

Climate Is Elementary: Climate Postcards

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Activity: Climate Postcards

Part 1: Exploring Climate Zones

Students learn about the climate zones of the world by interpreting graphed data.

Part 2: Grandma's Postcards

Students identify climate zones described in postcards.

Class time: about two hours

Learning Goal: Obtain/combine information to describe climates in regions of the world. (NGSS PE 3-ESS2-2)

URL: scied.ucar.edu/activity/climate-postcards

Combining science, math, language arts, and geography

- NGSS DCI ESS2-D: Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
- NGSS Crosscutting: Patterns of change can be used to make predictions.
- NGSS Practices: Analyzing and interpreting data, obtaining, evaluating, and communicating information
- CCSS.ELA-Literacy.RI.3.7 and RI.4.7 Use information gained from illustrations and words to demonstrate understanding...
- CCSS.ELA-Literacy.RI.5.1 Quote accurately from a text when explaining...
- CCSS.ELA-Literacy.RI.4.1 Refer to details and examples in a text...
- CCSS.Math.Content.3.MD.B.3 and B4: Represent and interpret data
- Geography 4: The physical and human characteristics of places

Part 1: Exploring Climate Zones

What sort of weather would you expect to find in these places?





**These places have different patterns of weather.
Patterns of weather are climate.**

Part 1: Exploring Climate Zones

We will explore five climate regions (or zones) with graphs that show how temperature and precipitation vary.

Materials:

- Five Climate Graphs
- Worksheet 1: What I Know About Climate Zones

Directions:

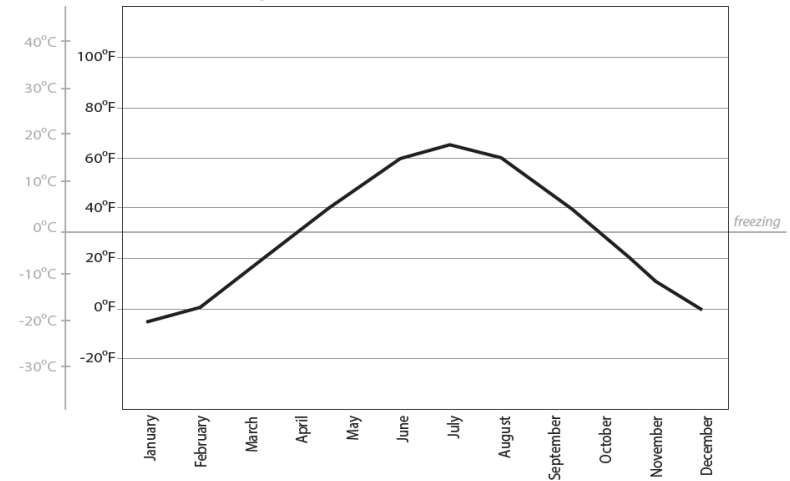
- Describe what you see in the climate graph for each zone, comparing with other regions, and describing seasonal changes.

Part 1: Exploring Climate Zones

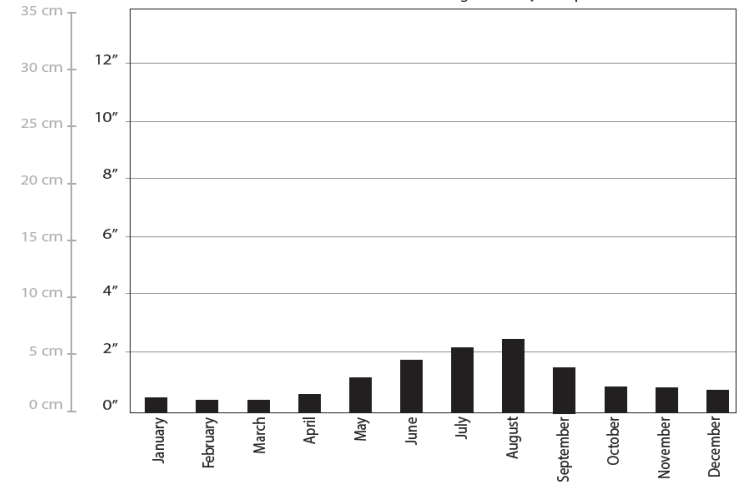
Describe what you see in the climate graph for each zone, comparing with other regions, and describing seasonal changes.

Cool Climate

What's the temperature like? Average Daily Temperature



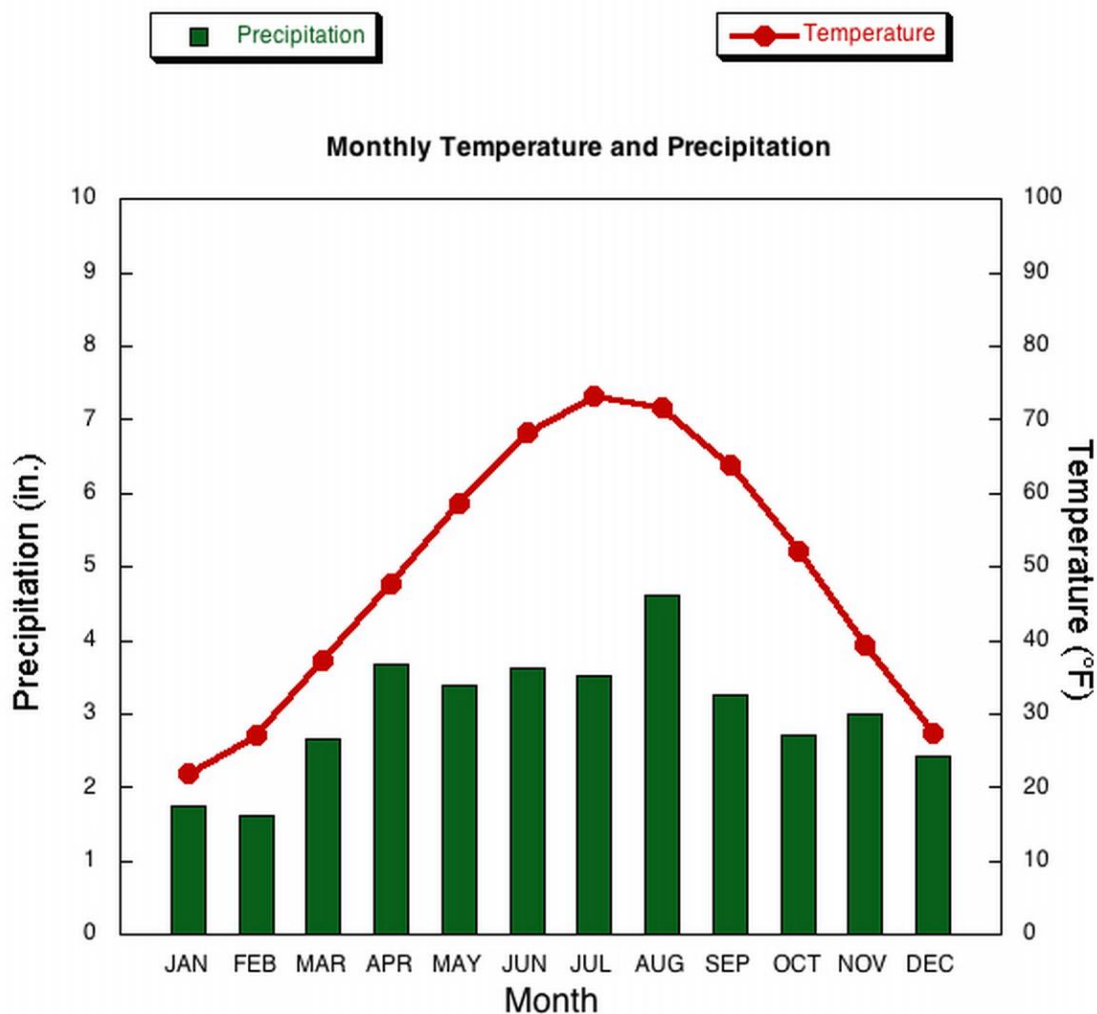
How much rain and snow falls? Average Monthly Precipitation



