

## COMMITMENT TO CLIMATE CHANGE

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This lesson will introduce students to the changes in snowfall in Winter Olympic host cities.

### CONTEXT

As the climate warms, winter weather patterns have been changing across the world. Various changes in global climates are impacting who can host future Winter Olympic Games. In this lesson students will examine snowfall trends in Host Cities throughout history, how this impacts the games, and what the Olympic Committee's commitment to climate change is.

### AIMS & OBJECTIVES

Students will be able to:

1. Convert measurements from the imperial system to metric
2. Calculate percentages
3. Walk away with actions they can take about climate change

### MATERIALS

- <https://www.ncei.noaa.gov/orders/cdo/3570778.pdf>
- <https://www.ncei.noaa.gov/orders/cdo/3570804.pdf>
- <https://www.weather.gov/media/slc/ClimateBook/Seasonal%20Snowfall%20by%20Year.pdf>
- [https://www.meteoblue.com/en/blog/article/show/39932\\_Winter+Olympics+2022%3A+Weather+and+Climate](https://www.meteoblue.com/en/blog/article/show/39932_Winter+Olympics+2022%3A+Weather+and+Climate)
- <https://www.history.com/news/winter-olympics-snow-shortage>
- <https://www.climatecentral.org/climate-matters/winter-olympics-pyeongchang-2018>
- [https://www.sportecology.org/\\_files/ugd/a700be\\_9aa3ec697a39446eb11b8330aec19e30.pdf](https://www.sportecology.org/_files/ugd/a700be_9aa3ec697a39446eb11b8330aec19e30.pdf)

### PROCEDURES

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- For a great introduction to this topic, we strongly recommend having students read through this brief study: "Slippery Slopes: How Climate Change is Threatening the Winter Olympics". It can be downloaded from this link:  
[https://www.sportecology.org/\\_files/ugd/a700be\\_9aa3ec697a39446eb11b8330aec19e30.pdf](https://www.sportecology.org/_files/ugd/a700be_9aa3ec697a39446eb11b8330aec19e30.pdf)
- Provide students with the amount of snowfall, Olympic City, and year
- Have students find the mode, median, and mean of the snowfall amounts.
- Have students convert the mode, median, and mean from feet to metric units
- Have students find the percent change in the snowfall data
- Students explain any trends they find and predictions for 2026 and 2030.
- Then, create a graph comparing 5 host cities of their choice (label accordingly).

# WINTER OLYMPICS & SNOWFALL REFERENCE SHEET

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Snowfall amounts are difficult to compare, as they can change considerably over small areas in mountainous terrain.

| <b>Year</b> | <b>Host City</b>                 | <b>Snowfall</b> |
|-------------|----------------------------------|-----------------|
| 1932        | Lake Placid, New York, USA       | 16 inches       |
| 1936        | Garmisch-Partenkirchen, Germany  | 24.1 inches     |
| 1948        | St. Moritz, Switzerland          | .95 inches      |
| 1960        | Palisades Tahoe, California, USA | 36 inches       |
| 1976        | Innsbruck, Austria               | 53 inches       |
| 1980        | Lake Placid, New York, USA       | .44 inches      |
| 1994        | Lillehammer, Norway              | 40 inches       |
| 2002        | Salt Lake City, Utah, USA        | 26.3 inches     |
| 2014        | Sochi, Russia                    | 31.5 inches     |
| 2018        | Pyeongchange, South Korea        | 2 inches        |
| 2022        | Beijing, China                   | .4 inches       |

# Mean, Median, and Mode

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Using the Winter Olympics & Snowfall Reference Sheet, answer the following questions below.

1. Find the mode, median, and mean of the snowfall amounts.

Most:

Median:

Mode:

2. Convert the mode, median, and mean amounts into the metric units and label accordingly:

Most:

Median:

Mode:

