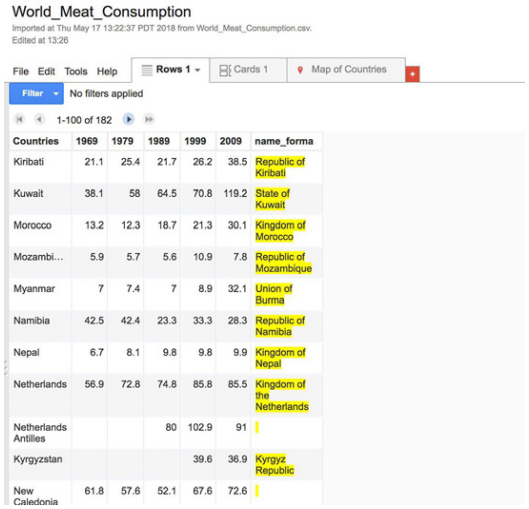


Review your Fusion Table and basic map.

It's critical to wait until the geocoding from the previous step is complete before continuing with the following steps.

STEP 1 OF 2

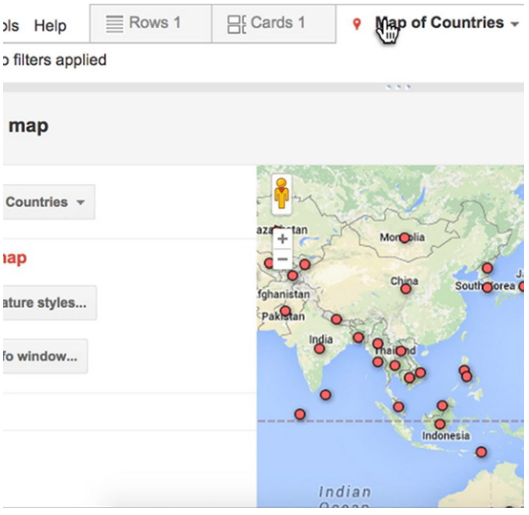
Now you'll see your finished Fusion Table. You can edit the information and settings in this window at any time.



Countries	1969	1979	1989	1999	2009	name_forma
Kiribati	21.1	25.4	21.7	26.2	38.5	Republic of Kiribati
Kuwait	38.1	58	64.5	70.8	119.2	State of Kuwait
Morocco	13.2	12.3	18.7	21.3	30.1	Kingdom of Morocco
Mozambi...	5.9	5.7	5.6	10.9	7.8	Republic of Mozambique
Myanmar	7	7.4	7	8.9	32.1	Union of Burma
Namibia	42.5	42.4	23.3	33.3	28.3	Republic of Namibia
Nepal	6.7	8.1	9.8	9.8	9.9	Kingdom of Nepal
Netherlands	56.9	72.8	74.8	85.8	85.5	Kingdom of the Netherlands
Netherlands Antilles			80	102.9	91	
Kyrgyzstan				39.6	36.9	Kyrgyz Republic
New Caledonia	61.8	57.6	52.1	67.6	72.6	

STEP 2 OF 2

Click the **Map of Countries** tab and you'll see that the map visualization has already been created for you, using the location information listed in the column. This will drop a red placemark in each of the locations listed.



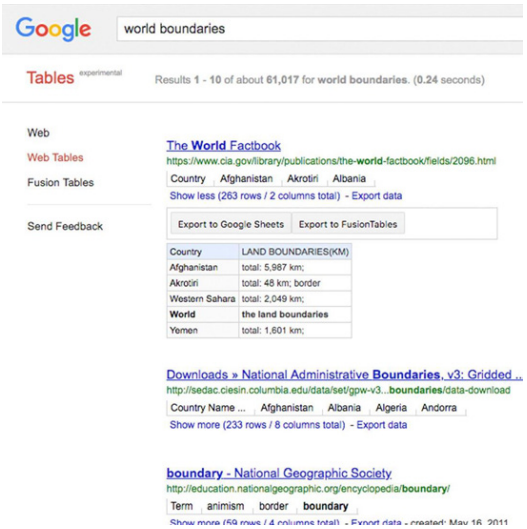
Sourcing boundary data to create customized maps.

Let's say that instead of using placemarks, you'd like to shade whole countries to more accurately represent your data.

To do this, you need boundary data--information that helps place your data within accurate borders on a map. Unfortunately, there isn't one location on the web to find all the boundary data you might need, so here are a couple of resources to help you get started.

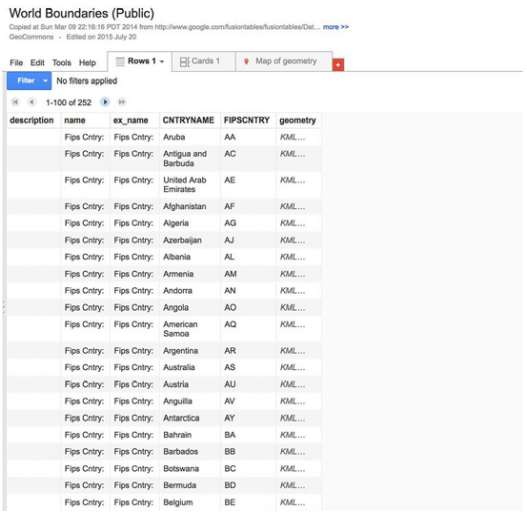
STEP 1 OF 2

Try searching Google Tables for available boundary data sets.



STEP 2 OF 2

Also, many boundary datasets have been uploaded by users and are free to the public, like this one that we'll use during this exercise, which covers country boundaries worldwide.

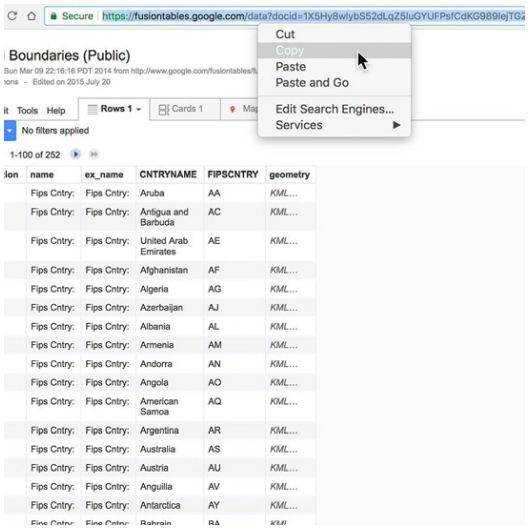


Arranging your merge (fusion).

To create your customized intensity map, you need to merge the table you just created in Google Fusion Tables with the boundary data, so that you can shade each country based on the meat consumption data. This is where the “fusion” in “Fusion Tables” comes from.

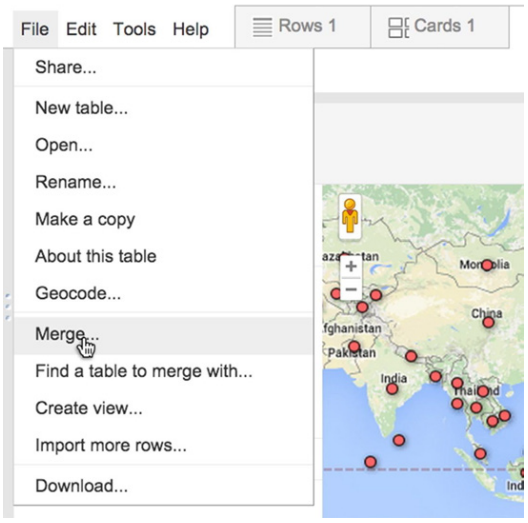
STEP 1 OF 3

First, copy the URL for the boundary data provided (in the previous step).



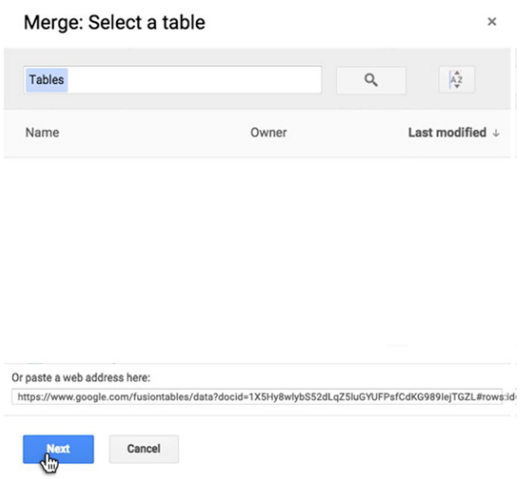
STEP 2 OF 3

Now go to your meat consumption table and click **File**, then **Merge**.



STEP 3 OF 3

Paste the boundary data URL into the field at the bottom of the menu. Click **Next**.

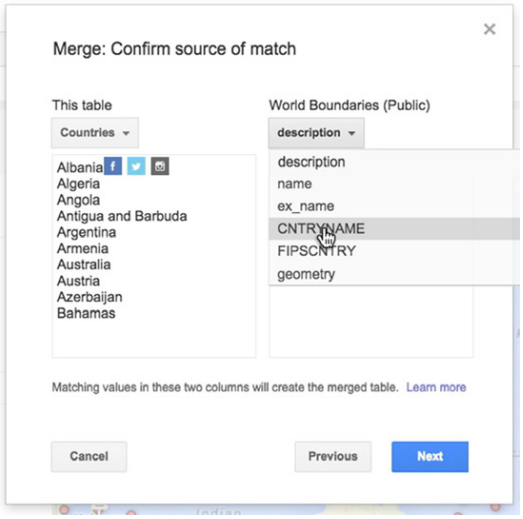


Aligning your data.

In order for Fusion Tables to properly merge two tables, each table needs to contain a column of similar, matchable data.

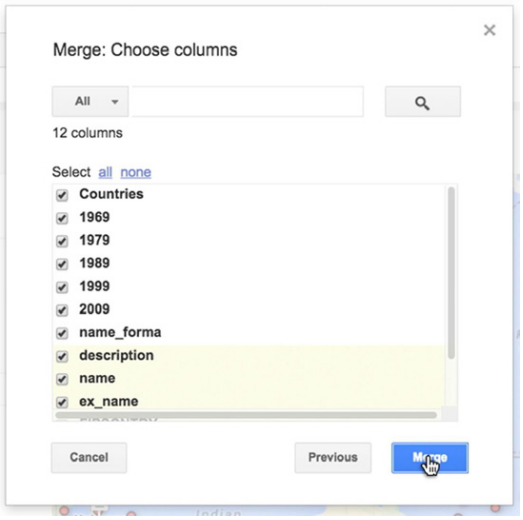
STEP 1 OF 3

Now, choose which columns you'd like to merge—the information that will be included in each country's description when the map is complete. For this exercise, we'll include all the columns from both tables. Then click **Merge**.



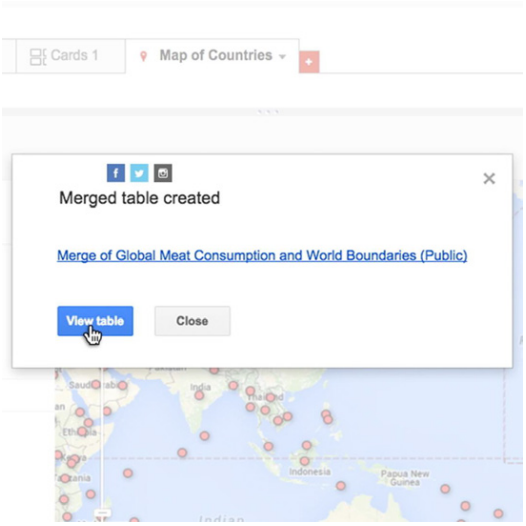
STEP 2 OF 3

In this case, the column found in both tables is the Country Name column. Make sure both are selected in the two pulldowns. Click **Next**.