Graphs in the activities are simpler versions of climographs.

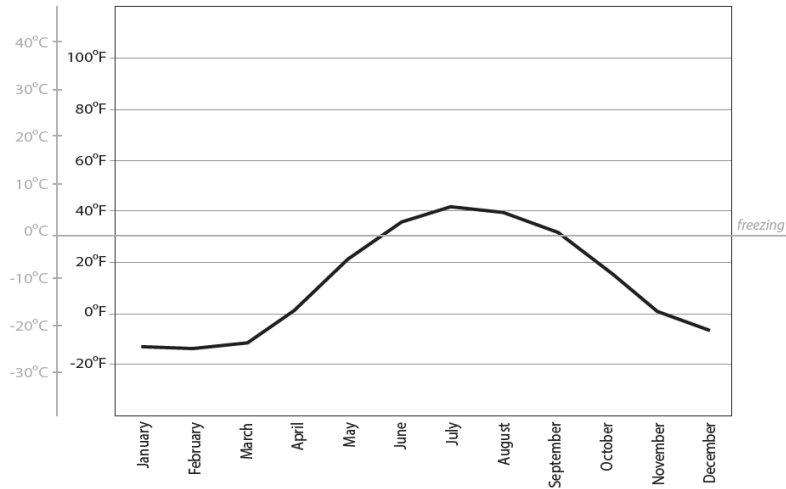
Annual Climatology: Chicago, IL (ORD)

