

# Data Visualization Tools for High School Teachers

Day 3

# Before We Begin

## Pre-workshop notes



Use headphones



Everyone their own laptop



Quiet space



Reliable internet connection



Camera on

## online etiquette



Mute yourself



Press spacebar to unmute



Want to speak



Yes / agree



RHODE ISLAND CONSORTIUM FOR  
Coastal Ecology  
Assessment  
Innovation &  
Modeling



This material is based upon work supported in part by the National Science Foundation under EPSCoR Cooperative Agreement #OIA-1655221

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

# Agenda

- 9:00 – 9:10: Recap of Day 1 and 2
- 9:10 – 09:55: Data Visualization using Python
- 09:55 – 10:00: Break
- 10:00 – 10:55: Teachers Group Activities
- 10:55 – 11:00: Break
- 11:00 – 11:45: Teachers Debrief
- 11:45 – 12:00: Next steps and discussions

# Charts

infogr.am

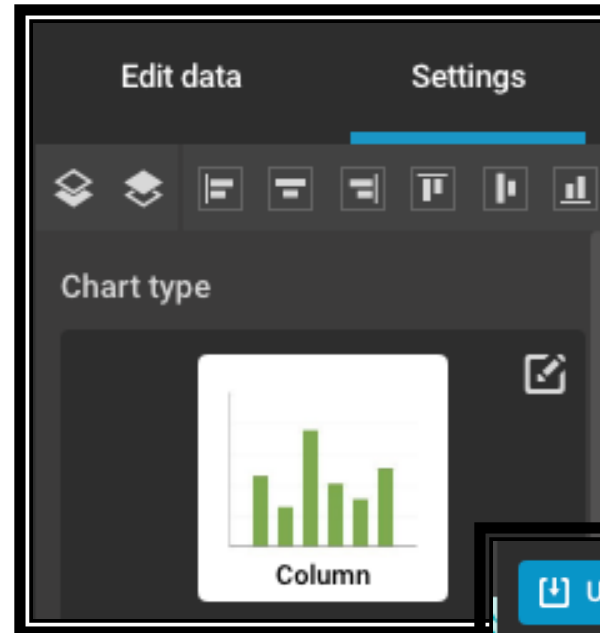
- Charts are graphical representations of data.
- Charts make it easy to understand large quantities of data, find patterns and relationships and identify trends.
- Infogram offers a wide variety of charts ranging from interactive bar charts, area charts, pie charts to more complex ones like treemaps, word clouds, scatter charts or candlestick charts.

# How does it work?

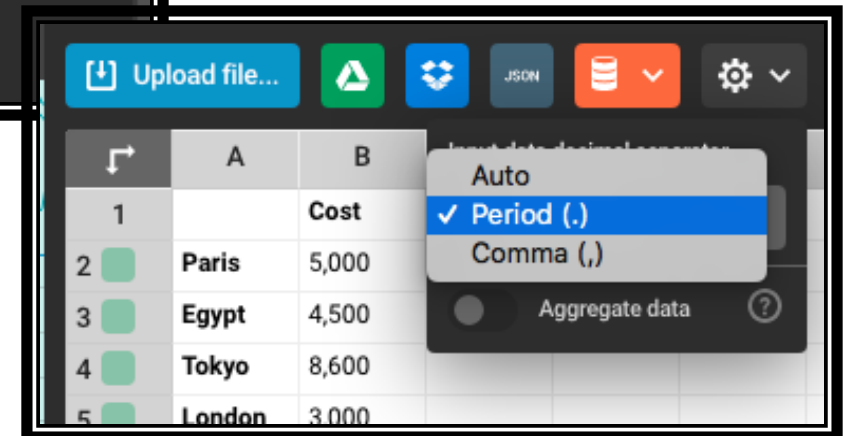
infogr.am

## Importing Data

- If the data set is so small, I can just edit the chart element directly
  - While the bar chart is selected, click "Edit data" to bring up the spreadsheet and fill in your data
- What if I already have a spreadsheet of data? Simple!
  - The "Edit data" tab allows you to upload an Excel file, a .csv file, a Google Sheets file, and much more
- With .csv, make sure to click on the little gear icon to change how the data is separated



I chose to use a bar chart



# How does it work?

The logo for infogr.am, featuring the text "infogr.am" in white lowercase letters inside a red speech bubble shape.