STEP 3 OF 3

To return to your Fusion Table, go to the next window and click **View table**.



View your shaded map.

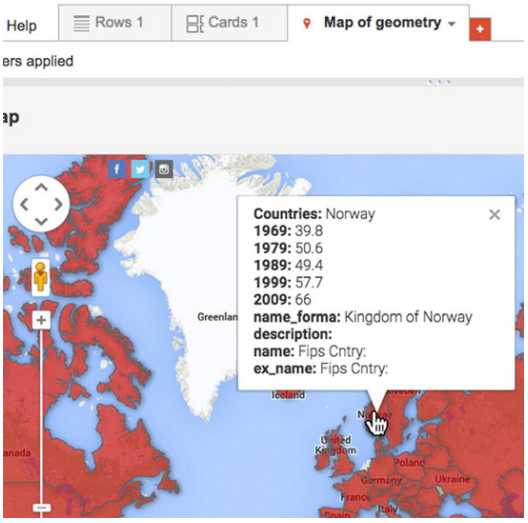
STEP 1 OF 2

Now click the **Map of Geometry** tab to see the intensity map.

STEP 2 OF 2

If your map is not already centered in the window, pull it down to view it, and use the controls to move in closer to reveal your boundary graphics.

When you click on a country, the corresponding meat consumption info should show up in the window.

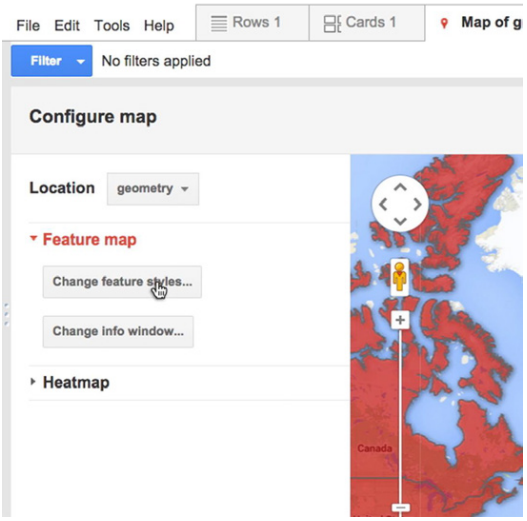


Customizing your shaded map.

Now let's add a gradient to the map to make it a true intensity map and more visually effective for the story. For this exercise, we'll shade the countries based on the 2009 data.

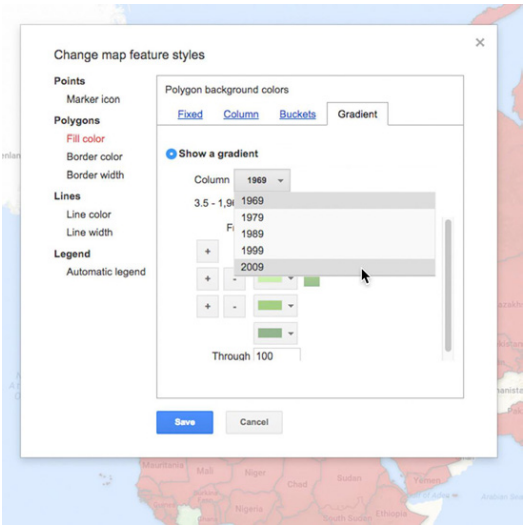
STEP 1 OF 4

Click **Change feature styles** along the left (or, if you don't see that menu, go to **Tools**, then **Change map** to get the button to appear).



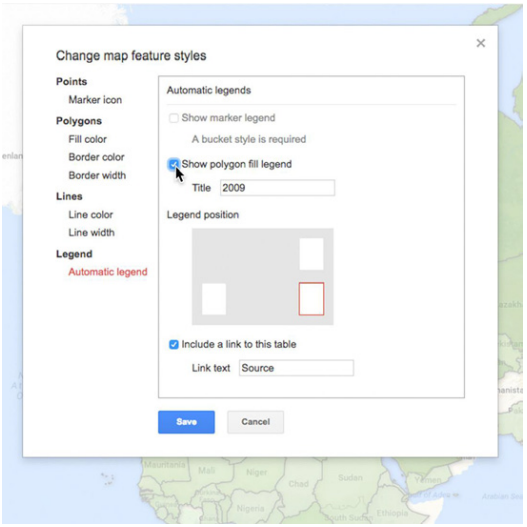
STEP 2 OF 4

Under Polygons, select **Fill color**. Click the **Gradient** tab and then click **Show a gradient**. In the **Column** pulldown, you can customize the range, or use the suggested range. Make sure the 2009 column is selected, as we'll be shading the polygons (country shapes, in this case), based on this column of information. Here we can also tweak the colors.



STEP 3 OF 4

In this window we can also add a legend to our map. Just select the **Automatic legend** option in the menu on the left, then select a position for your legend. Click **Save**.



STEP 4 OF 4

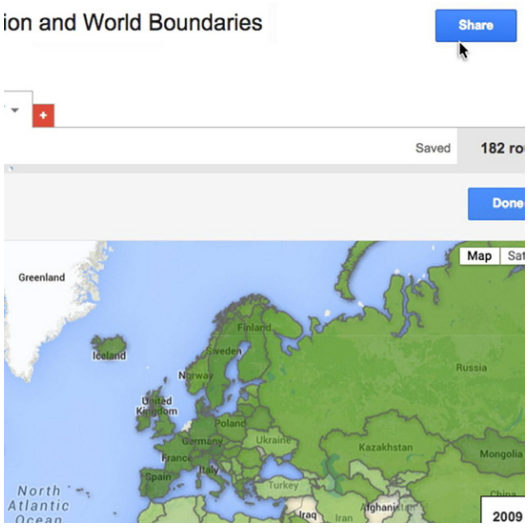
Now we can more clearly see which countries consumed more meat in 2009.

Sharing and embedding your map.

The map is complete!

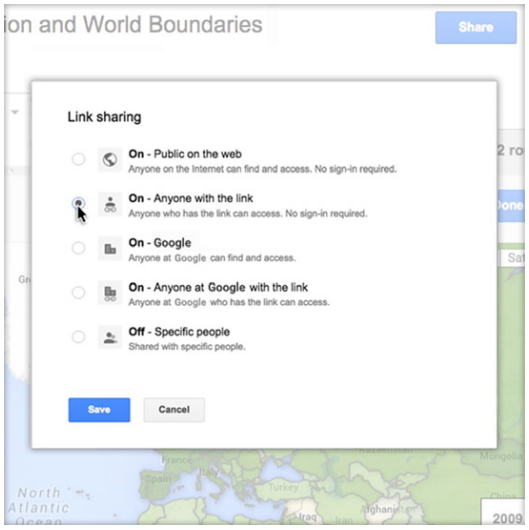
STEP 1 OF 4

To share and embed this map on your website, first click **Share**.



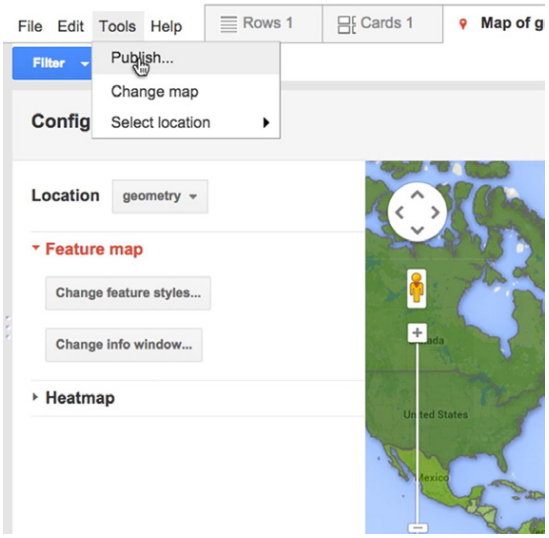
STEP 2 OF 4

Change your settings to either **Public** or **Anyone with the link**.



STEP 3 OF 4

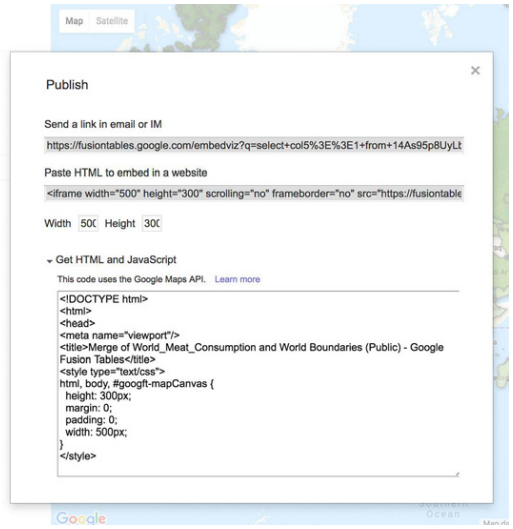
Now go to **Tools**, then **Publish**.



STEP 4 OF 4

You can copy the URL for the table or copy and paste the iframe to embed the interactive map on your website. You can also change the height and width of your map directly in the iframe.

Use the HTML and JavaScript provided to further customize the look and style of your Fusion Tables map. You can also get inspired and grab code samples on the Google Maps API site.



Congratulations!

You completed “Google Fusion Tables: Creating intensity maps.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson.

	A	B	C	D	E	F	G
1	Rank	Peak	Title	Worldwide gross	Year	Reference(s)	
2	1	1	*Avatar*	$2,787,965,087	2009	[# 1][# 2]	
3	2	1	*Titanic*	$2,187,463,944	1997	[# 3][# 4]	
4	3	3	*Star Wars: The	$2,068,223,624	2015	[# 5][# 6]	
5	4	4	*Avengers: Infini	$2,048,359,754	2018	[# 7][# 8]	
6	5	3	*Jurassic World*	$1,671,713,208	2015	[# 9][# 10]	
7	6	3	*The Avengers*	$1,518,812,988	2012	[# 11][# 12]	
8	7	4	*Furious 7*	$1,516,045,911	2015	[# 13][# 14]	
9	8	5	*Avengers: Age	$1,405,403,694	2015	[# 15][# 14]	
10	9	9	*Black Panther*	$1,346,913,161	2018	[# 16][# 17]	
11	10	3	*Harry Potter and	$1,341,511,219	2011	[# 18][# 19]	
12	11	9	*Star Wars: The	$1,332,539,889	2017	[# 20][# 21]	
13	12	12	*Jurassic World:	$1,309,484,461	2018	[# 22][# 8]	
14	13F	5	*Frozen*	$1,290,000,000	2013	[# 23][# 24]	
15	14	10	*Beauty and the	$1,263,521,126	2017	[# 25][# 26]	
16	15	15	*Incredibles 2*	$1,242,786,014	2018	[# 27][# 8]	
17	16	11	*The Fate of the	F8$1,238,764,76	2017	[# 28][# 26]	

Google Sheets: Scraping data from the internet

Build your own data sets using Google Sheets.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 15 : Part 01 of 04 in the Visualizing Data module

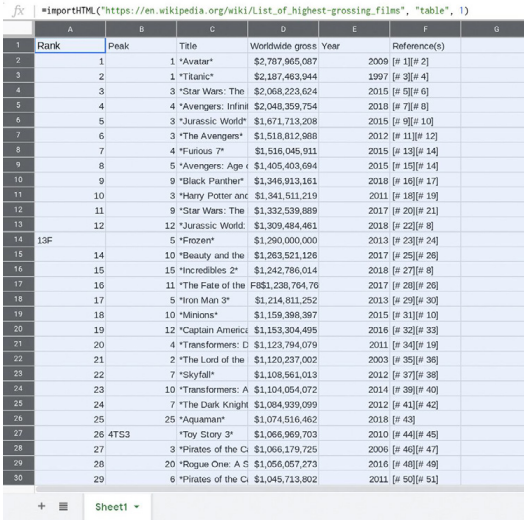
Google Sheets: Scraping data from the internet

Build your own data sets using Google Sheets.