Elev: 658 ft Lat: 41° 59'N Long: 87° 55'W

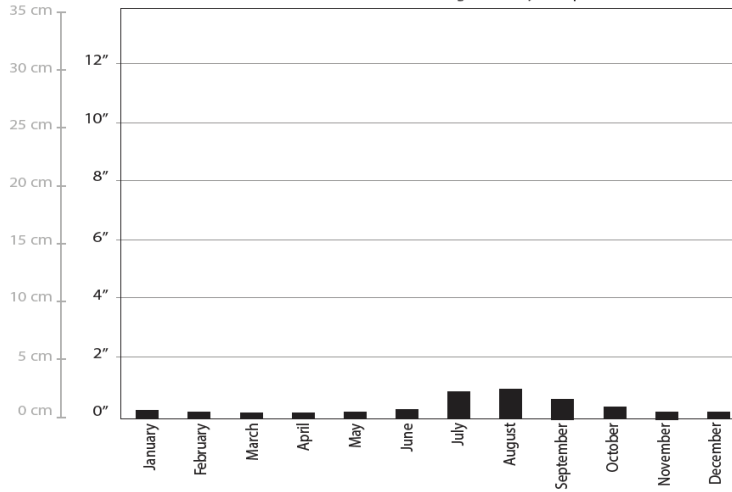


Polar Climate

What's the temperature like? Average Daily Temperature

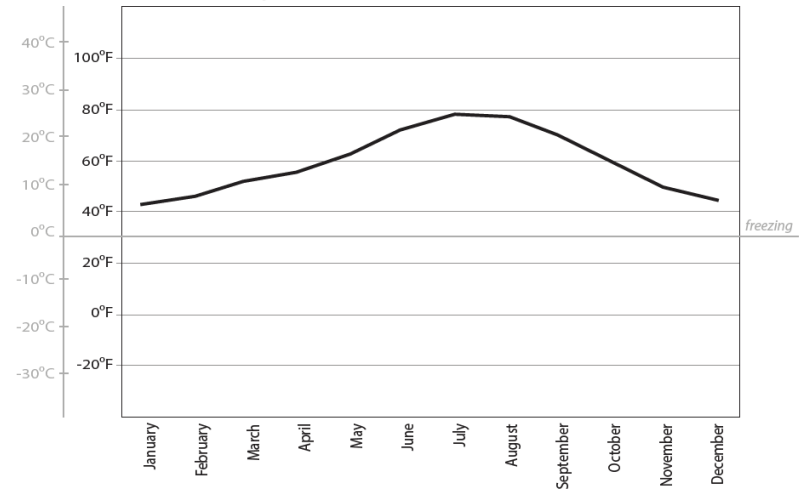


How much rain and snow falls? Average Monthly Precipitation

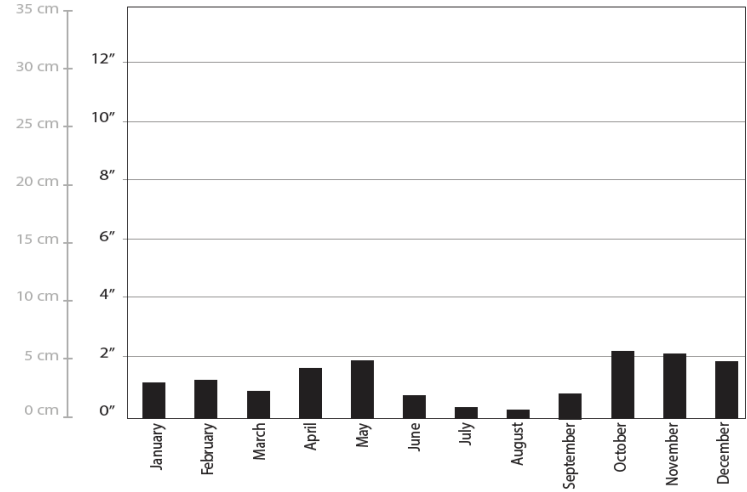


Mild Climate

What's the temperature like? Average Daily Temperature

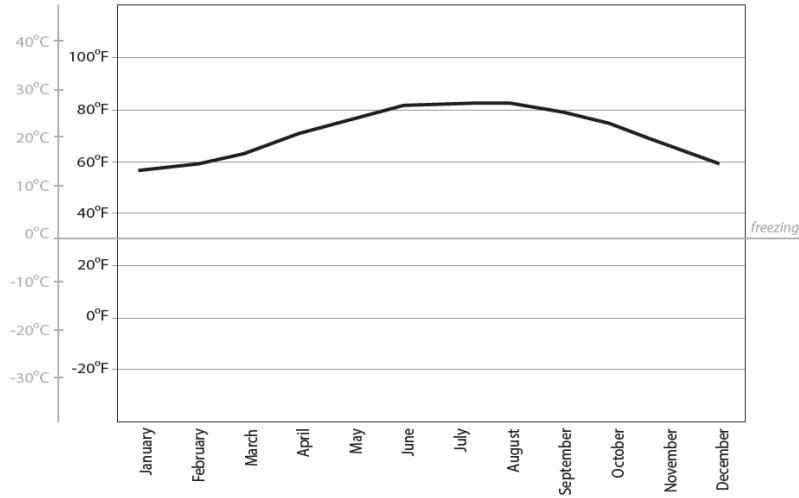


How much rain and snow falls? Average Monthly Precipitation

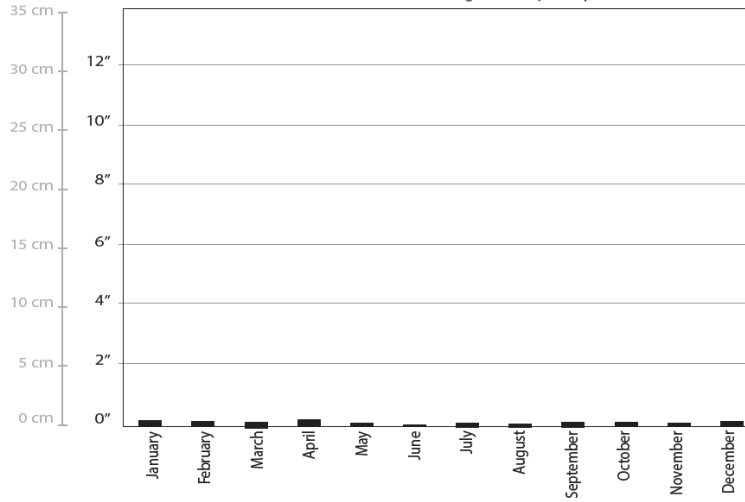


Dry Climate

What's the temperature like? Average Daily Temperature



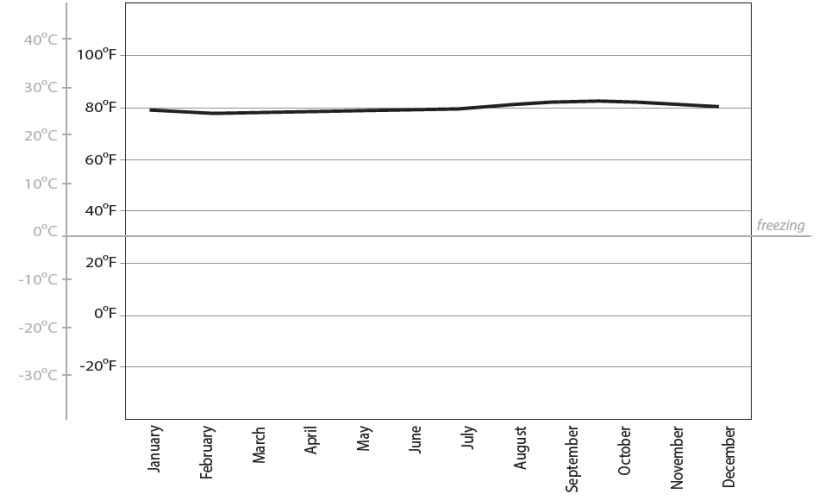
How much rain and snow falls? Average Monthly Precipitation



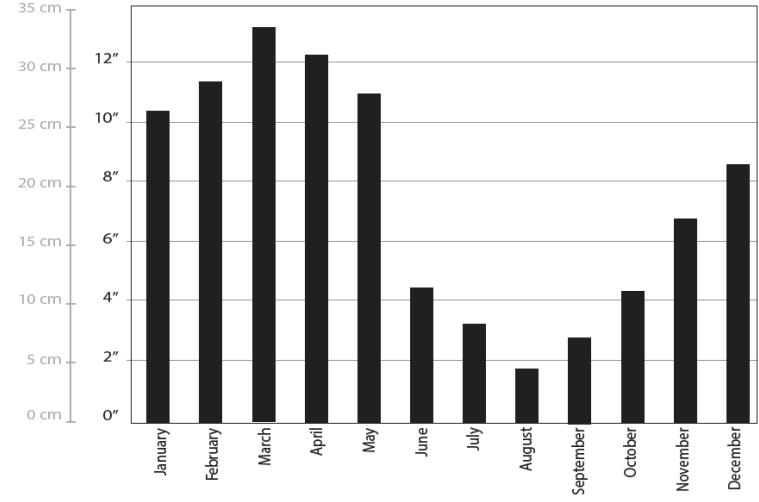
SciEd.ucar.edu

Tropical Climate

What's the temperature like? Average Daily Temperature



How much rain and snow falls? Average Monthly Precipitation



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Part 1: Exploring Climate Zones

	TEMPERATURE Is it hotter or colder than other climates?	PRECIPITATION Is there more or less than other climates?	SEASONS Are there changes during the year?	WHAT I WOULD PACK If you were going to this climate, what would you bring?
MILD				
DRY				
TROPICAL				

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Part 2: Grandma's Postcards

Part 2: Grandma's Postcards

Students identify climate zones described in postcards.

Materials:

- Five postcards from Grandma
- Worksheet 1: What I Know About Climate Zones (filled out and to be used as a reference)
- Worksheet 2: Grandma's Climate Travels

Directions:

- Figure out which climate zone each postcard is from. What information from Grandma was helpful for determining climate zone?