## Making a Visualization

- Look at your data and choose a chart type that works, not one that looks interesting
- Let's say I want to make a poster for the Travel Abroad club at school
  - I want to show the cost per person to different destinations the group may go to
- What chart type do you think would work for this data?

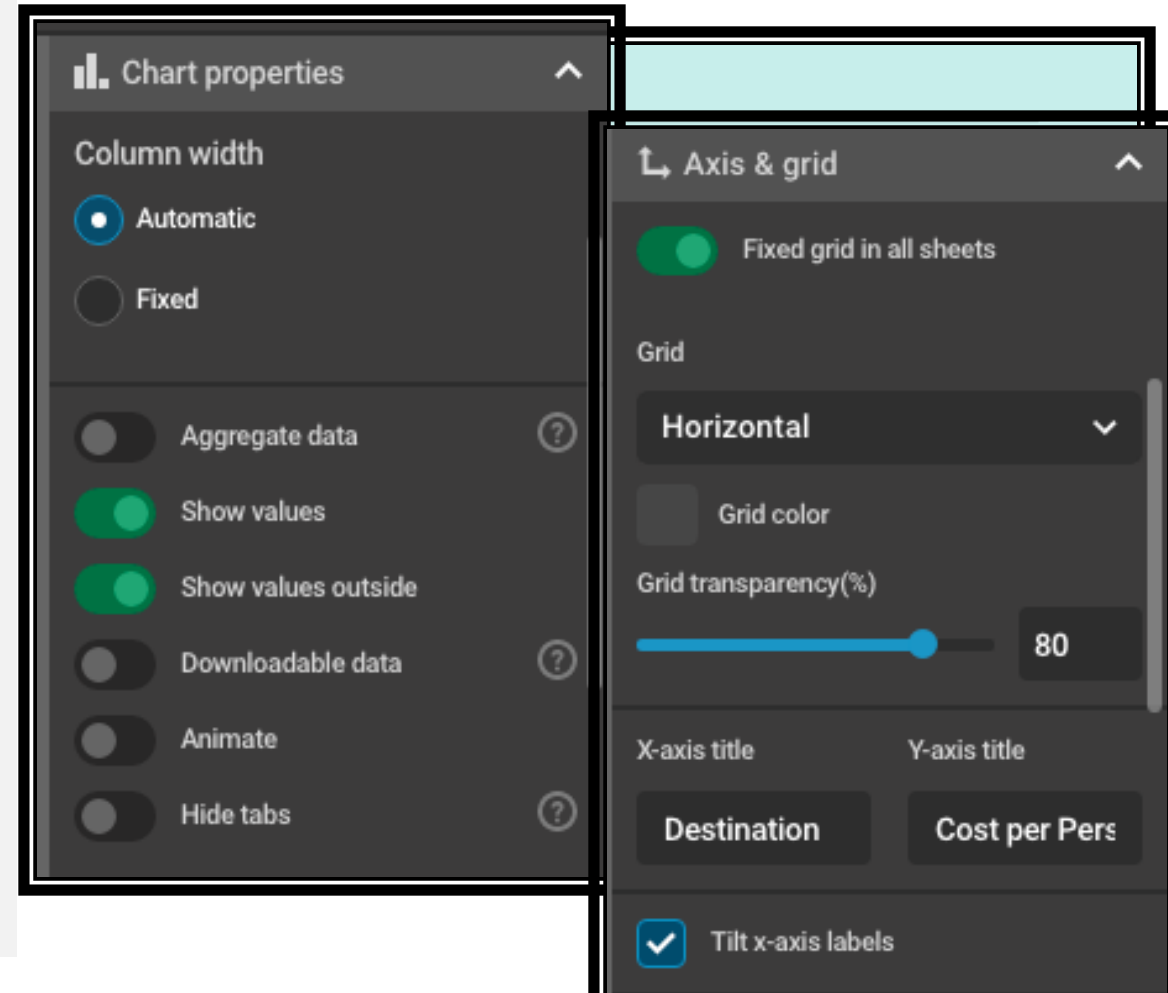
Destination	Cost
Paris	5,000
Cairo	4,500
Tokyo	8,600
London	3,000
Brazil	3,300