Lesson overview

Learn to build your own data sets using Google Sheets.

There is a massive amount of data available on the internet that you can use to research and visualize stories. Finding the data, and getting it into a format you can work with is the first step.



1 Starting a new spreadsheet.

2 Finding reliable data.

3 Importing data to Google Sheets.

4 Troubleshooting and error messages.

5 Displaying your data.

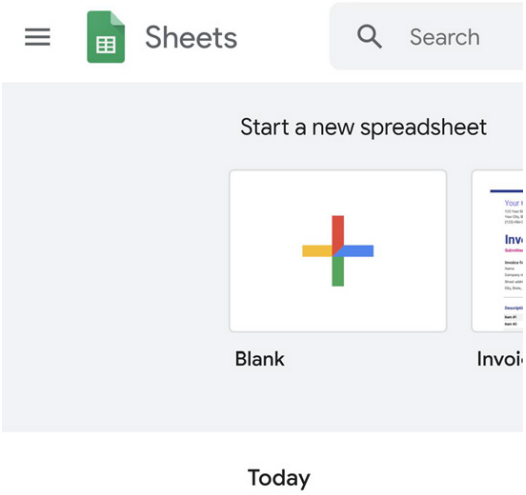
For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Starting a new spreadsheet.

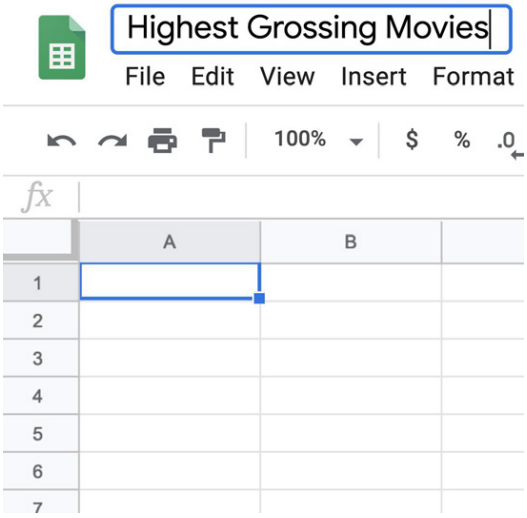
STEP 1 OF 2

First, you need to create a blank spreadsheet. Go to sheets.google.com. Under **Start a new spreadsheet**, click the **+** icon.



STEP 2 OF 2

To name your spreadsheet, click the text in the top left corner. Let's name this one "Highest Grossing Movies."



Finding reliable data.

By sourcing data from government sites, scientific publications, Wikipedia, Google Public Data Explorer and more, you can tell data stories on almost any topic. In this lesson, we'll practice with data about movies.

STEP 1 OF 2

Go to **google.com** and **search highest grossing films**. One of the first links should be a Wikipedia entry with multiple tables. One list, called "the top 50 highest-grossing films of all time" cites multiple references, so we will use that one. Always check to make sure you're scraping data from reliable sources.

STEP 2 OF 2

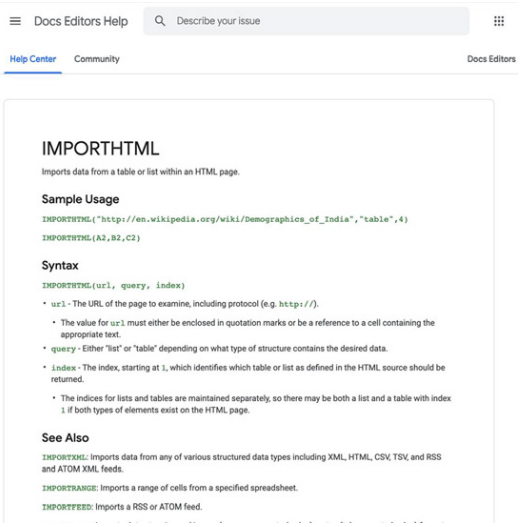
To import this table to Google Sheets, copy the address of the Wikipedia page by highlighting the URL, right clicking on it, and selecting **copy**.

Importing data to Google Sheets.

We'll use importHTML to import the table from Wikipedia to our spreadsheet. This powerful formula is built into Google Sheets to help you import tables or lists from web pages. To learn more about how importHTML works and see examples, read the Google Sheets documentation pages.

STEP 1 OF 3

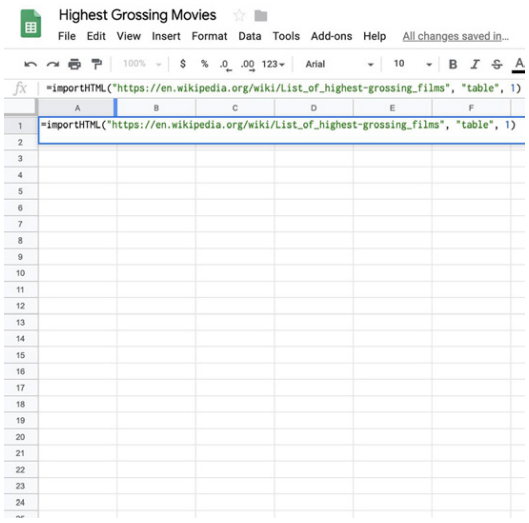
The **importHTML** tool needs three parameters to work:
1) a URL
2) the type of data we're collecting, either a table or list
3) the number representing the position of the table or list in the HTML code.
In this example, the first instance of a table would be numbered as one, as the table we want is the first one that shows up in the HTML. You can use trial and error to find what the position of the table is (1, 2, 3, etc.) or right click the webpage, select **Inspect** > **Find** to locate the table in the code.



STEP 2 OF 3

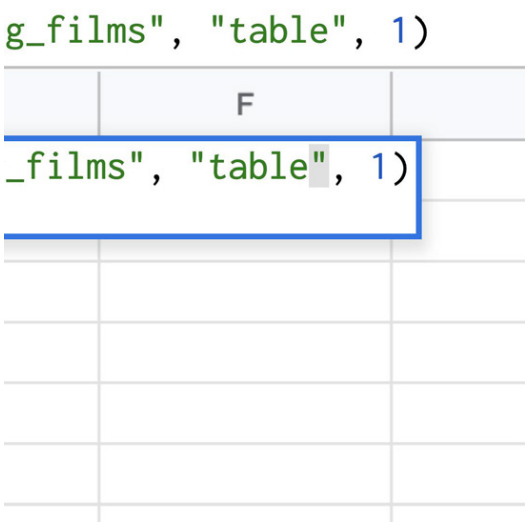
Go to the blank sheet you created and navigate to cell A1. Type:

```
=importHTML("https://en.wikipedia.org/wiki/List_of_highest-grossing_films", "table", 1)
```



STEP 3 OF 3

Notice that the URL and the element type (in our case, table) go between quotes — this will make the parameters green. The last parameter is a number not within quotes and it will be colored blue.

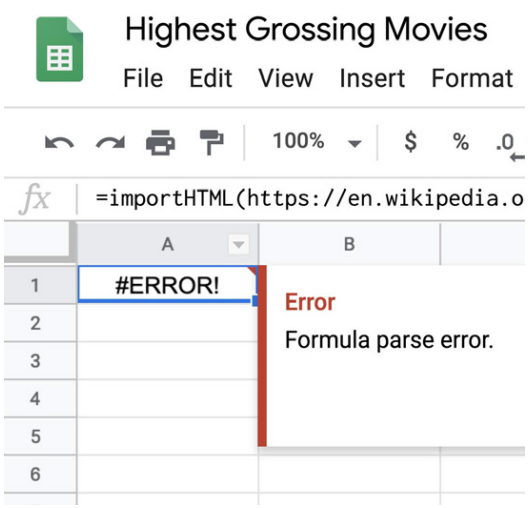


Troubleshooting and error messages.

SINGLE STEP

If you get an ERROR! Message, check to make sure the quotes are double quotes as shown in the example.

If you get a VALUE! error, check to make sure you don't have extra parentheses or quotation marks in the cell.

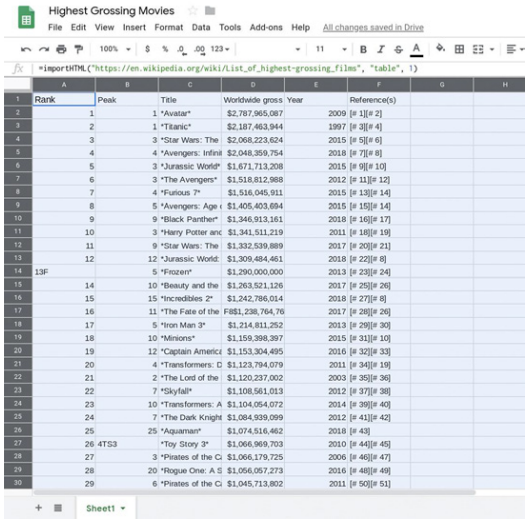


Displaying your data.

SINGLE STEP

Once your ImportHTML formula is correct, press **enter** and give Google Sheets a couple of seconds. The table should load with all the rows and columns formatted.

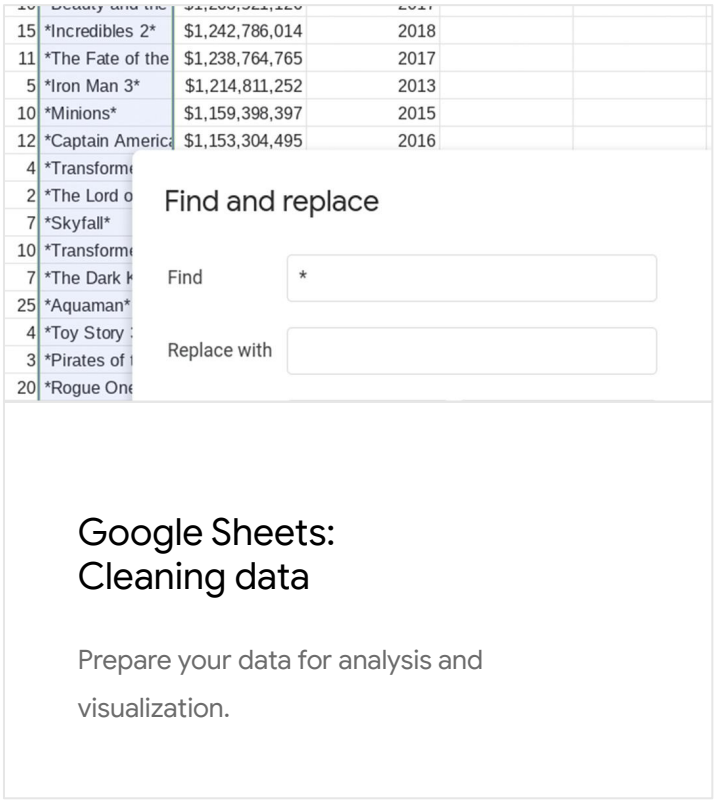
Notice that there are some elements we need to remove so that we can visualize this data. We will learn this in the next lesson, “Google Sheets: Cleaning data.”



Congratulations!

