Name _____ Date _____

Chapter 1 Section 2 (pages 10–13) *Reading Study Guide*

The Geographer's Tools

BEFORE YOU READ

In the last section, you read about the methods geographers use.

In this section, you will read about the geographer's tools.

AS YOU READ

Use this graphic to take notes about geographer's tools.

Tools

PLACES & TERMS

globe a three-dimensional representation of the earth

map two-dimensional graphic representations of selected parts of the earth's surface

cartographer a mapmaker

map projection a way of drawing the earth's surface that reduces the distortion caused by converting three dimensions to two dimensions

topographic map a representation of natural and man-made features on earth

Landsat a series of satellites that can photograph the entire earth in 16 days

Geographic Information Systems (GIS) a system that uses digital map information to create a databank to produce specialized maps

Maps and Globes

TWO OR THREE DIMENSIONS (page 10)

What *tools do cartographers use?*

A geographer's tools include maps, globes, and data. A map's purpose is to show locations of places on the earth. Maps also show where places are in relation to other places around them.

A **globe** is a three-dimensional representation of the earth. It provides a way to view the earth as it sits in space. Because the earth is round, we can see only one-half of it at a time. Globes are not always practical because they are not easily *portable*.

People often prefer to use **maps**, which are two-dimensional representations of selected parts of the earth's surface. Maps are portable and can be drawn to any scale needed.

The disadvantage of a map is that *distortion* occurs when a three-dimensional image is converted to two dimensions. A **cartographer**, or mapmaker, solves this problem by using different types of map projections. A **map projection** is a way of drawing the earth's surface that reduces distortion.

1. **Why do cartographers need to use projections when drawing maps?**

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TYPES OF MAPS (page 11)

What *kinds of maps are available?*

The three types of maps are general reference, thematic, and navigational. A general reference map is sometimes called a **topographical map**. It shows natural and man-made features on the earth. Thematic maps focus on specific kinds of information, such as climate or population density. *Navigational* maps are used by sailors and pilots to plot a course to sail or fly.

2. What are thematic maps used for?

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The Science of Mapmaking

SURVEYING/SATELLITES (pages 11–12)

How *do satellites help geographers?*

The first step in making a map is to complete a field survey. Surveyors observe, measure, and record what they see in a specific area. Today, the observing, measuring, and recording are done by aerial photography or by satellites. Cartographers then use this information and computers to construct maps.

The best known satellites that provide geographic data, are Landsat and GOES. **Landsat** is actually a series of satellites that can photograph the entire earth in 16 days. GOES—Geostationary Operational Environment Satellite—is a weather satellite. It maintains a constant view of the same area of the earth. GOES gathers images that are useful in forecasting the weather.

3. What kind of information does GOES collect?

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_____

GIS/GPS (page 13)

How *is a Geographic Information System used?*

The geographer's newest tool is the **Geographic Information System (GIS)**. This system uses digital map information to produce a specialized map. GIS provides specialized information to solve problems. For example, it may help builders find a suitable site to build an airport.

Another tool of geographers is the Global Positioning System (GPS). The system uses a series of 24 satellites called Navstars. They send the exact latitude, longitude, altitude, and time to a hand-held receiver.

4. What would you use a GPS for?

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