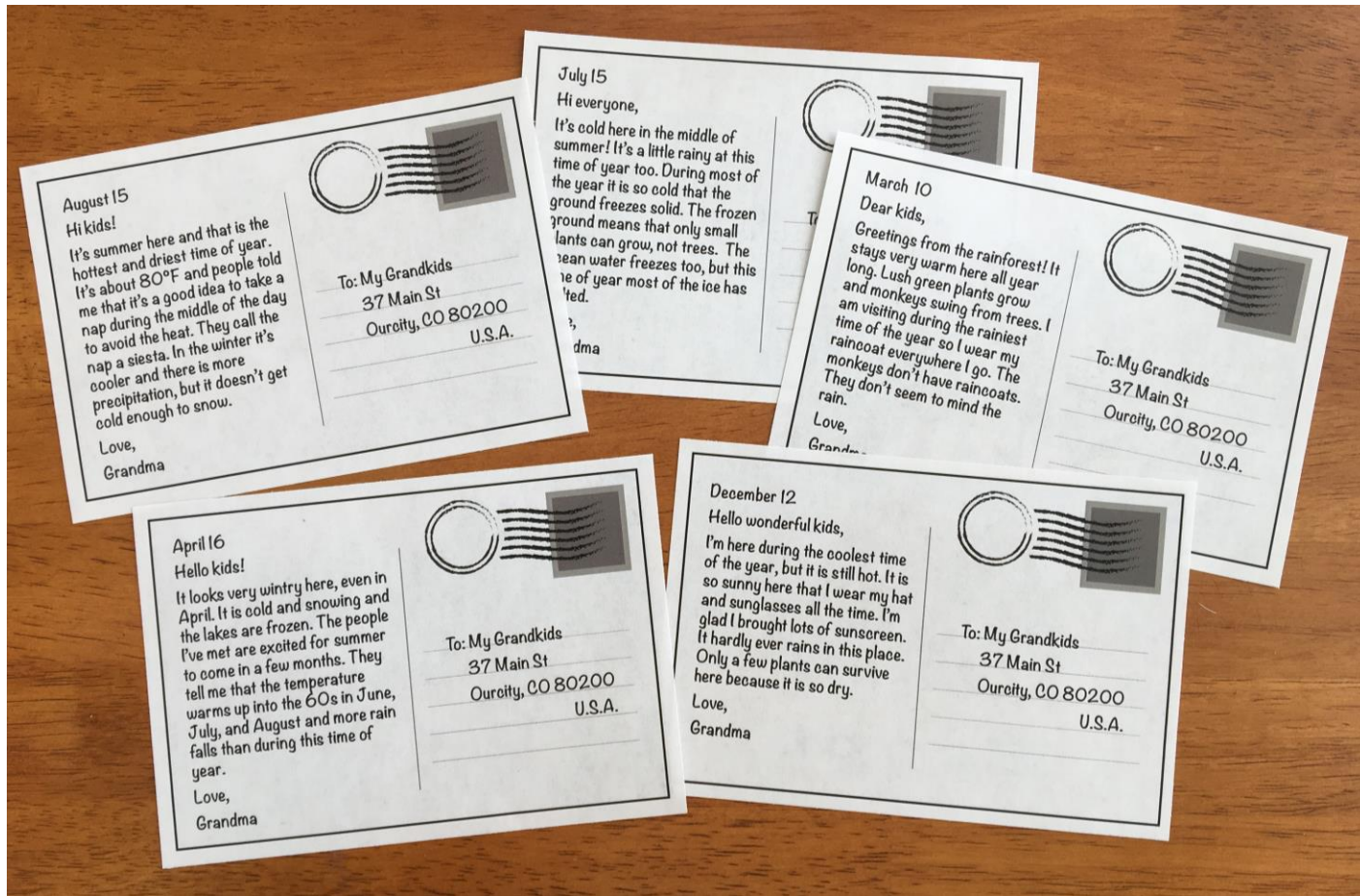
Part 2: Grandma's Postcards

What climate zone is each postcard from? What information from Grandma was helpful for determining climate zone?



Part 2: Grandma's Postcards

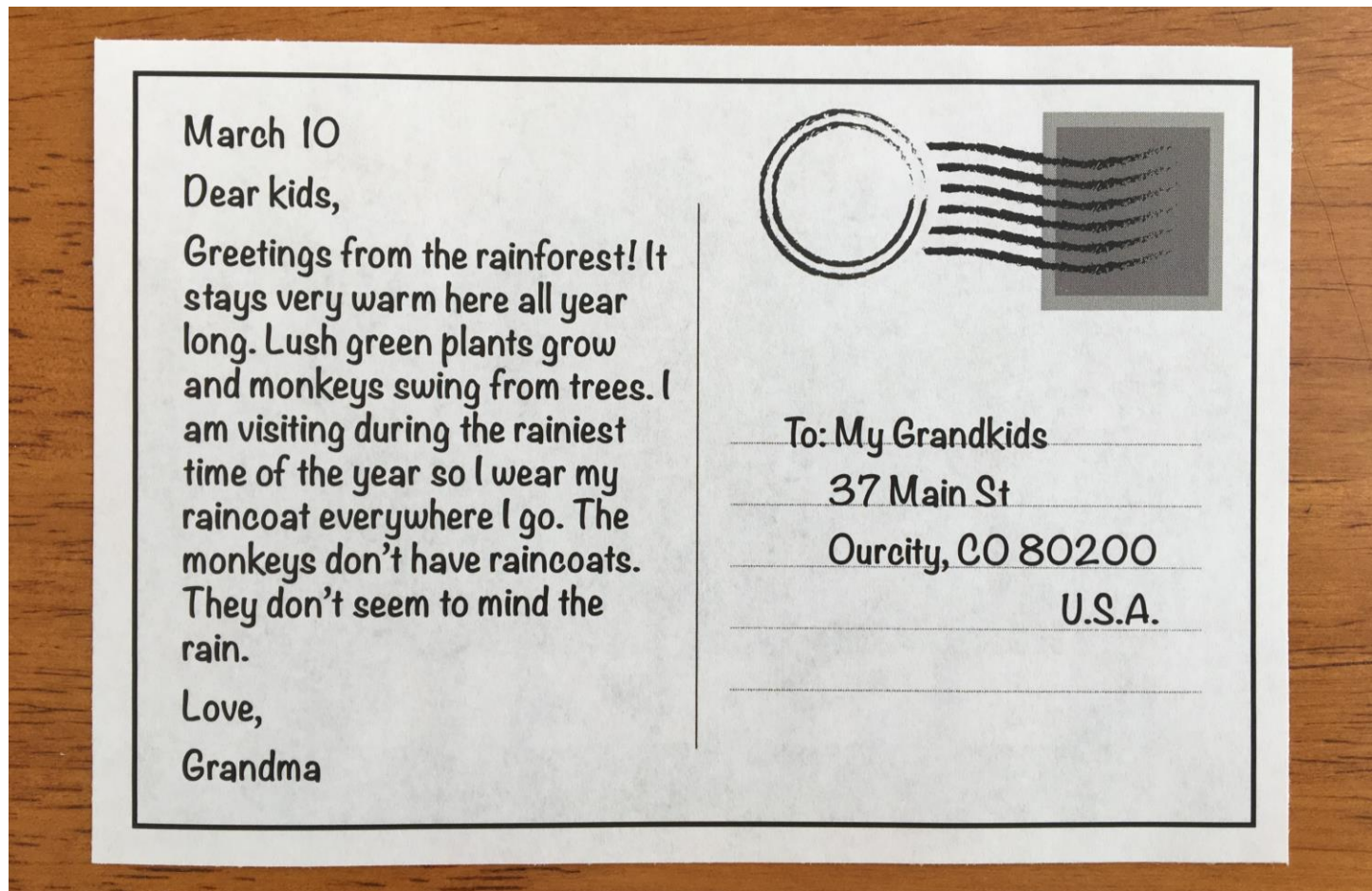
What climate zone is each postcard from? What information from Grandma was helpful for determining climate zone?