You completed “Google Sheets: Scraping data from the internet.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 16 : Part 02 of 04 in the Visualizing Data module

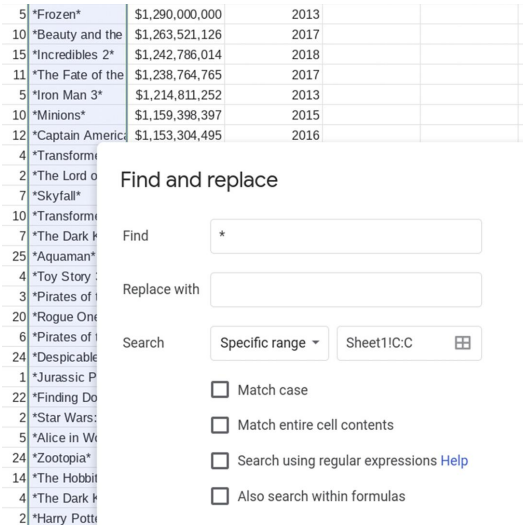
Google Sheets: Cleaning data

Prepare your data for analysis and visualization.

Lesson overview

Learn to clean data in preparation for visualization.

In the previous lesson, Google Sheets: Scraping data from the internet, we learned how to import a table from the Web using importHTML. In this lesson, we'll learn how to clean the data so it's ready for analysis and visualization.



1. Making data editable.
2. Editing the data.
3. Batch editing with **Find and replace**.

For more Data Journalism lessons, visit:

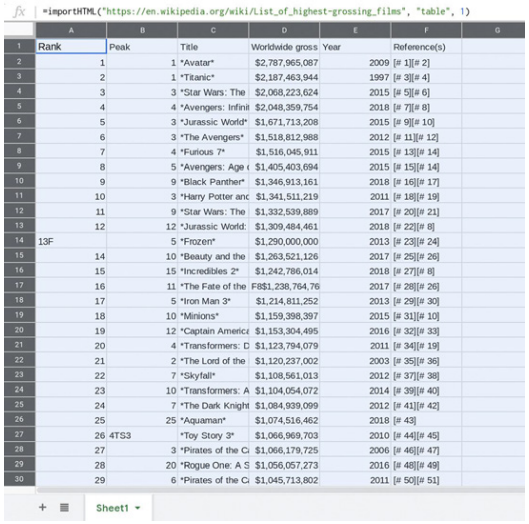
newsinitiative.withgoogle.com/training/course/data-journalism

Making data editable.

“Cleaning data” means making it usable to work with: ensuring a table has integrity, is free from inconsistencies and is structured in a way that computers will understand. That means we will remove duplicate rows, delete undesired characters and ensure that columns hold only one type of data, for example numbers or text, but not both. First, we need to make the data editable.

STEP 1 OF 3

This table shows the result of importHTML. In this form, any changes to the data source (the Wikipedia page) will automatically be reflected here, and are updated at least once an hour. However, we can’t edit the values in the cells to remove undesired characters. We will use **paste special** in Google Sheets to create a static snapshot of the data. With this, we will lose the ability to update the table automatically via importHTML, but we will be able to edit it.

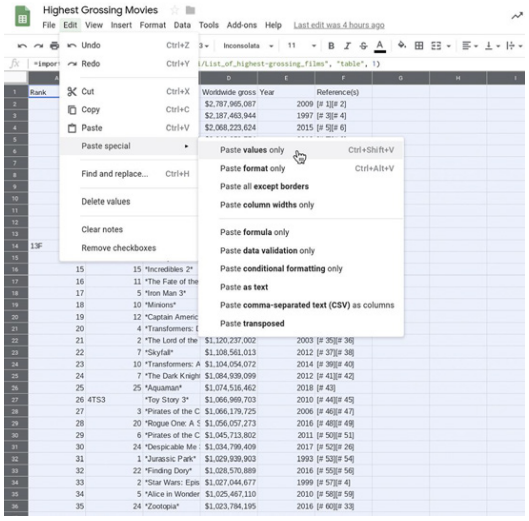


STEP 2 OF 3

Select all of the data by left-clicking in the top left rectangle in your sheet.

Once all cells are highlighted, click **Edit** > **Copy**.

Select **Edit** > **Paste special** > **Paste values only**. We’re now able to edit the table.

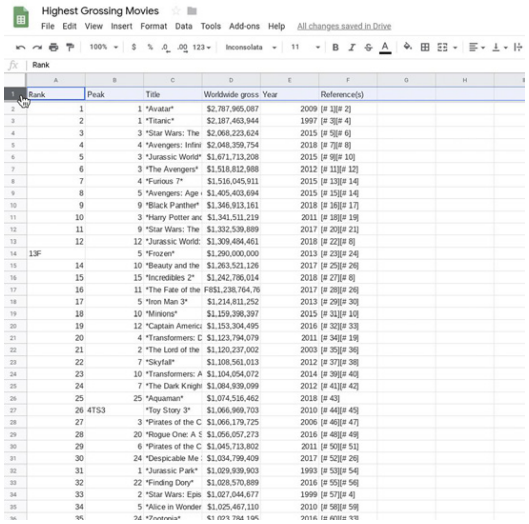


STEP 3 OF 3

To make editing easier, we'll freeze the row with the names of the columns.

Hover the mouse cursor to the line just above row 1 over the gray bar. You will notice the cursor turns into a glove. Drag the bar to the bottom of row 1 and leave it there.

Now the top row is frozen.

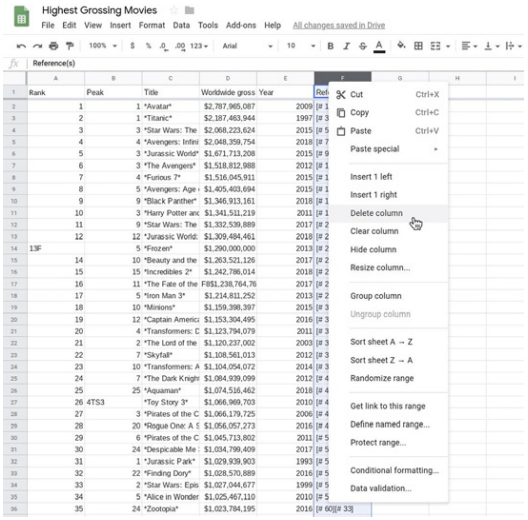


Editing the data.

importHTML will import leftover characters from the Wikipedia table that are useful for humans, but not computers. Let's remove them and make our table cleaner!

STEP 1 OF 3

Since we don't need column F for this exercise, right-click on the letter F at the top of the column and select **Delete**.

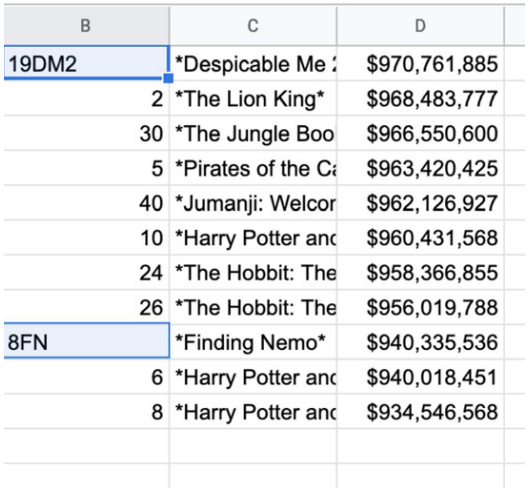


STEP 2 OF 3

There is a letter "F" next to number 13 in row A14, and a "TS3" next to number 4 in cell B27. We will remove these characters so that only the numbers 13 and 4 remain.

STEP 3 OF 3

Remove the extra letters in cells B40 and B48, so that only 19 and 8 remain. Do the same in D17 to remove the leading “F8”.



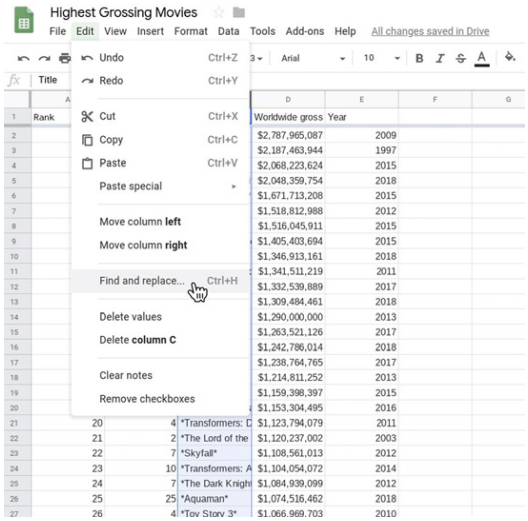
B	C	D
19DM2	*Despicable Me 2	$970,761,885
2	*The Lion King*	$968,483,777
30	*The Jungle Boo	$966,550,600
5	*Pirates of the Ca	$963,420,425
40	*Jumanji: Welcor	$962,126,927
10	*Harry Potter and	$960,431,568
24	*The Hobbit: The	$958,366,855
26	*The Hobbit: The	$956,019,788
8FN	*Finding Nemo*	$940,335,536
6	*Harry Potter and	$940,018,451
8	*Harry Potter and	$934,546,568

Batch editing with **Find and replace.**

Now, take a look at column C. Let's remove the leading and trailing * characters in a batch, rather than row by row, using the **Find and replace** feature.

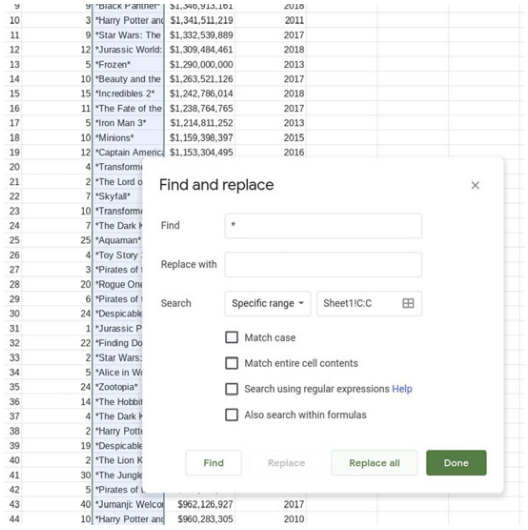
STEP 1 OF 5

Select column C by left-clicking on the letter C at the top of the column. Select **Edit** > **Find and replace**.



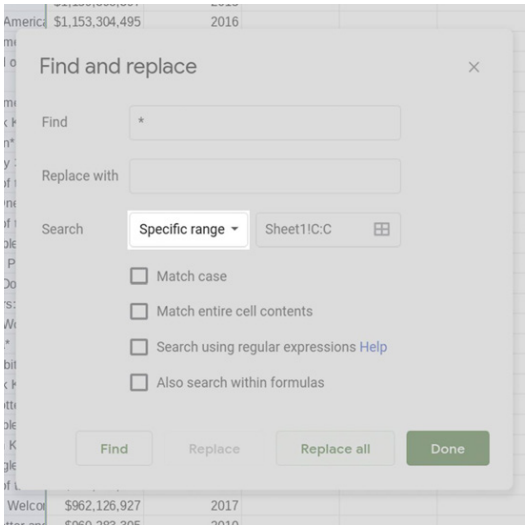
STEP 2 OF 5

In the first text box type the asterisk symbol: * (that's the character we want to find in column C). Leave the **Replace with** text box empty so that the asterisks get replaced with nothing, which means they will be deleted.



