



Geography and Map Skills Handbook

Contents

Mapping the Earth	H2
Mapmaking	H4
Map Essentials	H6
Working with Maps	H8
Geographic Dictionary	H10
Themes and Essential Elements of Geography	H12

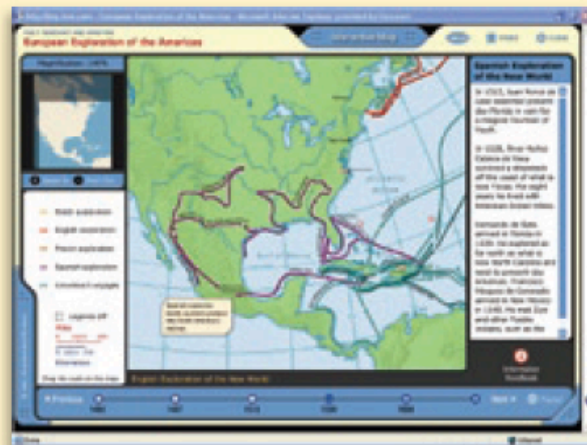
Throughout this textbook, you will be studying the world's people, places, and landscapes. One of the main tools you will use is the map—the primary tool of geographers. To help you begin your studies, this Geography and Map Skills Handbook explains some of the basic features of maps. For example, it explains how maps are made, how to read them, and how they can show the round surface of Earth on a flat piece of paper. This handbook will also introduce you to some of the types of maps you will study later in this book. In addition, you will learn about the different kinds of features on Earth and about how geographers use themes and elements to study the world.

Interactive Maps

Geography Skills With map zone geography skills, you can go online to find interactive versions of the key maps in this book. Explore these interactive maps to learn and practice important map skills and bring geography to life.

To use map zone interactive maps online:

1. Go to go.hrw.com.
2. Enter the **KEYWORD** shown on the interactive map.
3. Press return!



Mapping the Earth

Using Latitude and Longitude

A **globe** is a scale model of the Earth. It is useful for showing the entire Earth or studying large areas of Earth's surface.

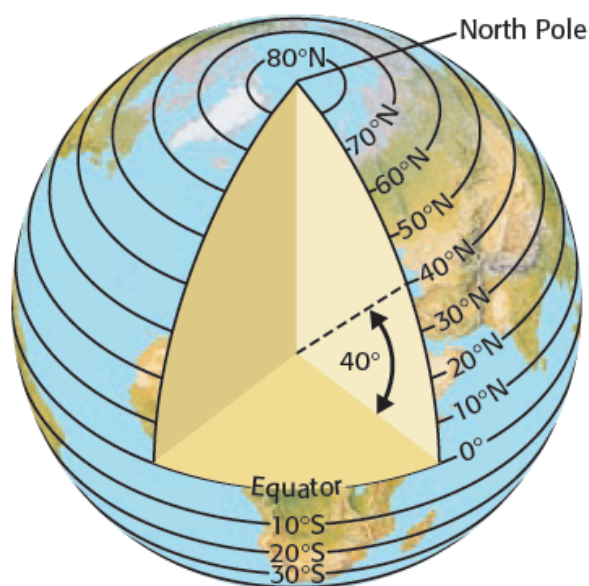
To study the world, geographers use a pattern of imaginary lines that circles the globe in east-west and north-south directions. It is called a **grid**. The intersection of these imaginary lines helps us find places on Earth.

The east-west lines in the grid are lines of **latitude**, which you can see on the diagram. Lines of latitude are called **parallels** because they are always parallel to each other. These imaginary lines measure distance north and south of the **equator**. The equator is an imaginary line that circles the globe halfway between the North and South Poles. Parallels measure distance from the equator in **degrees**. The symbol for degrees is $^{\circ}$. Degrees are further divided into **minutes**. The symbol for minutes is $'$. There are 60 minutes in a degree. Parallels north of the equator are labeled with an N. Those south of the equator are labeled with an S.