# How does it work?

infogr.am

## Finalizing the Graph

- Going back to the settings, I want to add some elements
- I want data labels since this will be a printed poster
  - Go to "Chart properties" --> "Show values" and/or "Show values outside"
  - If I share the poster from Infogram digitally, you may not need data labels since the labels appear when you hover over a column
- I want axis titles
  - Go to "Axis & grid" and scroll down to find the text boxes for each axis
- There are many more options to play around with if you make a chart on Infogram



# Charts

The logo for Infogram, featuring the text "infogr.am" in white lowercase letters inside a red speech bubble shape with a tail pointing downwards and to the left.

infogr.am

- Let's try it on Infogram



# Infogram Pricing

infogr.am

infogram

Create

Examples

Solutions

Pricing

Customers

Blog

Log in

Get started

## Basic

Get started for free to see how easy it is to design beautiful data visualizations with Infogram.

Free

Forever

Start for Free

- ✓ 37+ interactive charts types
- ✓ Up to 10 projects
- ✓ Up to 5 pages per project
- ✓ 13 map types
- ✓ Publish your content online
- ✓ Import data
- ✓ Object animations

## Pro

For those who want to download, share privately, and access premium templates and images.

\$19 / month

Billed yearly

Start with Pro

- All Basic features, plus:**
- ✓ Up to 100 projects
  - ✓ Up to 10 pages per project
  - ✓ 100+ premium templates
  - ✓ 550+ map types
  - ✓ 1 million images and icons available
  - ✓ Set your favorite colors, fonts, and images
  - ✓ Advanced image editing features
  - ✓ Download HD images and videos
  - ✓ Privacy control
  - ✓ Data connections and live data

## Business

Everything you get with Pro plus upload your brand kit (logo, palette, font, and images), use a larger library, and create unlimited pages per project.

\$67 / month

Billed yearly

Start with Business

- All Pro features, plus:**
- ✓ Up to 1,000 projects
  - ✓ Unlimited pages per project
  - ✓ Your brand logo, color palette, fonts, and image assets
  - ✓ Your own logo
  - ✓ Basic analytics
  - ✓ SQL Connectors, Iframe integrations
  - ✓ Version history
  - ✓ Callouts, custom links and page linking

## Team

Everything you get with Business, plus real-time team collaboration and engagement analytics.

\$149 / month

Billed yearly

Start with Team

- All Business features, plus:**
- ✓ Up to 3,000 projects
  - ✓ Single team functionality starting with 3 users
  - ✓ Real-time collaboration
  - ✓ Commenting
  - ✓ Engagement analytics
  - ✓ Tracking links

## Enterprise

Unlock the full power of Infogram for your business. Receive custom designs, branded profile and subdomain, priority support, and tailored training for your team.



+1 650 729 1672

Contact Us

- All Team features, plus:**
- ✓ Up to 10,000+ projects
  - ✓ Branded public profile and subdomain
  - ✓ Multiple team functionality starting with 10 users
  - ✓ Advanced training & dedicated account manager
  - ✓ First Priority support
  - ✓ Custom design implementation and team templates
  - ✓ Export interactive charts and maps for offline use.
  - ✓ Custom development
  - ✓ SSO
  - ✓ 99.9% uptime SLA
  - ✓ Web tracking opt out

Support

# More Resources

infogr.am

- <https://www.youtube.com/c/Infogram/videos>
- <https://infogram.com/page/best-resources>