STEP 3 OF 5

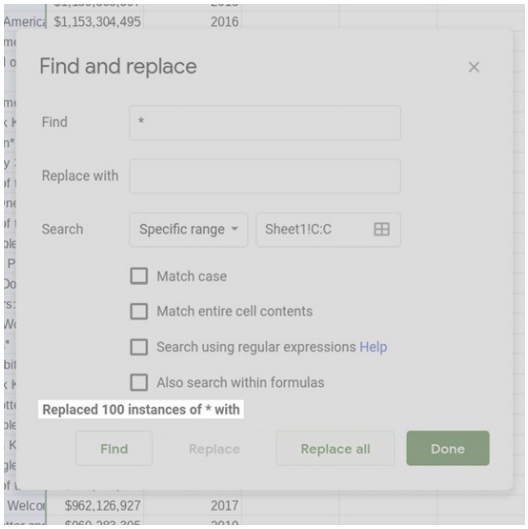
Make sure the **Search** option says **Specific range** and the range reflects the column you just selected. Leave the checkboxes unchecked.



STEP 4 OF 5

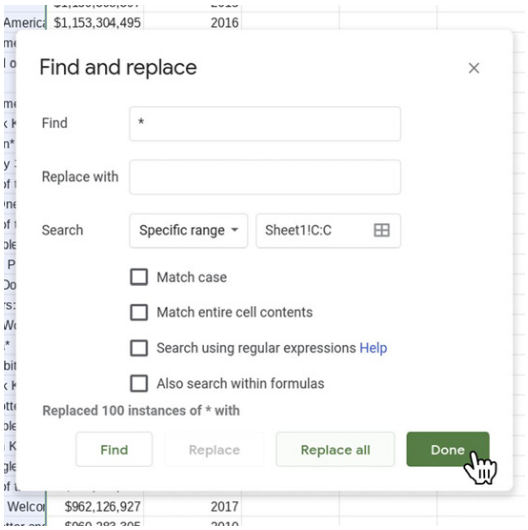
Select **Replace all**.

Notice Google Sheets will tell you it **Replaced 100 instances of * with** (nothing). That means you successfully removed 100 characters in 50 rows with just a few clicks!



STEP 5 OF 5

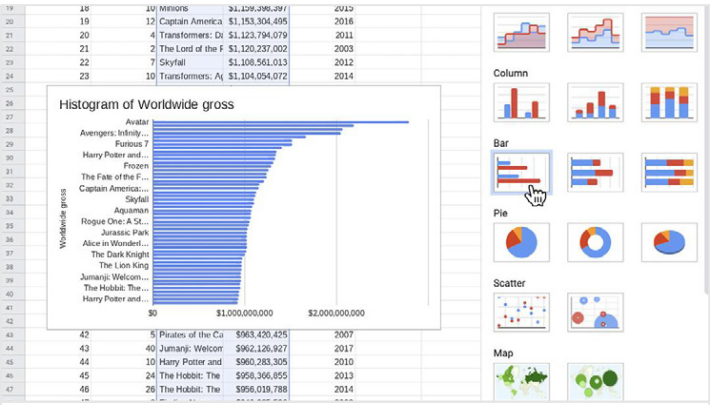
Select **Done**. Our table is now clean and ready for us to work with. In the next lesson, we will produce visualizations and get insights from the data.



Congratulations!

You completed “Google Sheets: Cleaning data.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



Google Sheets: Visualizing data

Learn to build visualizations that help you interpret the data and tell data-driven stories.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 17 : Part 03 of 04 in the Visualizing Data module

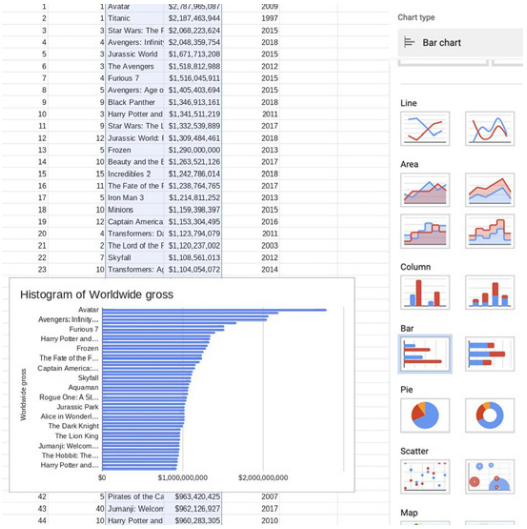
Google Sheets: Visualizing data

Learn to build visualizations that help you interpret the data and tell data-driven stories.

Lesson overview

Learn to build a data visualization in Google Sheets.

In the previous lesson, Google Sheets: Cleaning data, we learned how to clean the table we imported from Wikipedia using importHTML. Now, we will use Google Sheets to produce visualizations that show readers what the data means.



1. Creating a horizontal bar chart.
2. Adding a title to your chart.
3. Resizing a chart.
4. Creating highlights.
5. Improving legibility.
6. Publishing your interactive data visualization.

For more Data Journalism lessons, visit:

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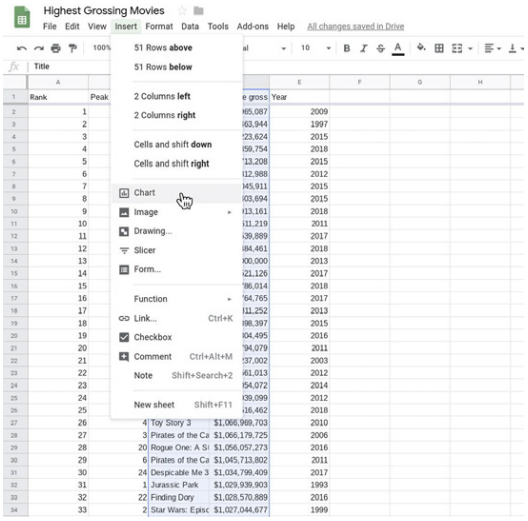
Creating a horizontal bar chart.

Bar charts are very useful for numerical comparisons. Our first visualization will be a bar chart showing which movies made more money and how far the highest grossing movies are from the lowest ones.

STEP 1 OF 2

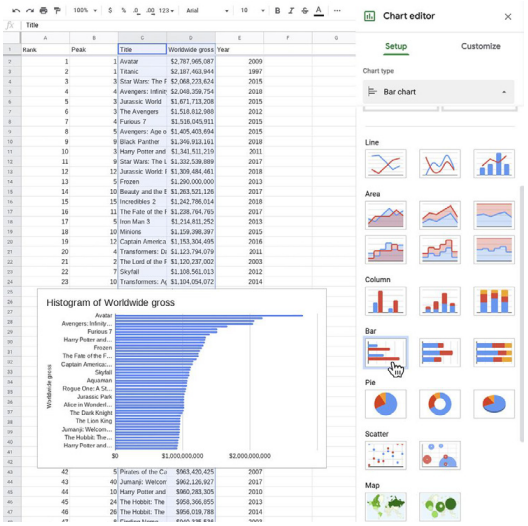
Select **C1**, hold **shift** and select **D51**, highlighting the two columns we will use for the chart.

Click **Insert** > **Chart.**



STEP 2 OF 2

In the **Chart editor**, select **Chart type** > **Bar chart.**

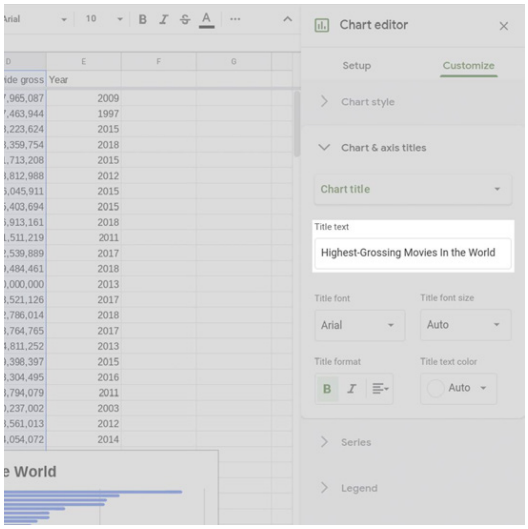


Adding a title to your chart.

Now that you've made a basic chart, let's enhance it and make it more readable.

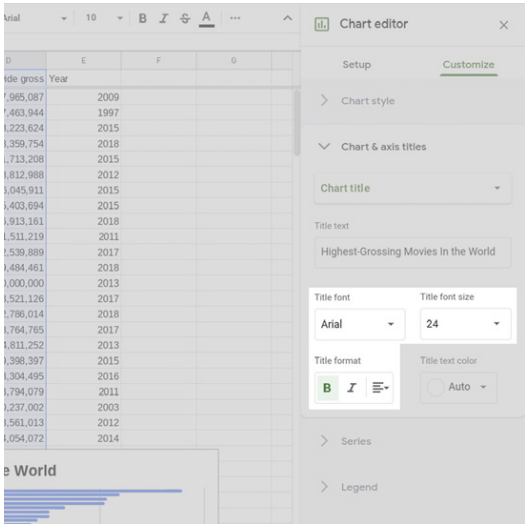
STEP 1 OF 2

First, let's change the title. In the **Chart editor**, select **Customize** > **Chart & axis titles**. Change the title to "Highest-grossing Movies in the World."



STEP 2 OF 2

Set **Title font** to Arial and **Font size** to 24. Make it bold.

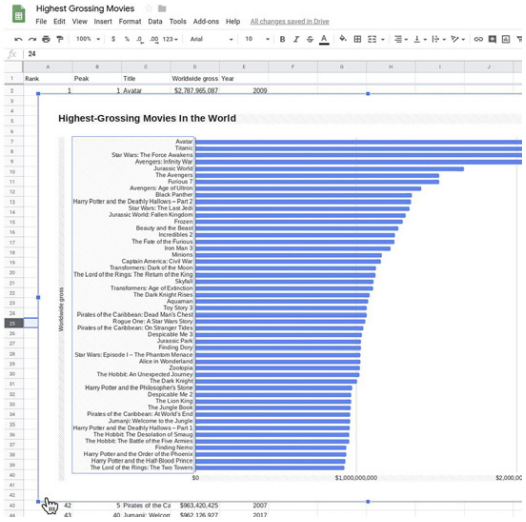


Resizing a chart.

To make the chart legible, we need to resize it.

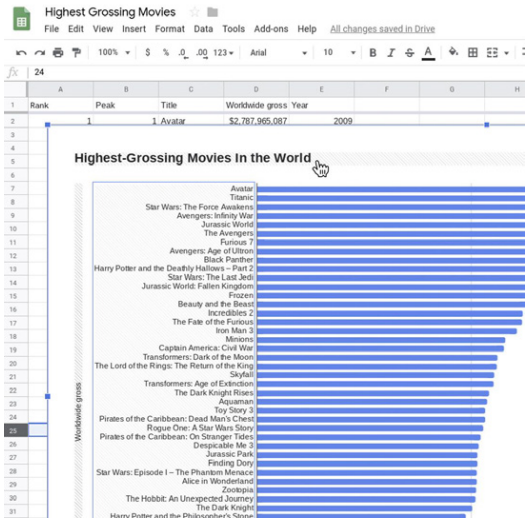
STEP 1 OF 3

Click on the chart. Drag the bounding boxes, especially horizontally.



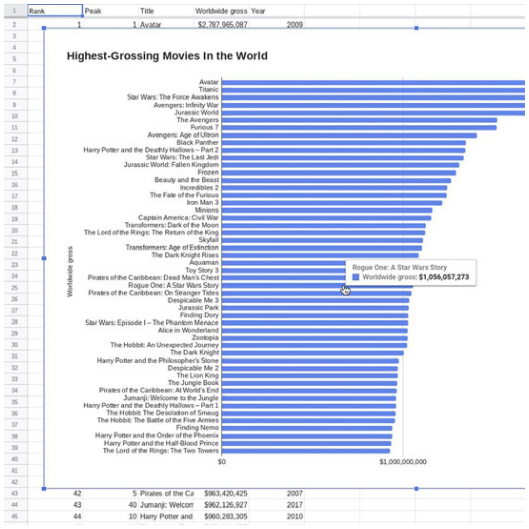
STEP 2 OF 3

Click anywhere on top of the movie titles and hover the mouse around the vertical edges until bounding boxes fade in. Drag the box until there's enough space for the longest title to be read in full.