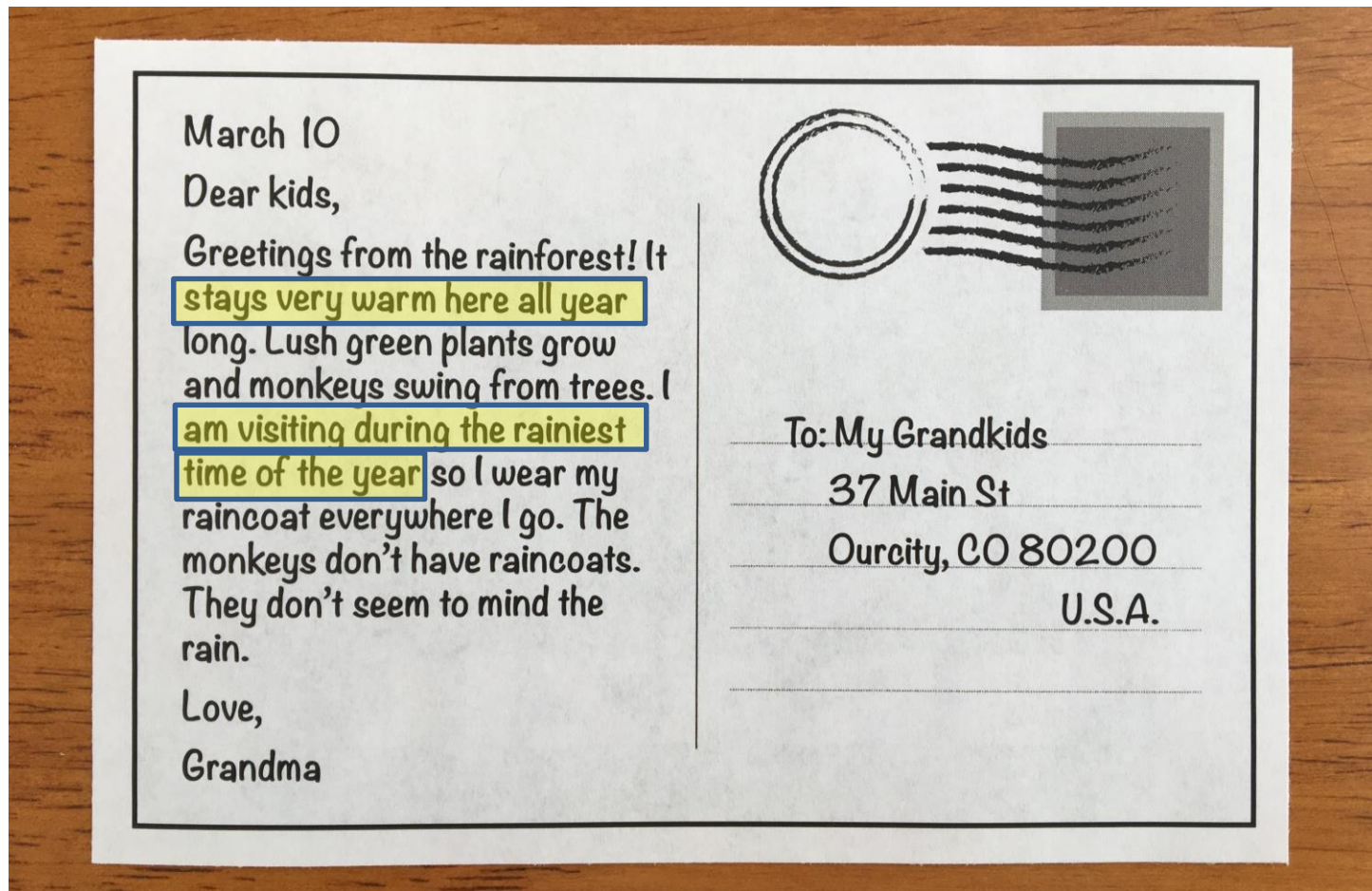
Part 2: Grandma's Postcards: an example



Part 2: Grandma's Postcards: an example



Part 2: Grandma's Postcards: an example



Part 2: Grandma's Postcards

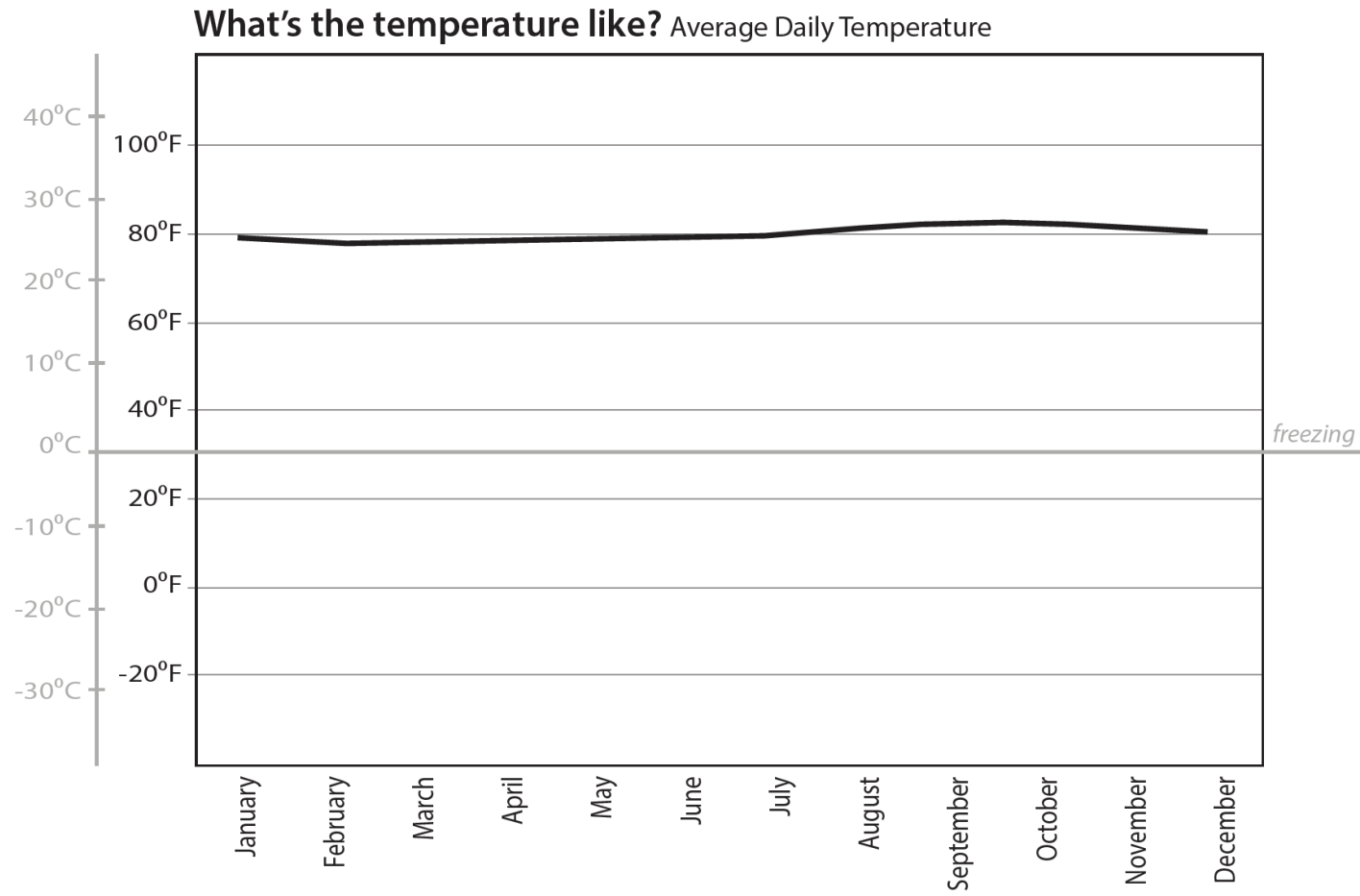
	TEMPERATURE Is it hotter or colder than other climates?	PRECIPITATION Is there more or less than other climates?	SEASONS Are there changes during the year?	WHAT I WOULD PACK If you were going to this climate, what would you bring?
MILD				
DRY				
TROPICAL				

