Section 1 Review

SECTION VOCABULARY

<table>
<thead>
<tr>
<th>Asthenosphere</th>
<th>Lithosphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>The solid, plastic layer of the mantle beneath the lithosphere; made of mantle rock that flows very slowly, which allows tectonic plates to move on top of it.</td>
<td>The solid, outer layer of Earth that consists of the crust and the rigid upper part of the mantle.</td>
</tr>
<tr>
<td>Crust</td>
<td>Mantle</td>
</tr>
<tr>
<td>The thin and solid outermost layer of the Earth above the mantle.</td>
<td>In Earth science, the layer between Earth’s crust and core.</td>
</tr>
<tr>
<td>Core</td>
<td>Mesosphere</td>
</tr>
<tr>
<td>The central part of the Earth below the mantle.</td>
<td>Literally the “middle sphere”; the strong, lower part of the mantle between the asthenosphere and the outer core.</td>
</tr>
</tbody>
</table>

1. Organize Complete the concept map below to show the relationship between Earth’s compositional zones and structural zones.

```
Earth's interior has five Structural zones

Lithosphere

Asthenosphere

Mesosphere

Mantle

Core

Outer Core

Inner Core

Crust

Earth's interior has three Compositional zones
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2. Apply Concepts A compass needle is a very small magnet that can move. Why can you use a compass to determine direction on Earth?

Earth is a giant magnet. The compass needle lines up with Earth's magnetic field.

3. Analyze Ideas Why would you weigh less on a high mountain peak than you would at sea level?

You weigh less the further you are from Earth’s center.

When you are on the high mountain peak, you are further from Earth's center.
Section 1 Review

SECTION VOCABULARY

| **latitude** | the distance north or south from the equator; expressed in degrees |
| **longitude** | the angular distance east or west from the prime meridian; expressed in degrees |
| **meridian** | any semicircle that runs north and south around Earth from the geographic North Pole to the geographic South Pole; a line of longitude |
| **parallel** | any circle that runs east and west around Earth and is parallel to the equator; a line of latitude |

1. **Compare** What is the difference between a meridian and a parallel?
   A meridian is a line of longitude. It connects the North and South Pole.
   A parallel is a line of latitude. It goes from east to west and is parallel to the equator.

2. **Define** What is the prime meridian?
   Line of longitude that represents 0 degrees. Goes through Greenwich, England.

3. **Explain** Why is it important for an airplane pilot to know about great circles?
   Great circles are the shortest way to get from one point to another over Earth's curved surface.

4. **Explain** Why doesn't the needle on a compass point directly to the North Pole?
   The magnetic field of Earth is not exactly lined up with Earth's geographic poles.

5. **Infer** Explain why the equator is a great circle.
   It divides the Earth into a North hemisphere and a South hemisphere.

6. **Apply Concepts** Label the meridians and parallels on the globe shown below.
Section 2 Review

SECTION VOCABULARY

<table>
<thead>
<tr>
<th>term</th>
<th>definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>isogram</td>
<td>a line on a map that represents a constant or equal value of a given quantity</td>
</tr>
<tr>
<td>legend</td>
<td>a list of map symbols and their meanings</td>
</tr>
<tr>
<td>map projection</td>
<td>a flat map that represents a spherical surface</td>
</tr>
<tr>
<td>remote sensing</td>
<td>the process of gathering and analyzing information about an object without physically being in touch with the object</td>
</tr>
<tr>
<td>scale</td>
<td>the relationship between the distance shown on a map and the actual distance</td>
</tr>
</tbody>
</table>

1. **Describe** Complete the table below to describe the three main types of map projections.

<table>
<thead>
<tr>
<th>Map Projection</th>
<th>How It Can Be Made</th>
<th>Areas of Least Distortion</th>
<th>Areas of Greatest Distortion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylindrical</td>
<td>Cylinder wrapped around a globe</td>
<td>Around the equator</td>
<td>Areas near the poles are most distorted.</td>
</tr>
<tr>
<td>Azimuthal</td>
<td>Place a piece of paper so that it touches the globe at only one point.</td>
<td>Close to point where map touches globe</td>
<td>Farthest away from point touching the globe</td>
</tr>
<tr>
<td>Conic</td>
<td>cone shape placed on a globe</td>
<td>area near the parallel that the cone touches</td>
<td>Areas far from the parallel the cone touches are most distorted.</td>
</tr>
</tbody>
</table>

2. **Infer** What is one advantage of remote sensing over field surveying?

Measures can be done much more quickly and more often.

3. **Explain** How can a legend help you read a map?

