CGC1P/D: Why Do Climates Differ?

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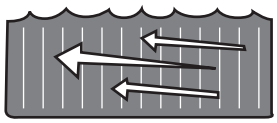
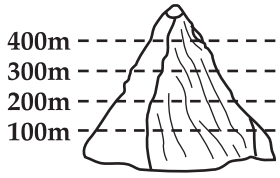
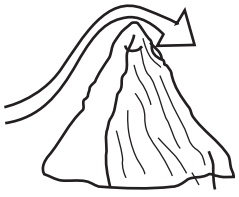
Editor's Note: ***Why Do Climates Differ?*** represents an activity that can be used to introduce, or review, climate controls before students tackle Susan's ***Weather Forecast*** activity where these controls are needed to answer some of the questions.

What Makes Climate?

L		**T**
		P
O		**T**
		P
W		**T**
		P
E		**T**
		P
R		**T**
		P
N		**T**
		P

Instructions: **Step 1:** Match up each of the **Word Completions** on the next page with the capital letters in the left hand column above.
Step 2: Follow the instructions in the **Descriptors** section on the next page.Then cut and paste the correct temperature and precipitation "descriptor" for each control in the rectangles provided above.

Word Completions

atitude	**levation (altitude)**
cean currents	**elief barriers**
inds (prevailing)	**ear large water bodies**

Descriptors

Before cutting & pasting your choices onto the chart on page 1 of this activity, identify which descriptors deal with precipitation (mark them with a "P") or with temperatures (mark them with a "T") in the blank rectangle to the left. Then, cut out and match up each of the statements that best fit each of the temperature or precipitation climatic controls and paste it in its proper space in the chart.

☐ Temperatures are moderated by the ocean (cooler summers/warmer winters), especially when winds move off the ocean inland, and are more extreme (hotter summers/colder winters) when areas are located far inland away from oceans.

☐ When they move off ocean areas onto land, they bring moisture and when they move from large land areas, they bring drier conditions. In Canada, they prevail from the west (Westerlies).

☐ Precipitation is higher next to oceans, especially when winds move off the oceans inland onto mountains, and lower when areas are located far inland, and especially when they are behind high mountain barriers.

☐ Windward areas (facing the ocean) are wet since moist winds are forced to rise, cool, and release their moisture and leeward areas (facing away from the ocean) are dry, as winds descend, warm up, and evaporate moisture.

☐ The higher you go, the more precipitation you are likely to get.

☐ The closer to the poles (higher the latitude), the lower the precipitation since cooler air hold less moisture than warmer air.

☐ The higher you go, the cooler it gets and vice versa.

☐ They block winds and air masses so temperatures from one side to the other can be quite different (moderate on the ocean side, more extreme on the continental side).

☐ When warm, they help to create wet coastal climates. When cold, they help create drier coastal climates.

☐ When warm, they raise temperatures along the coast (especially in winter) and when cold, they lower temperatures (especially in summer).

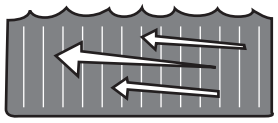
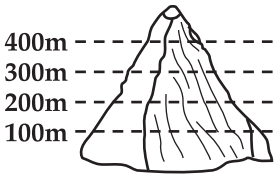
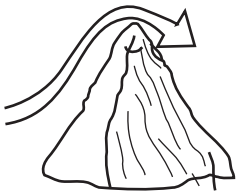
☐ The further from the Equator (north or south), the cooler the temperatures.

☐ When they move off large bodies of water onto land, they moderate temperatures and when they move off large land areas, they bring more extreme temperatures.

Answers

The following chart shows the correct **Word Completions** and the matching **Descriptors** for the controls of temperature and precipitation.

What Makes Climate?

Latitude		**T** The further from the Equator (north or south), the cooler the temperatures.
		P The closer to the poles (higher the latitude), the lower the precipitation since cooler air hold less moisture than warmer air.
Ocean currents		**T** When warm, they raise temperatures along the coast (especially in winter) and when cold, they lower temperatures (especially in summer).
		P When warm, they help to create wet coastal climates. When cold, they help create drier coastal climates.
Winds (prevailing)		**T** When they move off large bodies of water onto land, they moderate temperatures and when they move off large land areas, they bring more extreme temperatures.
		P When they move off ocean areas onto land, they bring moisture and when they move from large land areas, they bring drier conditions. In Canada, they prevail from the west (Westerlies).
Elevation (altitude)		**T** The higher you go, the cooler it gets and vice versa.
		P The higher you go, the more precipitation you are likely to get.
Relief barriers		**T** They block winds and air masses so temperatures from one side to the other can be quite different (moderate on the ocean side, more extreme on the continental side).
		P Windward areas (facing the ocean) are wet since moist winds are forced to rise, cool, and release their moisture and leeward areas (facing away from the ocean) are dry, as winds descend, warm up, and evaporate moisture.
Near large water bodies		**T** Temperatures are moderated by the ocean (cooler summers/warmer winters), especially when winds move off the ocean inland, and are more extreme (hotter summers/colder winters) when areas are located far inland away from oceans.
		P Precipitation is higher next to oceans, especially when winds move off the oceans inland onto mountains, and lower when areas are located far inland, and especially when they are behind high mountain barriers.