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Part 2: Grandma's Postcards

"It stays very warm here all year long."

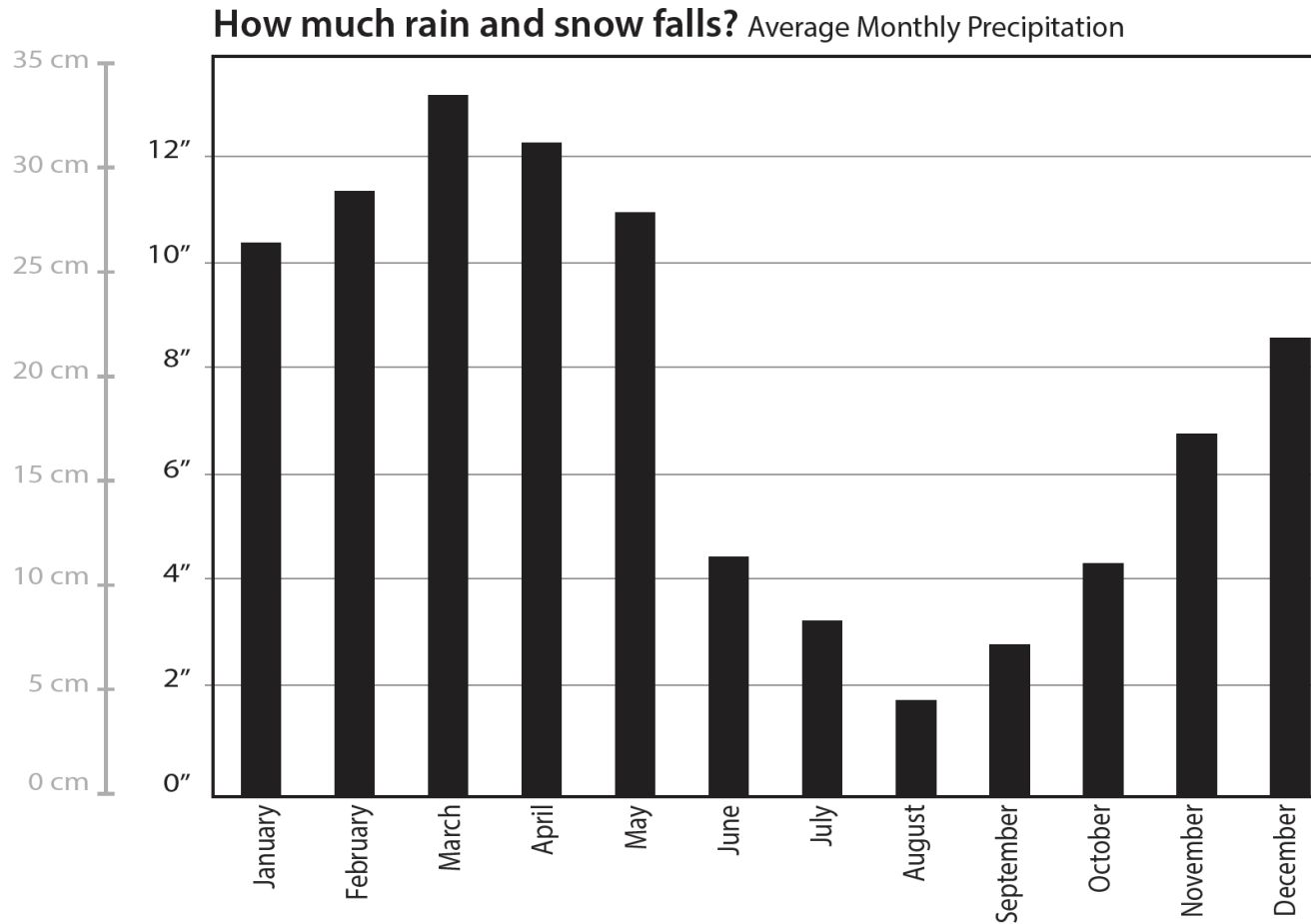
Tropical Climate



Part 2: Grandma's Postcards

"I am visiting during the rainiest time of the year (March)."

Tropical Climate



Part 2: Grandma's Postcards

Some of the stories in Grandma's postcards are about climate!

- Read each postcard.
- Notice what Grandma mentions about the climate.
- Decide which climate zone Grandma is visiting.

To identify the climate zone, look at your notes from Worksheet 1.