Tells you the meaning of colors and symbols on a map.

4. **Apply Concepts** The scale on a map is given as the following: “One centimeter equals 10 meters.” What kind of scale is this? If two areas are 40 m apart in real life, how far apart will they be on the map?

Verbal scale 40m = 4 cm on map

5. **Compare** How are isotherms and isobars the same? How are they different?

Isotherm - line that connects same temperature on a map

Isobar - line that connects same barometer pressure on a map
Section 3 Review

SECTION VOCABULARY

contour line  a line that connects points of equal elevation on a map

relief the difference between the highest and lowest elevations in a given area

elevation  the height of an object above sea level

topography the size and shape of the land surface features of a region, including its relief

1. Explain  A small topographic map contains the following contour lines (in meters): 40, 50, 60, 70, 80, 90. What is the relief of the map? What is the contour interval?

90m - 40m = 50 m  contour interval = 10 m

2. Infer  How could a topographic map be useful for a hiker?

helps them plan their hike to find the most suitable route

3. Apply Concepts  An Earth scientist is studying the geologic history of an area. She wants to know when different rock layers in the area formed. Which kind of map should she use? Explain your answer.

Geologic maps show rock types and ages of rocks in an area

4. Identify  What are two ways people use soil maps?

Helps with land planning and uses and helps people conserve soil

5. Compare  Complete the table below to compare topographic maps, geologic maps, and soil maps.

<table>
<thead>
<tr>
<th>Type of Map</th>
<th>What Colors Represent on the Map</th>
<th>What Lines Represent on the Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topographic map</td>
<td>black = roads and buildings; blue = water; green = forest; red = major highways</td>
<td>elevation changes</td>
</tr>
<tr>
<td>Geologic Map</td>
<td>different geologic units</td>
<td>rock types and ages</td>
</tr>
<tr>
<td>Soil Map</td>
<td>Different soils in an area</td>
<td>places where different kinds of soil touch</td>
</tr>
</tbody>
</table>

6. Identify  Give two examples of how people can use maps to help the environment.

Soil maps help with land use planning and soil conservation

Groundwater maps help to protect groundwater from pollution


**CHAPTER 3**

**Tools of Earth Science**

**Use after Section 2-5.**

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**Part A.** Use the time zone map above to answer the following questions.

1. The meridians that run north and south measure ______ longitude ______.
2. The lines that run east and west measure ______ latitude ______.
3. What is the name of 0º longitude? ______ Prime Meridian ______.
4. If it is midnight at 180ºW, what time is it in the following cities?
   - a. Anchorage ______  
   - b. Chicago ______  
   - c. Rio de Janeiro ______  
   - d. London ______  
   - e. Cairo ______  
   - f. Beijing ______
5. What is the significance of the 180º meridian? ______ International Date Line ______
6. Find the cities at the following latitude and longitude.
   - a. 35ºN, 120ºW ______  
   - b. 40ºN, 7ºW ______  
   - c. 60ºN, 30ºE ______  
   - d. 40ºN, 90ºW ______  
   - e. 35ºS, 150ºE ______  
   - f. 60ºN, 150ºW ______
7. The 0º latitude is also called the ______ Equator ______.
8. Why is the International Date Line a jagged line? ______

So as to not divide a country into two different days ______

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(Additional content and images are not transcribed due to the focus on the markdown format and the limitations of the text-to-speech conversion process)
Part B. Use the topographic map above to answer the following questions.

1. In which direction does the Blue River flow? __southeast___ How can you tell?
   Contour lines decrease in elevation in a southwest direction
   Contour lines form V shapes that point in a SW direction

2. Describe three features of Iron Mountain.
   a. Two peaks 620 ft and 640 ft
   b. North slope is more gentle slope
   c. South slope is more steep slope

3. Can you see Pine Pond from Iron Mountain? ___No____ How do you know?
   Eagle Mt is over 100 feet taller than Iron Mt and would block the view

4. What is the approximate elevation of the cemetery? ___150-200 ft

5. Describe the land where the Blue River empties into Blue Cove. Marsh or swamp

6. What is the approximate elevation of the Ranger’s Station on Eagle Mountain? ___650-700 ft

7. From which direction would it be easier to climb Iron Mountain? Why?
   The north slope is more gentle as indicated by the further spaced contour lines

8. How would you describe the slope of Seagull Rock? __smooth, symmetrical slope (cone)