**Power of the Poles**

**Why are the Poles Important?**

While you’re walking down the hallway at school or down Main Street, you might not think much about the cold, snowy areas at Earth’s poles. But they affect your life every day. Even though they are far away, Earth’s polar regions play a crucial role in the Global Heat Engine.

**What’s a Global Heat Engine?**

You probably know the Sun heats Earth unevenly. Because Earth is a sphere, it’s hotter at the equator than the poles. But, did you also know different parts of Earth absorb the Sun’s energy at different rates? For example, oceans absorb more heat than rocky land. All this creates temperature imbalances.

The Global Heat Engine tries to equalize these imbalances. Cold air and ocean currents from the poles move toward the tropics and warm air and water from the tropics move toward the poles. This hot-cold balancing act is always going on and keeps most of Earth comfy for us all. Without the icy polar regions, Earth would be much hotter.

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*Earth’s Global Heat Engine begins with the Sun. Equatorial regions absorb much more solar energy than polar regions do. Atmospheric circulation transports energy polewards and back towards the equator.*

*The Hadley cell, named after George Hadley who first identified this atmospheric phenomenon, dominates the tropical atmosphere. This circulation is intimately related to the trade winds, tropical rainbelts, subtropical deserts and the jet streams.*

*Arctic Terns, like these, migrate farther than any bird. They fly from its breeding grounds in the Arctic Circle to Antarctica – and then back – each year.*

*The least movement is of importance to all nature. The entire ocean is affected by a pebble.*

*Blaise Pascal*