Postcard date: _____

What Grandma wrote about climate: _____

I think the climate zone is: _____

Barrow, AK, United States

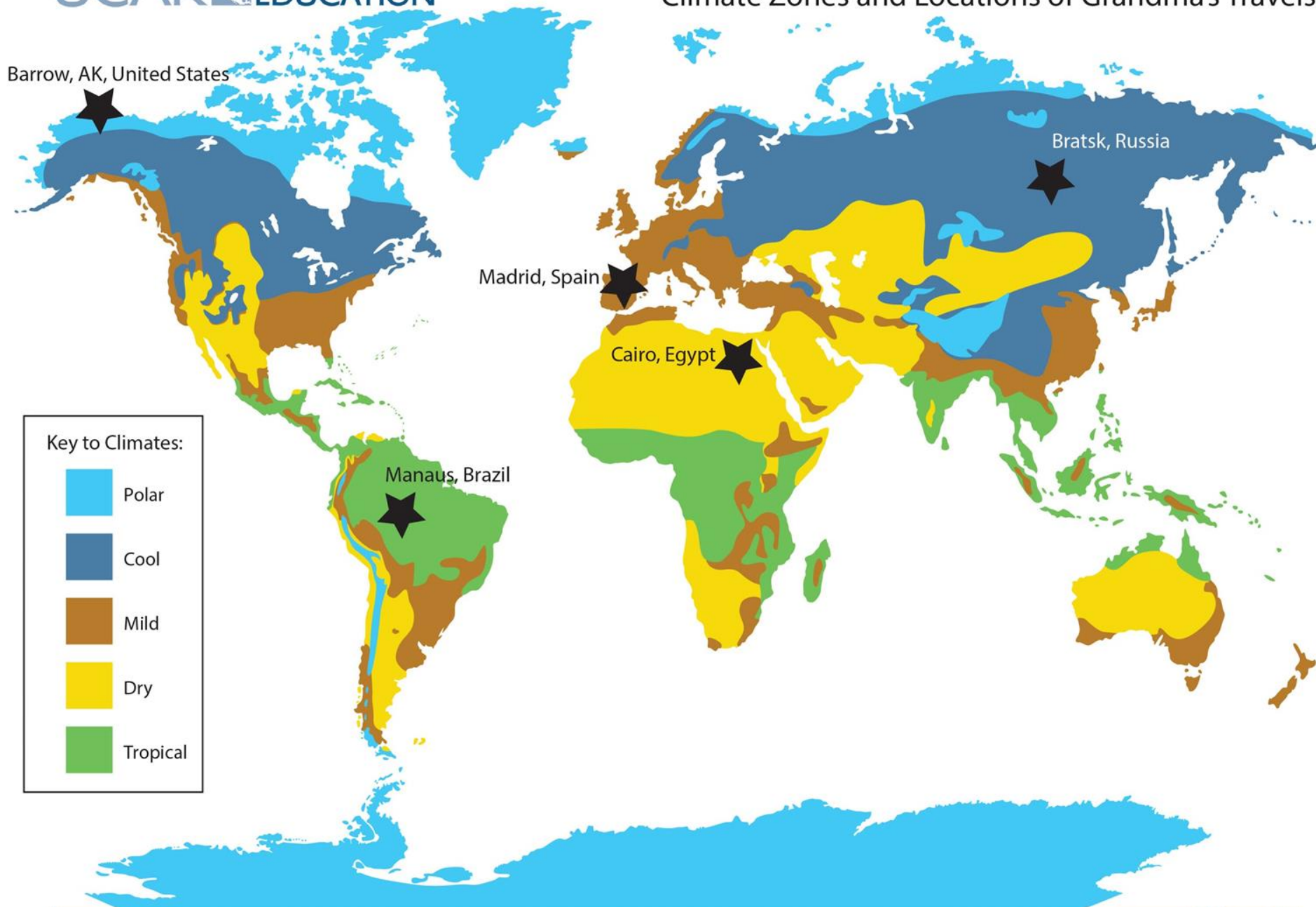
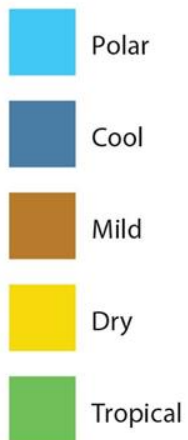
Bratsk, Russia

Madrid, Spain

Cairo, Egypt

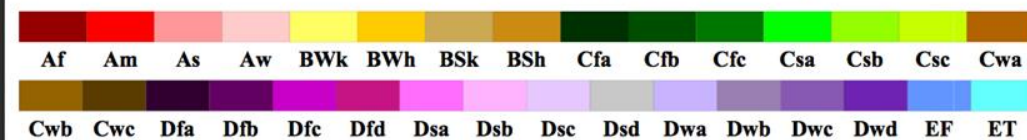
Manaus, Brazil

Key to Climates:



World Map of Köppen–Geiger Climate Classification

updated with CRU TS 2.1 temperature and VASclimO v1.1 precipitation data 1951 to 2000