# 5 Minutes Break!

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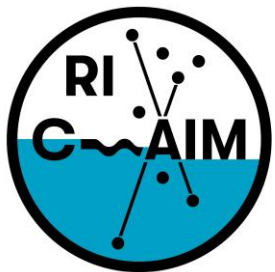
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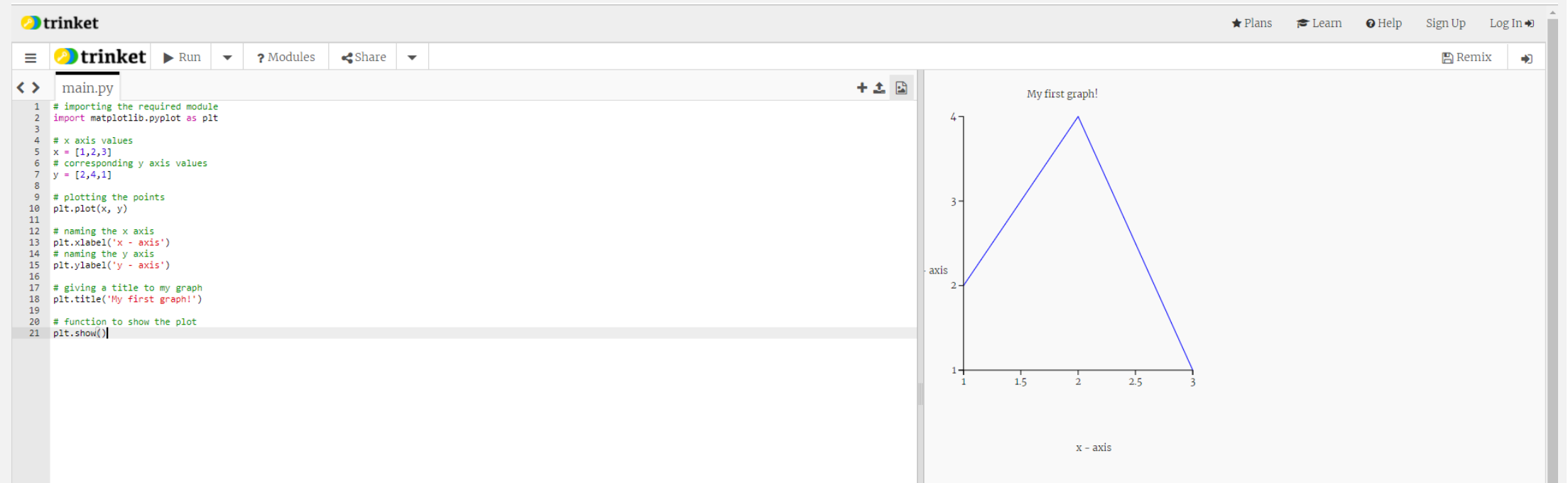
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# Data Visualization Using Python

- Online Tool  
<https://trinket.io/embed/python3>
- Examples  
<https://www.geeksforgeeks.org/graph-plotting-in-python-set-1/>

# Data Visualization Using Python

- Example 1:



The image shows a screenshot of the Trinket online IDE. On the left, a code editor displays a Python script named 'main.py'. The code imports the 'matplotlib.pyplot' module as 'plt', defines x-axis values [1, 2, 3] and y-axis values [2, 4, 1], and uses 'plt.plot()' to create a line graph. It also includes labels for the axes and a title 'My first graph!'. On the right, the rendered graph is shown as a blue line connecting the points (1, 2), (2, 4), and (3, 1). The x-axis is labeled 'x - axis' and the y-axis is labeled 'y - axis'. The graph has a title 'My first graph!' and a grid.

```
1 # importing the required module
2 import matplotlib.pyplot as plt
3
4 # x axis values
5 x = [1,2,3]
6 # corresponding y axis values
7 y = [2,4,1]
8
9 # plotting the points
10 plt.plot(x, y)
11
12 # naming the x axis
13 plt.xlabel('x - axis')
14 # naming the y axis
15 plt.ylabel('y - axis')
16
17 # giving a title to my graph
18 plt.title('My first graph!')
19
20 # function to show the plot
21 plt.show()
```