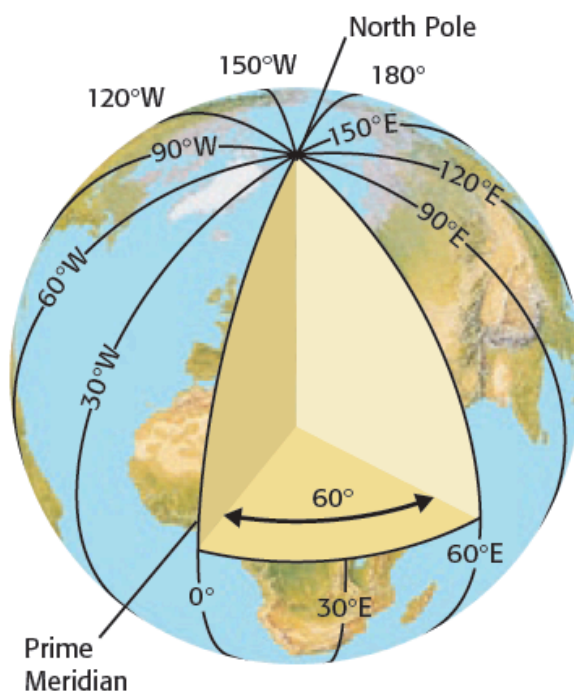
The north-south imaginary lines are lines of **longitude**. Lines of longitude are called **meridians**. These imaginary lines pass through the poles. They measure distance east and west of the **prime meridian**. The prime meridian is an imaginary line that runs through Greenwich, England. It represents 0° longitude.

Lines of latitude range from 0° , for locations on the equator, to 90°N or 90°S , for locations at the poles. Lines of longitude range from 0° on the prime meridian to 180° on a meridian in the mid-Pacific Ocean. Meridians west of the prime meridian to 180° are labeled with a W. Those east of the prime meridian to 180° are labeled with an E. Using latitude and longitude, geographers can identify the exact location of any place on Earth.

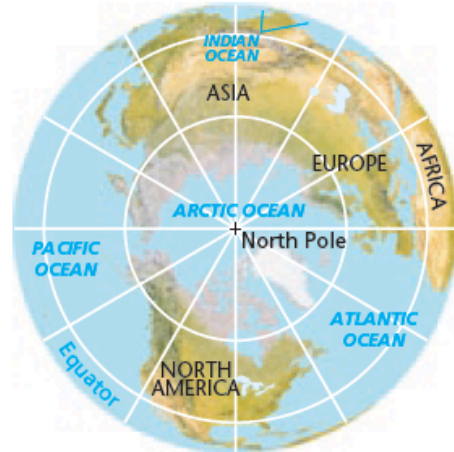
Lines of Latitude



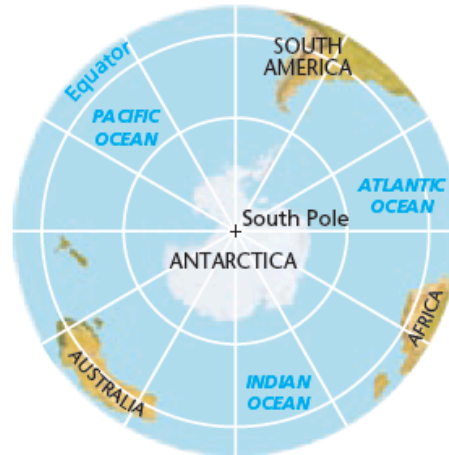
Lines of Longitude



Northern Hemisphere



Southern Hemisphere



Western Hemisphere



Eastern Hemisphere



The equator divides the globe into two halves, called **hemispheres**. The half north of the equator is the Northern Hemisphere. The southern half is the Southern Hemisphere. The prime meridian and the 180° meridian divide the world into the Eastern Hemisphere and the Western Hemisphere. Look at the diagrams on this page. They show each of these four hemispheres.