STEP 3 OF 3

Notice that there are 50 bars in the chart, but not 50 film titles. That's because Google Sheets automatically distributes the names in the list, omitting some of them, to improve legibility. Hover the cursor on top of any bar and a tooltip box will appear showing the name and value of that bar.

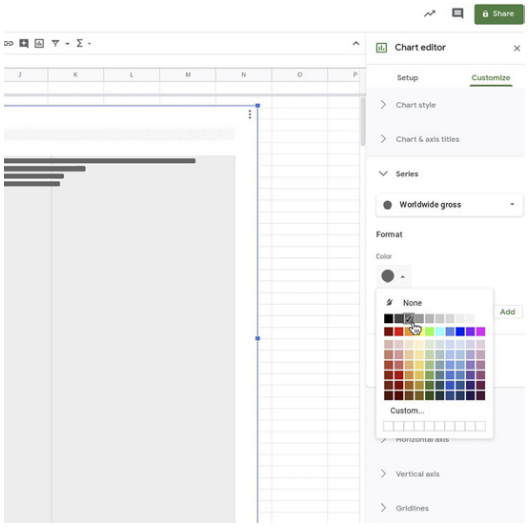


Creating highlights.

Let's make highlights in the chart to draw attention to specific elements for our users.

STEP 1 OF 3

Change the color of all the bars to gray. In the **Chart editor**, select **Customize** > **Series** and select a dark gray shade for Worldwide Gross.

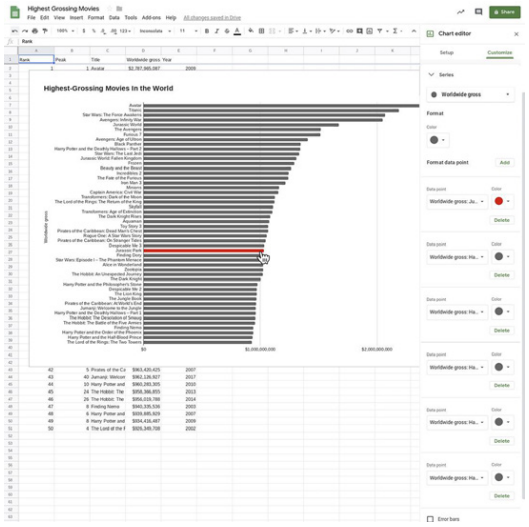


STEP 2 OF 3

Let's highlight the movie Jurassic Park, the oldest movie in the list (1993).

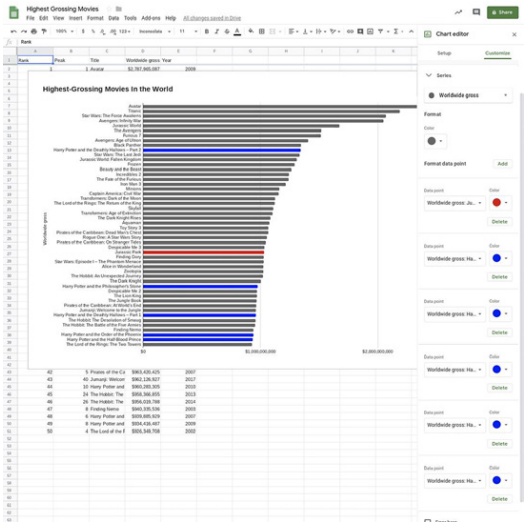
Go to **Format data point** and click **Add**.

Select **Worldwide gross: Jurassic Park** and click **OK**. Choose the color red.



STEP 3 OF 3

Let’s do the same thing to highlight all five Harry Potter movies in blue.



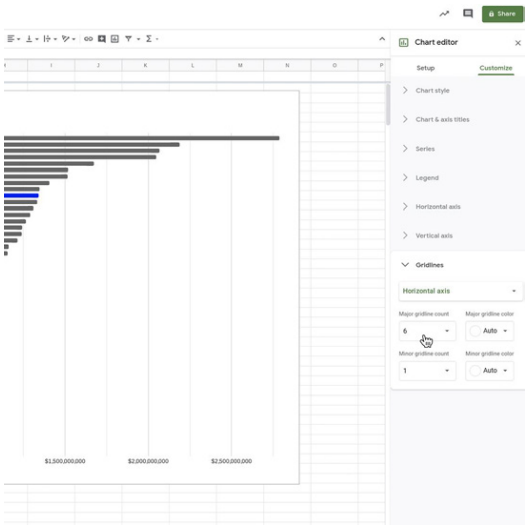
Improving legibility.

We can further improve the design of our chart by adding gridlines.

STEP 1 OF 2

In the **Chart editor**, select **Customize** > **Gridlines**.

In the **Horizontal axis**, increase the **Major gridline count** to 6 and **Minor gridline count** to 1.

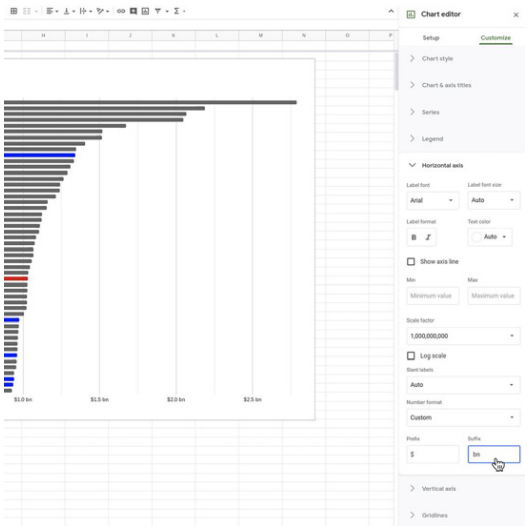


STEP 2 OF 2

Go back to **Customize** > **Horizontal axis**.

In **Scale factor**, select **1,000,000,000**.

In **Number format**, select **Custom**. For **Prefix**, type **$**. For **Suffix**, type " **bn**" without quotes, and including the leading space.



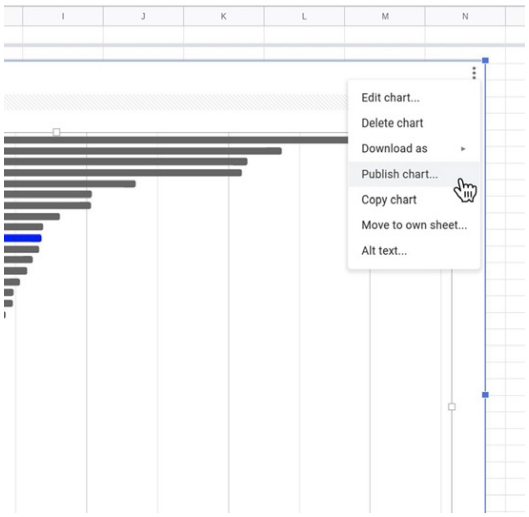
Publishing your interactive data visualization.

When you are satisfied with the accuracy, legibility and design of your chart, it's time to publish it.

STEP 1 OF 2

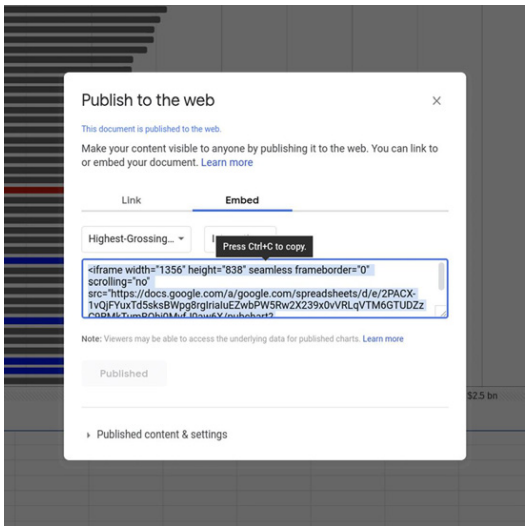
Hover your mouse in the top left corner of the chart and click on the three-dotted icon.

Select **Publish chart** > **Publish**.



STEP 2 OF 2

You should now have an embed code that you can use on your publication. Any changes will be automatically republished when made.



Congratulations!

You completed “Google Sheets: Visualizing data.”

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:

Data Studio: Make interactive data visualizations

Give life to your datasets by creating powerful interactive visualizations with an easy-to-use studio.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Google News Initiative

LESSON 18 : Part 04 of 04 in the Visualizing Data module

Data Studio: Make interactive data visualizations

Give life to your datasets by creating powerful interactive visualizations with an easy-to-use studio.

Lesson overview

Learn to build visualizations that tell your story.

Data Studio is a powerful tool to build interactive visualizations that update in real time with data from a variety of sources. In journalism, Data Studio enables you to tell stories with data and gives you freedom in how to present them. These visualizations let users interact with stories from different perspectives.

1 Connecting Google Sheets with Data Studio.

2 Editing your data.

3 Creating a line chart.

4 Adding a table chart.

5 Making design changes in your visualization.

6 Embedding your interactive visualization.

For more Data Journalism lessons, visit:

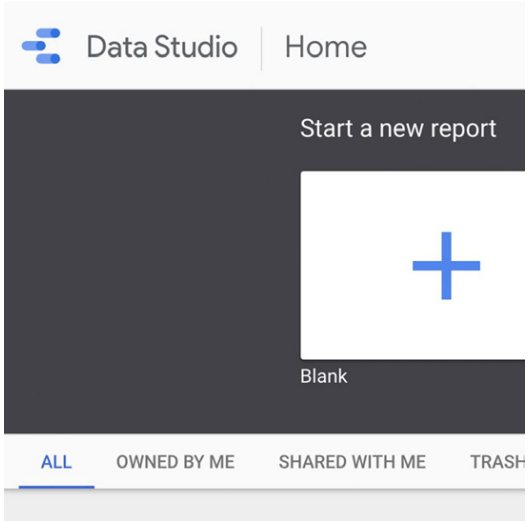
newsinitiative.withgoogle.com/training/course/data-journalism

Connecting Google Sheets with Data Studio.

Before you begin, make sure you've completed our Training Center lessons, Google Sheets: Scraping data from the internet and Google Sheets: Cleaning data, and that you're logged in with the same account. We'll be using the data sheet we created from the Wikipedia article in those lessons for this visualization.

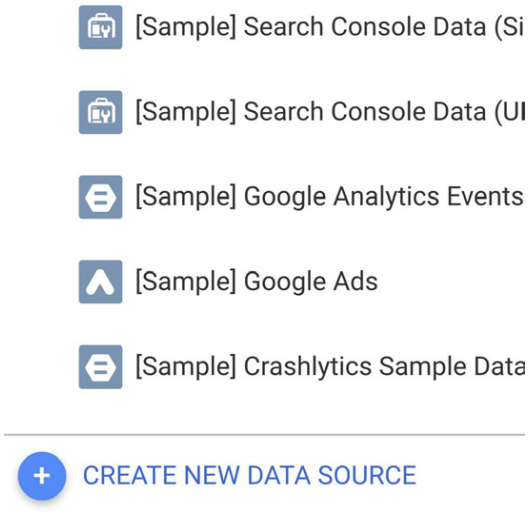
STEP 1 OF 5

Go to datastudio.google.com and begin a new report by clicking the blank square with the **+ icon**.