x	y
1	2
2	4
3	1

# Data Visualization Using Python – Example 1

```
# importing the required module
import matplotlib.pyplot as plt

# x axis values
x = [1,2,3]
# corresponding y axis values
y = [2,4,1]

# plotting the points
plt.plot(x, y)

# naming the x axis
plt.xlabel('x - axis')

# naming the y axis
plt.ylabel('y - axis')

# giving a title to my graph
plt.title('My first graph!')

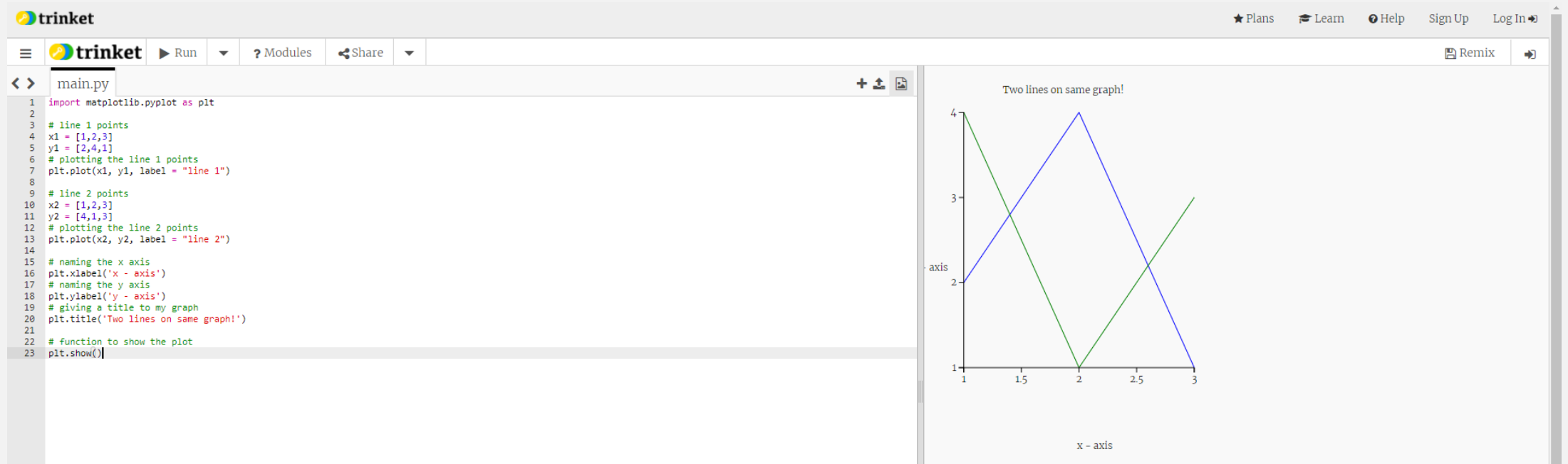
# function to show the plot
plt.show()
```

Just copy and paste the code into  
the website: Online Tool

<https://trinket.io/embed/python3>

# Data Visualization Using Python

- Example 2:



# Data Visualization Using Python – Example 2

```
import matplotlib.pyplot as plt

# line 1 points
x1 = [1,2,3]
y1 = [2,4,1]
# plotting the line 1 points
plt.plot(x1, y1, label = "line 1")

# line 2 points
x2 = [1,2,3]
y2 = [4,1,3]
# plotting the line 2 points
plt.plot(x2, y2, label = "line 2")

# naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')
# giving a title to my graph
plt.title('Two lines on same graph!')

# function to show the plot
plt.show()
```

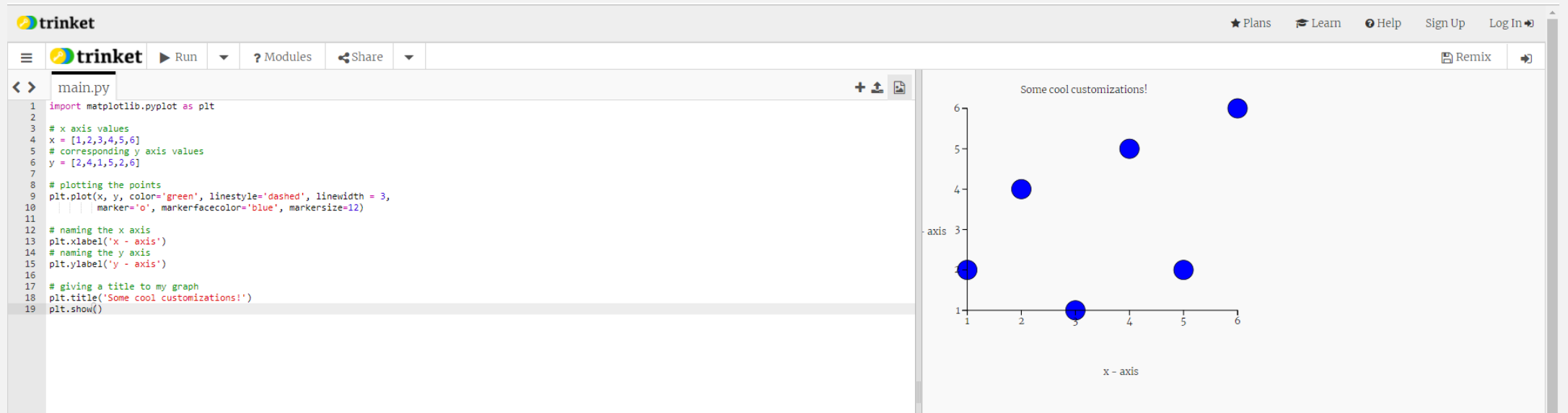
Just copy and paste the code into  
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<https://trinket.io/embed/python3>