3. What is the percent change from the earliest snowfall data to the newest?

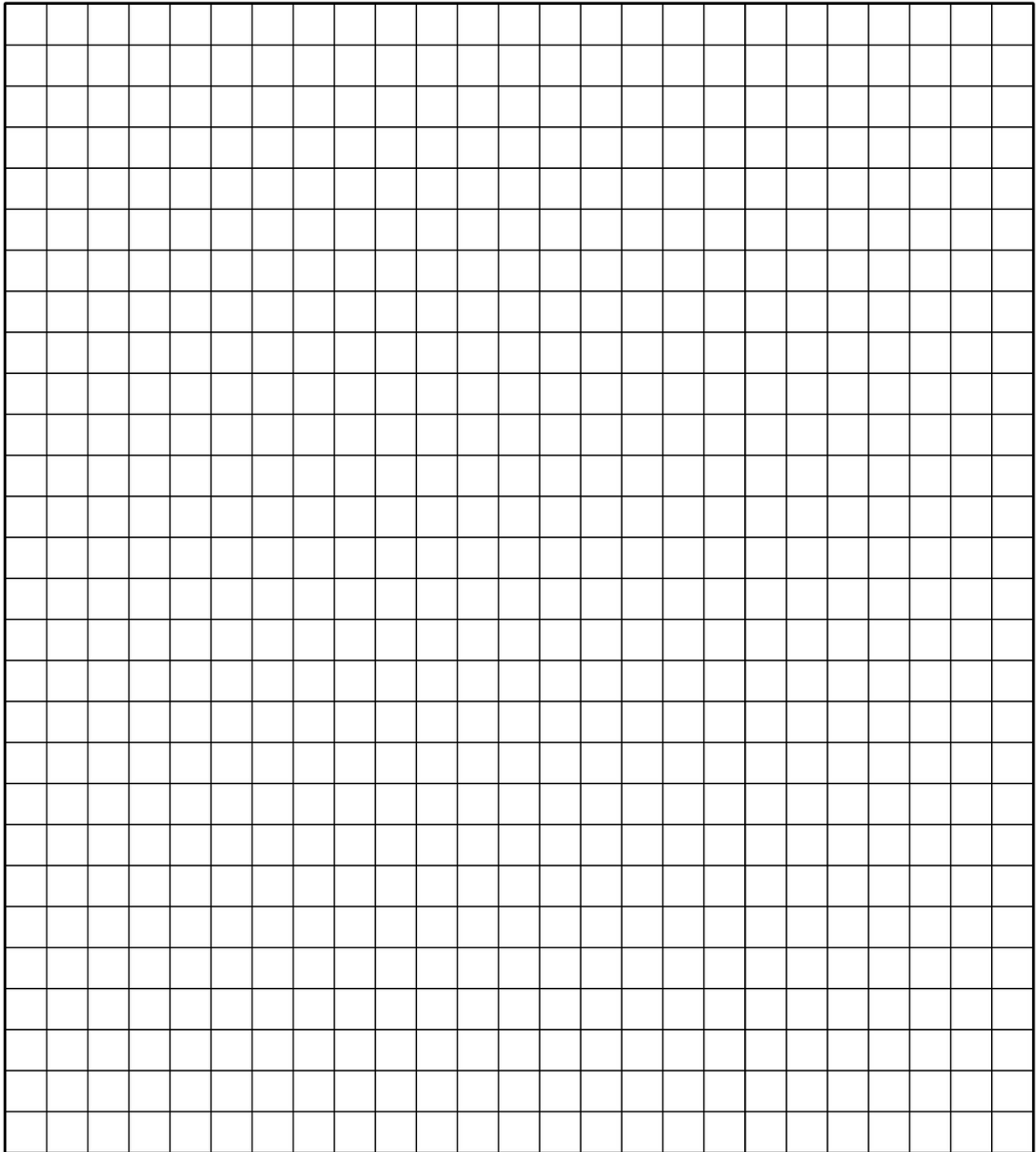
# Graphing Olympic Snowfall

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Select 5 cities and create a graph comparing snowfall data. Remember to label your graph!

**Title:** \_\_\_\_\_

y-axis:



x-axis:

# TREND ANALYSIS AND PREDICTIONS

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1. Are there any trends found in the data? Explain:

2. The 2026 Winter Olympics will be hosted in Milan-Cortina and the 2030 Winter Olympics will be in Vancouver. From the data above, what do you predict the climate will be like in the next two years? The next six years? What problems should be considered?

Explain:

## EXTENSION ACTIVITY

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Have students select from a list of climate solutions to research more in-depth and learn about what other people their age are doing. They can research their solution, and write up in a worksheet a plan for how they could apply that solution in their own lives, homes, schools, or communities.