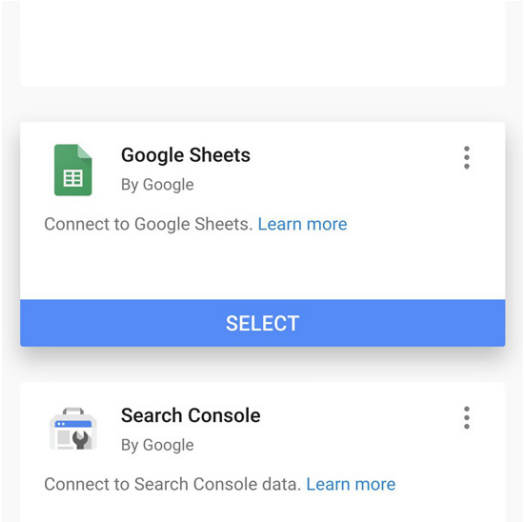
STEP 2 OF 5

In Data Studio, visualizations are called "reports." To connect our Google Sheet to this report, select **Create a New Data Source** from the bottom right.



STEP 3 OF 5

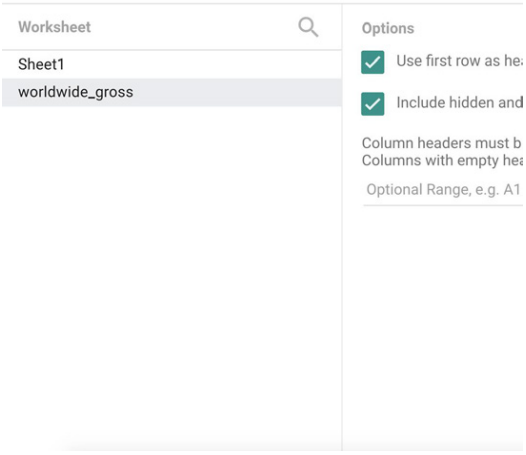
A menu will slide up showing the services we can pull our data from. Scroll to **Google Sheets** and click **SELECT.**



STEP 4 OF 5

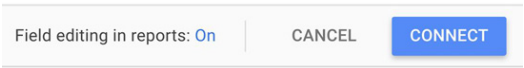
In the search box, you'll see all the Google Sheet files associated with your Google Drive account. (If this is your first time using Google Data Studio, you may need to grant permission to access your Drive account.)

Select the spreadsheet and its associated worksheet where the data is stored.



STEP 5 OF 5

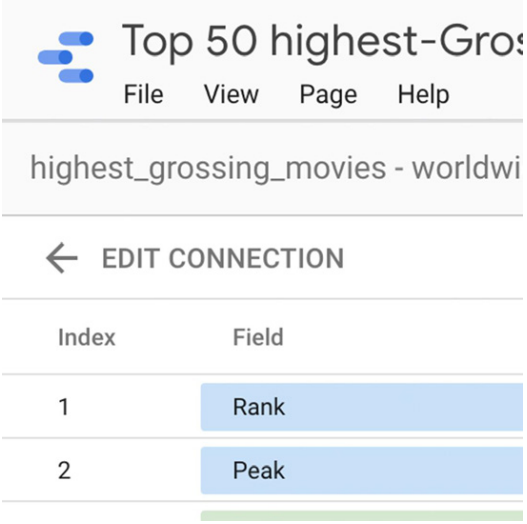
Leave all the **Options** boxes checked and click **Connect**.



Editing your data.

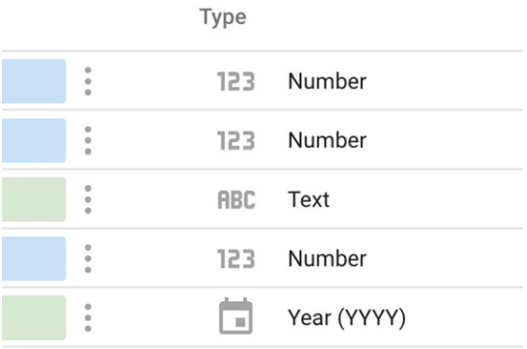
STEP 1 OF 4

Let's rename the visualization. Click on the top left corner where it says **Untitled report**. Let's call it "Top 50 Highest Grossing Movies in the World."



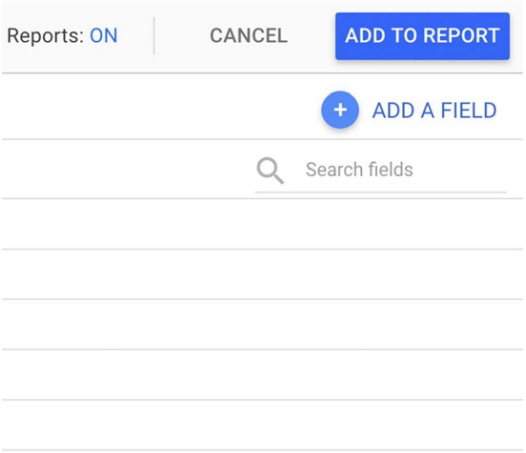
STEP 2 OF 4

Under **Type**, change the data in row 5 from Number to Date & Time > Year (YYYY). If it's already set as Year (YYYY), leave it.



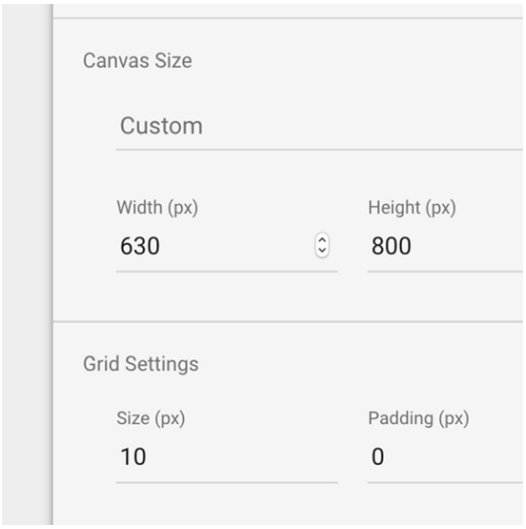
STEP 3 OF 4

Select **Add to Report**, the blue button on the top right. Click again on the same option that will pop up.



STEP 4 OF 4

Let's make the visualization 630 pixels in width and 800 pixels in height. Click anywhere and type the numbers in the **Canvas Size** section.

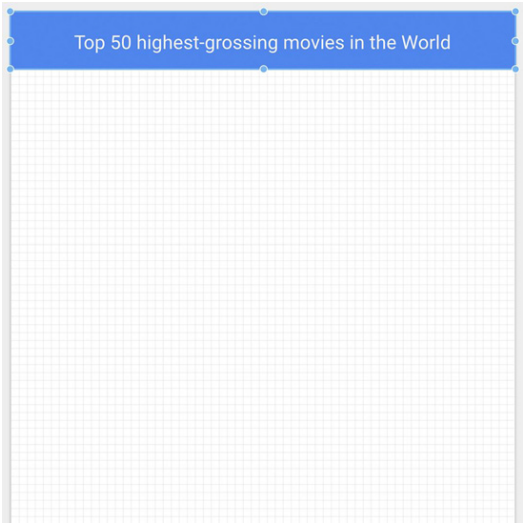


Creating a line chart.

We're going to add an interactive line chart showing the worldwide gross for a given year. When you click on any year along the line, a table will appear, listing the top films, from highest to lowest grossing.

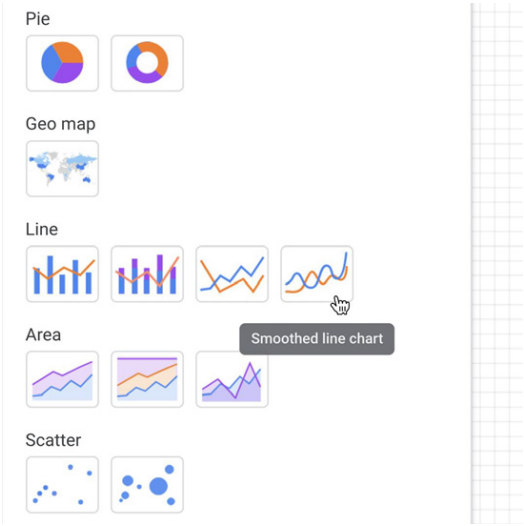
STEP 1 OF 6

First, select the rectangle tool and drag the mouse cursor across the top of the canvas. Use the **text tool** to add a title. Use the right pane to format the text.



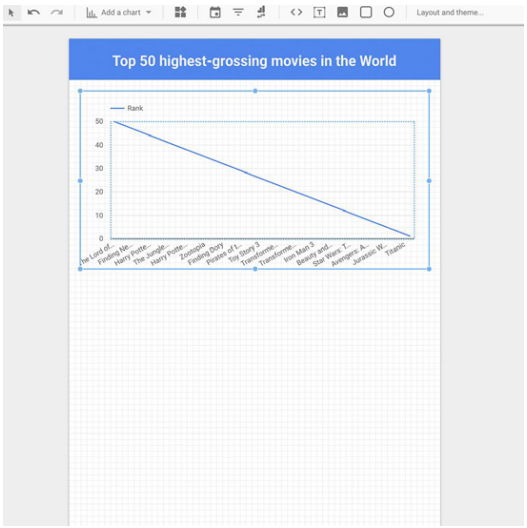
STEP 2 OF 6

Go to **Add a Chart** and click **Smoothed line chart**.



STEP 3 OF 6

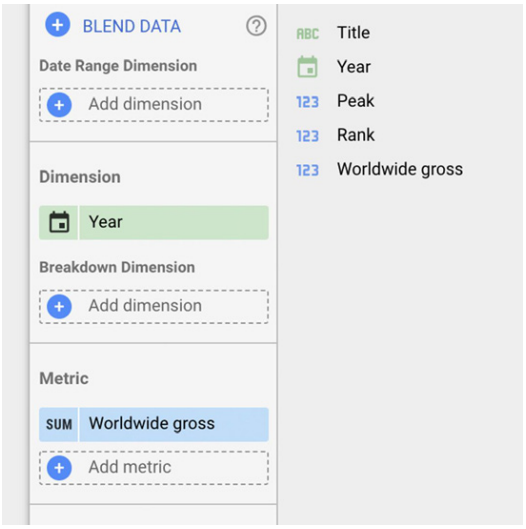
Resize it to fit nicely below the title, but leave space for the next chart.



STEP 4 OF 6

To change the dimension, metric and sort for the line chart, double click it.

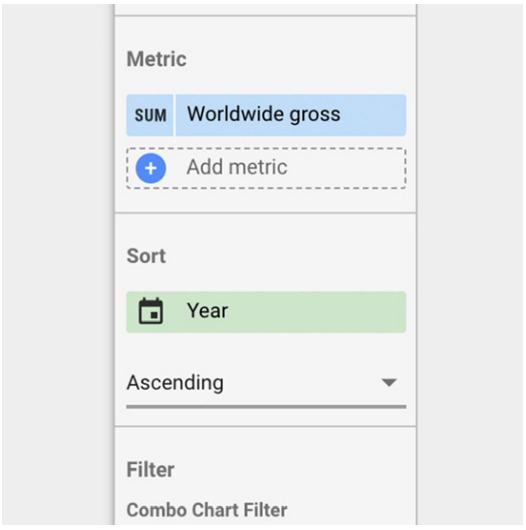
For **Dimension**, drag and drop **Year** to replace **Title**. Next, replace **Metric** with **Worldwide gross**.