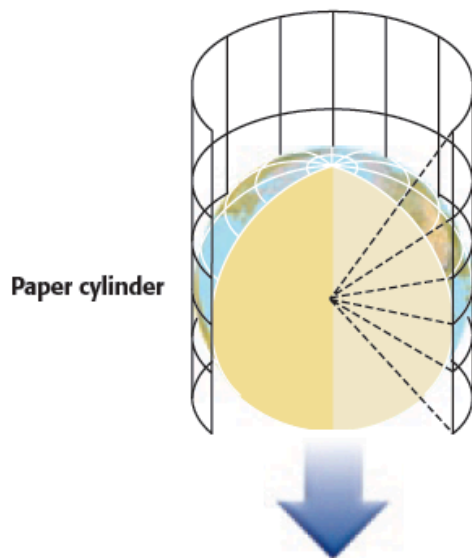
Earth's land surface is divided into seven large landmasses, called **continents**. These continents are also shown on the diagrams on this page. Landmasses smaller than continents and completely surrounded by water are called **islands**.

Geographers organize Earth's water surface into major regions too. The largest is the world ocean. Geographers divide the world ocean into the Pacific Ocean, the Atlantic Ocean, the Indian Ocean, and the Arctic Ocean. Lakes and seas are smaller bodies of water.

Mapmaking

Understanding Map Projections

A **map** is a flat diagram of all or part of Earth's surface. Mapmakers have created different ways of showing our round planet on flat maps. These different ways are called **map projections**. Because Earth is round, there is no way to show it accurately on a flat map. All flat maps are distorted in some way. Mapmakers must choose the type of map projection that is best for their purposes. Many map projections are one of three kinds: cylindrical, conic, or flat-plane.



Mercator projection

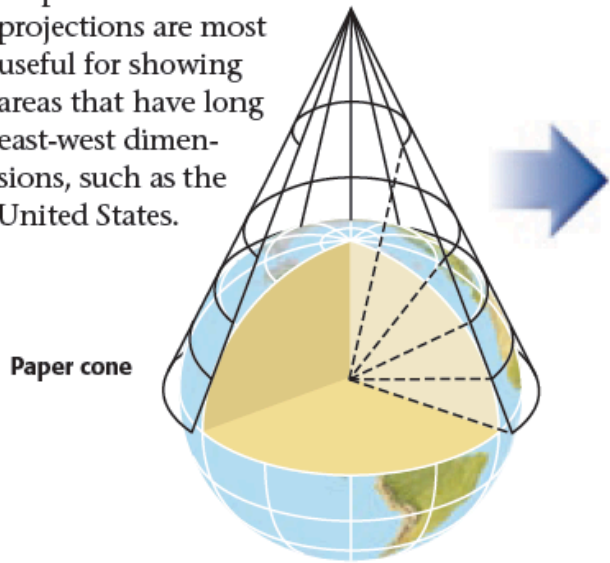


Cylindrical Projections

Cylindrical projections are based on a cylinder wrapped around the globe. The cylinder touches the globe only at the equator. The meridians are pulled apart and are parallel to each other instead of meeting at the poles. This causes landmasses near the poles to appear larger than they really are. The map below is a Mercator projection, one type of cylindrical projection. The Mercator projection is useful for navigators because it shows true direction and shape. However, it distorts the size of land areas near the poles.

Conic Projections

Conic projections are based on a cone placed over the globe. A conic projection is most accurate along the lines of latitude where it touches the globe. It retains almost true shape and size. Conic projections are most useful for showing areas that have long east-west dimensions, such as the United States.



Paper cone

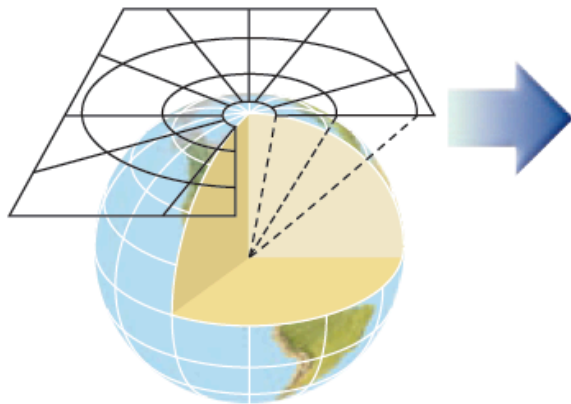


Conic projection

Flat-plane Projections

Flat-plane projections are based on a plane touching the globe at one point, such as at the North Pole or South Pole. A flat-plane projection is useful for showing true direction for airplane pilots and ship navigators. It also shows true area. However, it distorts the true shapes of landmasses.

Flat plane



Flat-plane projection