Main climates

A: equatorial
B: arid
C: warm temperate
D: snow
E: polar

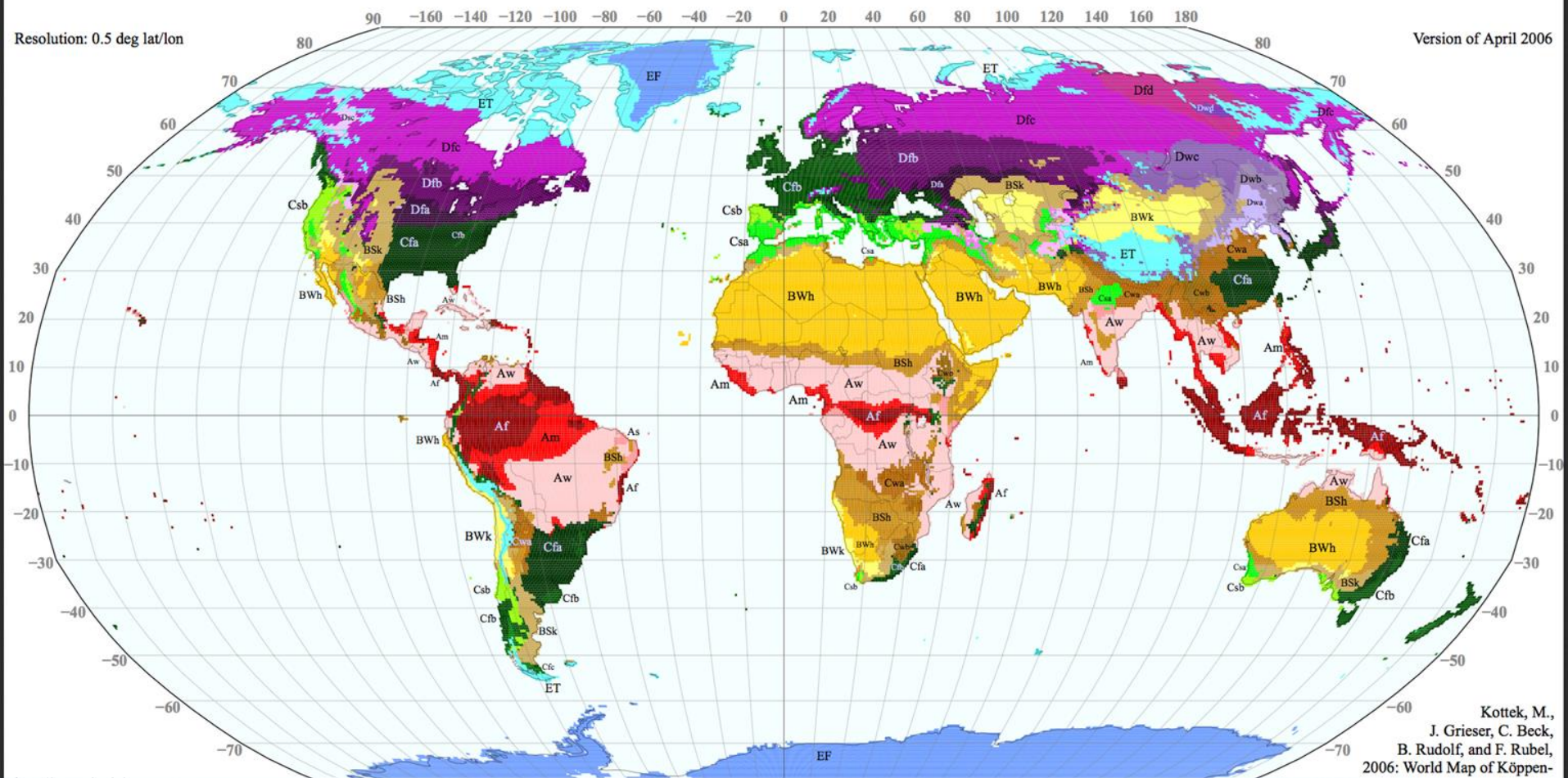
Precipitation

W: desert
S: steppe
f: fully humid
s: summer dry
w: winter dry
m: monsoonal

Temperature

h: hot arid
k: cold arid
a: hot summer
b: warm summer
c: cool summer
d: extremely continental

F: polar frost
T: polar tundra



http://koeppen-geiger.vu-wien.ac.at/pdf/kottek_et_al_2006_A4.pdf

The climate zones are based on the Köppen Climate Classification System.

- The five climates used in this activity are the main groups used by the Köppen system:
 - A: Equatorial or Tropical (*Tropical*)
 - B: Arid (*Dry*)
 - C: Warm Temperate (*Mild*)
 - D: Continental or Snow (*Cool*)
 - E: Polar and Alpine (*Polar*)

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K-12 and the UCAR Center for Science Education:

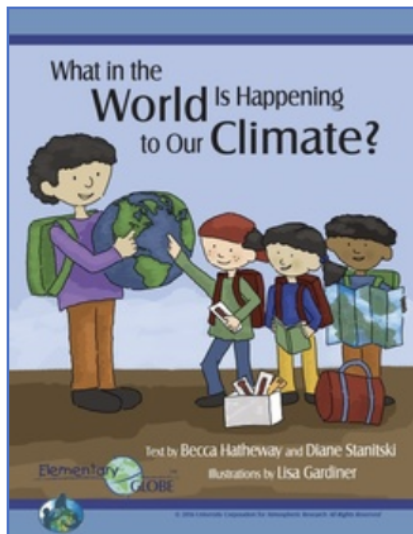


- We develop innovative K-12 educational resources for teaching about climate, weather, and earth science.
- We provide informal learning experiences at the NCAR Mesa Lab in Boulder, CO including field trip programs and exhibits
- We offer teacher professional development from short workshops to year-long courses.

Elementary GLOBE

Climate Module

This storybook follows the GLOBE Kids as they take an adventure and learn that climate change affects the whole world, from the tropics to the poles. Through learning activities, students learn how weather over a long period of time describes climate, explore how sea level rise can affect coastal communities and environments, and describe how humans are contributing to climate change and how we can take action to solve this problem.



Storybook: *What in the World Is Happening to Our Climate?*

[Book PDF](#) (printer friendly)

[eBook](#) (for computers and tablets)

Activities:

[Weather Adds Up to Climate](#)

[Seashores on the Move](#)

[We're All Part of the Solution!](#)

[Coloring Page A](#)

[Coloring Page B](#)

Help

[Printing Tips](#)

[eBook Instructions](#)

Learning Zone

How does a cloud form? What's a sunspot? Why is climate changing? At the UCAR Center for Science Education's Learning Zone, you can explore these questions and more.



TEACHERS



Resources, programs, workshops, and other events for educators

STUDENTS



Games, activities, research programs, and background info for students of all ages

VISIT NCAR



Visitor Center with exhibits, field trips, public tours, art galleries, and weather trail

LEARNING ZONE



Activities, Teaching Boxes, videos, games, and more for students and teachers

EVENTS



Upcoming workshops, events, webinars, and other happenings

CLASSROOM ACTIVITIES



Educational activities for use in the classroom, by home-schoolers, or in various other settings.



EVENTS AND HIGHLIGHTS



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Classroom Activities



TEACHING BOXES

Teaching Boxes are collections of classroom-ready and standards-aligned activities, content, and multimedia that build student understanding of science, technology, engineering, and math.



WEATHER ACTIVITIES

Experience weather outside or investigate weather through data, graphs and maps. These activities range from simple explorations of snow, to more through analysis of climate change and weather.



CLIMATE CHANGE ACTIVITIES

From activities about evidence of climate change, to inquiries into current and future impacts, and explorations of the role of energy use in current climate warming.



SUN-EARTH CONNECTION ACTIVITIES

Solar energy is the reason weather changes and the reason that Earth isn't frozen. These activities explore energy, albedo, light, and color.



ATMOSPHERE AND CHEMISTRY ACTIVITIES

Have your students explore how the atmosphere changes with altitude, and how nitrogen and carbon based greenhouse gases affect the chemistry of the atmosphere.



ENGINEERING ACTIVITIES

Investigate the ways that engineers help scientists explore and measure the atmosphere, and ways the atmosphere influences engineering designs.



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Climate Change Activities

STUDYING CO₂ FROM POLE TO POLE

In this activity, students will analyze data sets that show how carbon dioxide varies through the atmosphere at different latitudes, altitudes, and different times of year.

EXPLORING PALEOCLIMATE DATA

In this graphing activity, students investigate Oxygen-18 data from ice cores used to investigate past climate.

CLIMATE IMPACTS GRAPH MATCHING

Students match graphs showing aspects of observed climate change with statements that describe the observations.

TORRENTS, DROUGHTS, AND TWISTERS OH MY!

Students review what scientists know and what they're working to understand about the relationship between extreme weather events and climate change.

CONNECTIONS

Students demonstrate their knowledge of interconnections between natural systems such as weather and climate and the built environment in which they live.

A COMPANION ACTIVITY TO THE DRIP DROP! MUSIC VIDEO

This lesson, a companion to the Drip Drop! music video, explores how climate change impacts the water cycle in the context of media literacy.

GLACIERS THEN AND NOW

Students compare photographs of glaciers to observe how Alaskan glaciers have changed over the last century.

CLIMATE POSTCARDS

Elementary students learn about the climate zones of the world by interpreting graphs and identifying climate zones described in postcards.



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