# Data Visualization Using Python

- Example 3:



# Data Visualization Using Python – Example 3

```
import matplotlib.pyplot as plt

# x axis values
x = [1,2,3,4,5,6]
# corresponding y axis values
y = [2,4,1,5,2,6]

# plotting the points
plt.plot(x, y, color='green', linestyle='dashed', linewidth = 3,
         marker='o', markerfacecolor='blue', markersize=12)

# naming the x axis
plt.xlabel('x - axis')
# naming the y axis
plt.ylabel('y - axis')

# giving a title to my graph
plt.title('Some cool customizations!')
plt.show()
```

Just copy and paste the code into  
the website: Online Tool  
<https://trinket.io/embed/python3>

# 5 Minutes Break!

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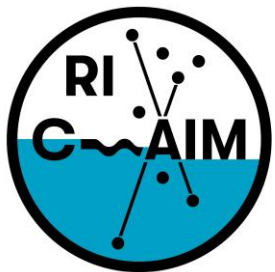
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# Teacher Group Activities

- Teacher Activity Book

<http://simplechartsri.com/additional-files/Teacher%20Activity%20Book%20Ver%203%20with%20back%20cover.pdf>

- Student Activity Book

<http://simplechartsri.com/additional-files/Student%20Activity%20Book%20Ver%203%20with%20back%20cover.pdf>

- Activities Created By Teachers

<http://simplechartsri.com/resources.html>

- Teacher Report Template

<http://simplechartsri.com/resources.html>

# Teacher Groups



Gina Cunha  
Don Lurgio  
Amy Kizzee  
Joel Swan  
Kelly Reese



Shannon Donovan  
Whitney Biafore



Elizabeth Letourneau  
Mark Davis



Justin Kuncz  
Helaine Hager

# 5 Minutes Break!

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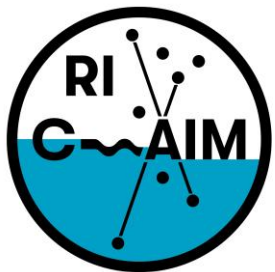
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# Teachers Debrief



Gina Cunha  
Don Lurgio  
Amy Kizzee  
Joel Swan  
Kelly Reese



Shannon Donovan  
Whitney Biafore



Elizabeth Letourneau  
Mark Davis



Justin Kuncz  
Helaine Hager

# W-9 Forms and Next steps

If you haven't been paid by RIC before



<https://www.ric.edu/documents/w-9-form>



Fill the W9 form out by **August 7th**



Send it to [shamouda@ric.edu](mailto:shamouda@ric.edu)

- If you have been paid by RIC before, you're all set.
- We will send you an email when the **\$120** first stipend for attending the workshop is ready.
- The **\$80** second stipend is after submitting the report by **August 20th**.
- The completion certificates will be emailed and mailed to you next week.
- Your Infogram account is valid for a year. We can't offer student accounts.
- **Workshop evaluation link:**  
<https://forms.office.com/r/BS8qT6mqq2>



# SimpleChartsRI Old vs New

- Old vs New Survey

<https://forms.office.com/r/qJkK5UiBtu>

SimpleChartsRI Home Resources About ?

1) Choose Data

[A Guide on Using this Tool](#)

Formatting matters. The quality of a visualization can only ever match the quality of its data.

For example, this data...

Month	Temperature (°F)	Daylight (Hours)
January	38	9.5
July	82	15

... will create this chart:

■ Temperature (°F) ■ Daylight (Hours)

Choose Sample Create Data Upload File

Using the recommended chart type, use our samples to see how SimpleChartsRI can help you visualize data.

Pick a sample...

View Source Submit

SimpleChartsRI Home Resources About Contact Rate Us Help

1) Choose Data

Formatting matters. The quality of a visualization can only ever match the quality of its data.

Choose Sample Create Data Upload File

Click on a sample from our simple or complex datasets to see how SimpleChartsRI can help you visualize data!

Simple Datasets Complex Datasets

**Ocean**

- Surface Chlorophyll
- Chlorophyll
- FJ-WR Water
- GSO O2 Levels
- Inorganic Nutrients
- N Prudence pH
- Phillipsdale Salinity
- Physical Data
- Poppasquash Point
- Quonset Point



**Thank you!**  
**It was a great pleasure**  
**meeting you all!**  
**Questions/Comments?**

**End of the workshop**