

How can we use graphs and charts to help us understand forest populations?

In this activity, students will learn how to communicate information through graphing.

Note: This lesson is intended to be completed during the study of the GBR. The goal is for students to draw information and data from what they are learning to make meaningful connections between the use of data, charts and graphs and the stories they tell.

Learning Intentions

1. How can we connect information and experiences related to forest populations with math?

Curricular Connections

Refer to the “Curriculum” drop-down option under the “Learn” tab of the Great Bear Rainforest Education and Awareness website.

Curriculum Alignment: Great Bear Rainforest Education and Awareness Trust

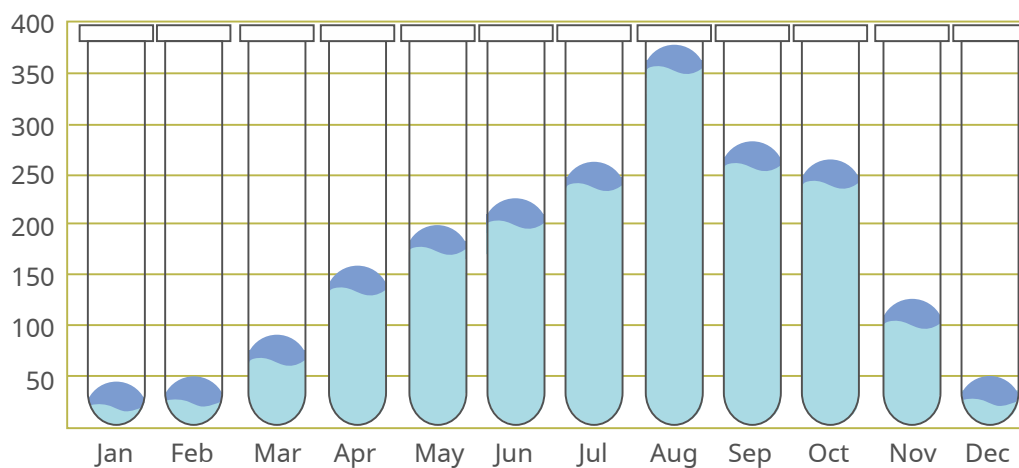
<https://greatbearrainforesttrust.org/curriculum/>

Learning Intention 1

How can we connect information and experiences related to forest populations with math?

Rainfall Graph

- Show students the following rainfall graph and ask them to reflect on what information or story this graph is trying to tell us. Have them think individually first, and then pair up and share their observations and hypotheses with their partner. Have a few groups share their findings with the class.



Where is the rainfall taking place? Is it in an urban centre or a rural area? The title is missing from the graph, making it difficult to tell a detailed story about the data.

The graph uses test tubes instead of bars. This demonstrates that the precipitation (rain) needs to be captured to be accurately measured. Using test tubes instead of a simple bar adds an element of storytelling to the graph.

- Discuss why data is important and how we can use it. Explain that data can tell a story. For example, it can show us trends and changes over time, and it can help highlight information to share with others.

- Talk about the different ways of representing data. Make a list of the different types of data representations students know or have seen in their science and math textbooks (for example, charts, tables, different types of graphs—pie, single bar, double bar, line). Show examples if needed. Where else do we find these examples? How do they help our understanding about a subject?

Activities

- Look at various data, charts, and graphs from the Great Bear Rainforest (GBR)—animal populations, rate of deforestation, comparison to non-protected forests. Ask students: What problems do we notice? What possible solutions can you think of? Who would you need to consult?
- Explain to students that they will be using data to create their own graphs and charts to tell the story of the Great Bear Rainforest and to better understand forest populations. They will be using what they know already about the GBR to decide on a topic that they want to represent visually.
- Using information from previous lessons on the GBR (or ideas stated here), have students collect the information needed to create a graph or chart that best tells the story of their data. Students can use graph paper and coloured pencils to create their graph or chart, or they can use a computer and an application such as Excel, Numbers or Pages that will take their information and create the desired graph.
- Here are some ideas that can be shared with students for the content of their graphs.
 - ◆ The population of the communities of the GBR
 - ◆ Height of different trees you can find in the GBR
 - ◆ Size of animals you can find in the GBR
 - ◆ Numbers or populations of the animals you can find in the GBR
 - ◆ Comparing the size of different types of bears around the world
 - ◆ Comparing the size of whales (for example, orca and humpback whales)
 - ◆ Rainfall / precipitation in different communities or in one community over time
 - ◆ Temperature or climate in different communities or in one community over time

- Have students share their graphs with others in the class. What information do we get about the GBR from looking at the graphs them individually? What information do we get about the GBR as a whole, if we look at all the graphs together? Reflect on the importance of data to understand our world and how we see examples of this every day.

Materials

- Computer with internet access
- Graph paper or virtual graph application (for example, Excel, Pages, Numbers)
- Colouring pencils or markers

Possible Topics/Key Vocabulary

- Bar graph
- Chart
- Double bar graph
- Line graph
- Pictograph
- Pie chart
- Table
- X axis
- Y axis

Reflections on Learning

- Have students orally share graphs they have used or created and what they have learned from them. Have them share how they chose the kind of graph or chart to use to best describe the data they have.
- Do a graph gallery where students can walk around and leave questions for others on post-its.
- The student graphing project can be teacher-assessed or self-assessed. Some questions could include:
 - ◆ Does the student:
 - ❖ Include a math problem that is meaningful to the community?
 - ❖ Make use of numbers found/provided?
 - ❖ Demonstrate thoughtfulness and analysis?

Suggested Resources

Communities: Great Bear Rainforest Education and Awareness Trust

To gather data on communities

<https://greatbearrainforesttrust.org/communities/>

Historical Data

Government of Canada website with historic data on weather -

https://climate.weather.gc.ca/historical_data/search_historic_data_e.html

How much protection is needed for the Great Bear Rainforest?

Sample bar graph

https://farm3.static.flickr.com/2025/2214102831_ddd7754231_o.gif

Infographics and data visualizations

Communities and Protected Areas of the Great Bear Rainforest and Haida Gwaii

<https://southafricatoday.net/wp-content/uploads/2019/06/Coast-Funds-Project-Area-Map-Cropped.jpg>

Great Bear Rainforest 2009: Protected Areas & EBM Operating Area

“EBM” stands for ecosystem-based management.

https://canopyplanet.org/wp-content/uploads/2015/03/Mar_2009-status.jpg

Slow reveal graphs

<https://slowrevealgraphs.com>

Videos for students

Note: Always watch videos first to ensure content is appropriate for your students

Graphs for kids: Learn all about basic graphs

<https://www.youtube.com/watch?v=bmY28wdGL9M>

Reference videos for teachers

Data Storytelling Basics (in 3 Steps): How to communicate Data and Numbers

https://www.youtube.com/watch?v=zklM_KnNloI

Data storytelling with animated graphs and charts

<https://www.youtube.com/watch?v=X6Pyc81McjY>

Extensions

- Have students use the charts and graphs they have created to now create infographics about the Great Bear Rainforest.



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