STEP 5 OF 6

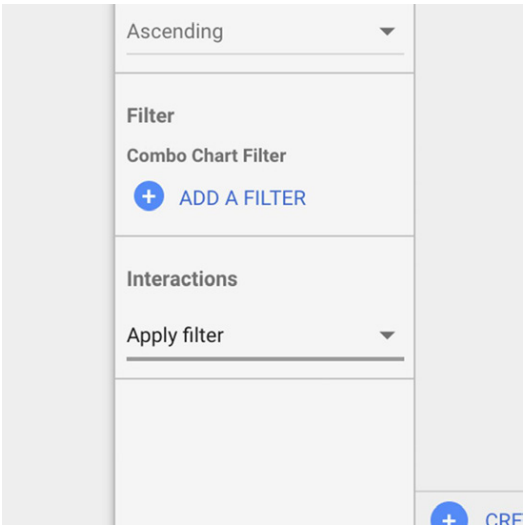
Under **Sort**, click **Worldwide gross**, then click **Year.**

Change the sort option to **Ascending**.



STEP 6 OF 6

At the bottom you will see a section called **Interactions**. Select **Apply filter**. This will make every click on the line chart an action to filter the table.



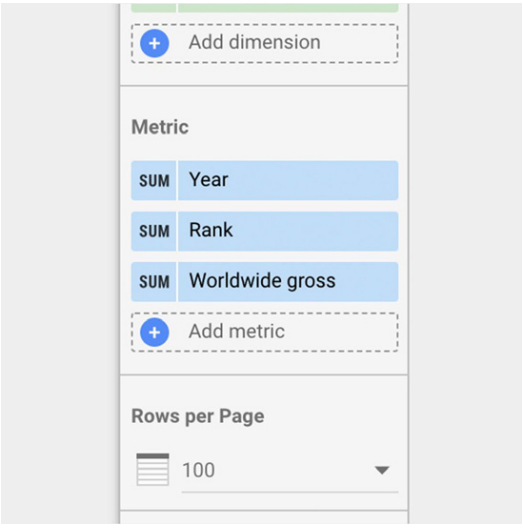
Adding a table chart.

STEP 1 OF 5

Choose **Add a chart > Table chart**. Resize it to show the first 10 rows in the list.

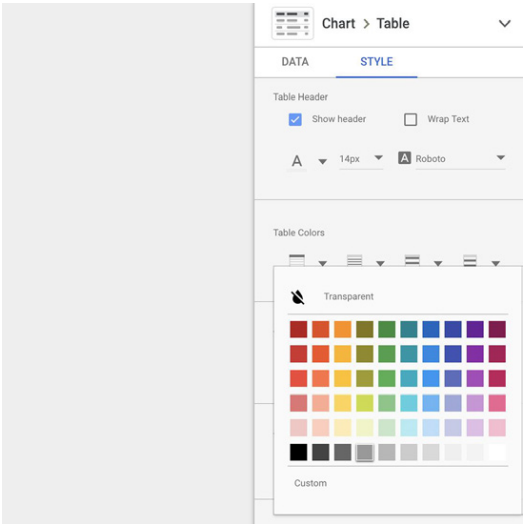
STEP 2 OF 5

Let's set up this table with three metrics in this order: Year, Rank and Worldwide gross. Go to **Metrics** and add these fields, either by dragging from **Available Fields** or clicking **Add metric**.



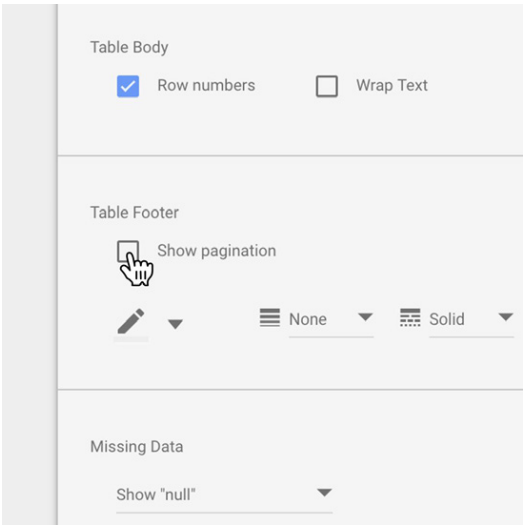
STEP 3 OF 5

Next, go to **Style > Table Colors** to change the color of the header to dark gray.



STEP 4 OF 5

Go to **Table Footer** and uncheck **Show pagination**.



STEP 5 OF 5

Now, you can add text citing your data source and offering instructions for using the chart. Select **Text** and add it to the bottom of the table.

1.	Avatar	2009
2.	Titanic	1997
3.	Star Wars: The Force Awake...	2015
4.	Avengers: Infinity War	2018
5.	Jurassic World	2015
6.	The Avengers	2012
7.	Furious 7	2015
8.	Avengers: Age of Ultron	2015
9.	Black Panther	2018
10.	Harry Potter and the Deathly...	2011

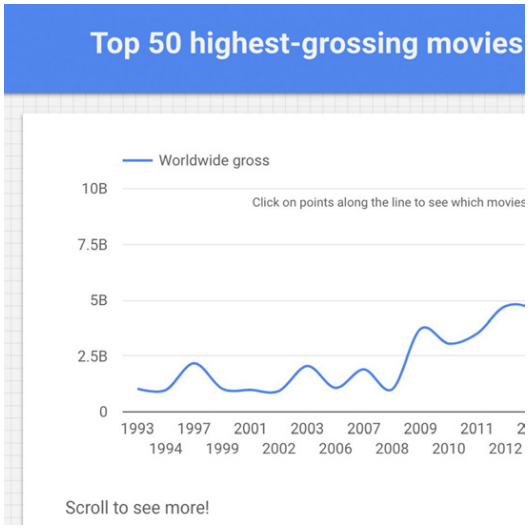
Source: https://en.wikipedia.org/wiki/List_of_highest-grossing_films (retrieved in Janu

Making design changes in your visualization.

Let's explore some different types of design elements and text you can use to customize your visualization.

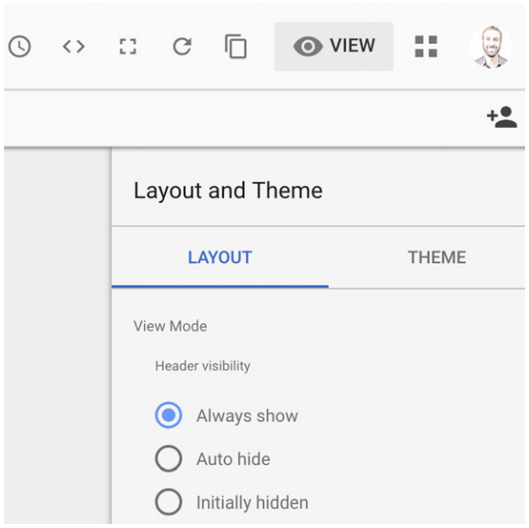
STEP 1 OF 4

To add directional text, such as "Scroll to see more!", click **Text** and type your message.



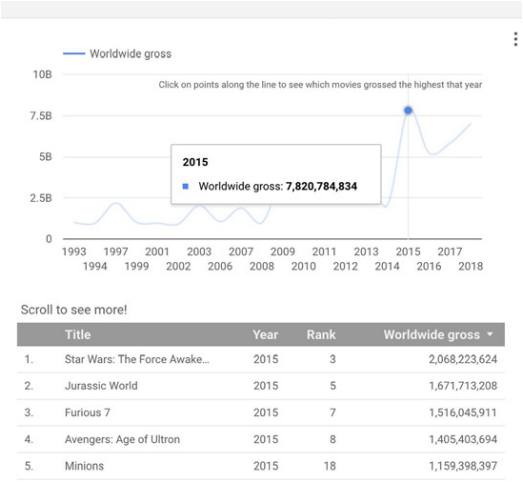
STEP 2 OF 4

At any time, you can preview your visualization by clicking **View.** To toggle back and forth between **View** mode and **Edit** mode, simply click again.



STEP 3 OF 4

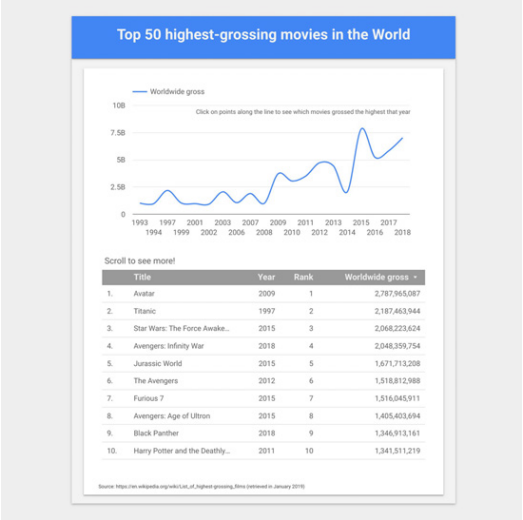
When you're in **View** mode, you can click on any point in the line and the table below will automatically display the top 50 movies from that year.



	Title	Year	Rank	Worldwide gross
1.	Star Wars: The Force Awake...	2015	3	2,068,223,624
2.	Jurassic World	2015	5	1,671,713,208
3.	Furious 7	2015	7	1,516,045,911
4.	Avengers: Age of Ultron	2015	8	1,405,403,694
5.	Minions	2015	18	1,159,398,397

STEP 4 OF 4

View mode also lets you see the complete visualization you've created, including the title, line chart and table chart.

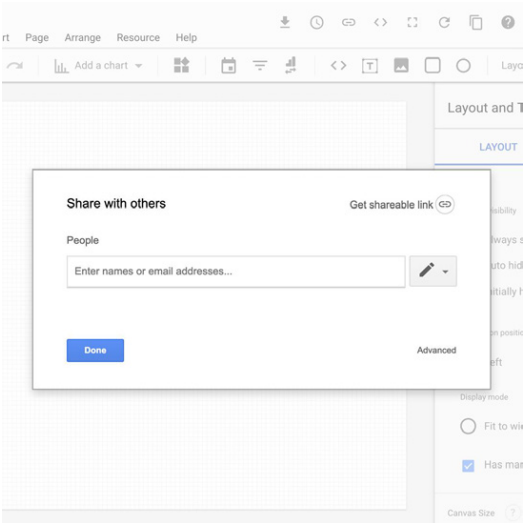


Embedding your interactive visualization.

You can share your visualization via email or by embedding it on your website.

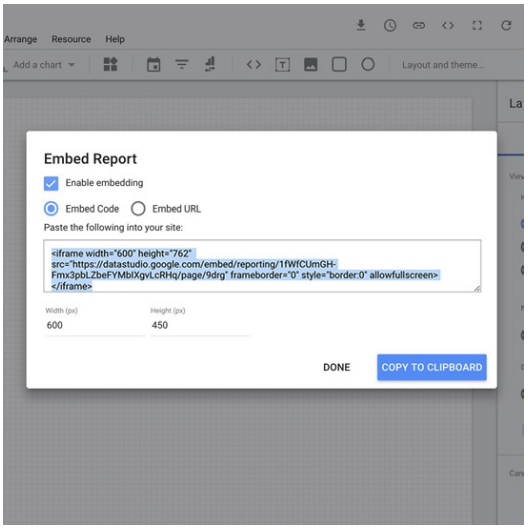
STEP 1 OF 2

Share this visualization the same way you'd share any other GSuite document.



STEP 2 OF 2

To embed this interactive visualization on your website, click **File** > **Embed report**. Check the **Enable embedding** box and use the code on your page.



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