Navigating Change™
Marianas Islands

Sea Grant
Guahan

Lesson Plan: Navigating Change Unit 1: The Voyage

1.1 Charting the Marianas

Emphasis: Math (charting), history (island facts), geology (island formation), geography (relative location of the islands.)

Description: Introducing the Marianas Island Archipelago and characteristics of each. Students will investigate the physical location of the the Marianas Islands.

Objectives: (Students will...)

1. Know how to chart islands based on latitudinal and longitudinal coordinates
2. Know the names of the 15 islands in the Marianas Archipelago
3. Understand the relative position of the Marianas and the distance between each of the islands

Assessments Techniques:

1. Island charting - use latitude and longitude to chart the archipelago on a map provided
2. Using map scales to measure, provide 1) the distance between islands, and 2) a measurement of the total 'length' of the archipelago
3. Journaling - journal entries compare and contrast the major differences in physical characteristics of the islands

Vocabulary:

archipelago - a cluster or chain or islands surrounded by open sea

atoll - a ring-shaped coral reef enclosing a lagoon

basalt - Hard and dark volcanic rock formed by the cooling of lava at or near the Earth's surface

fringing Reef - coral reef that grows in shallow water and slopes sharly toward the sea floor

gani - chamorro word used to refer to all the islands north of Saipan

latitude - imaginary circles around the Earth, parallel to the equator

longitude - imaginary circles on the surface of the Earth passing through the North and South poles at right angles to the equator

Sinahi - crescent moon

Subject(s)
Earth Science, Ecology, Biology, Environmental Science, Marine Biology, Language Skills (journaling)

Grade Level
Elementary, 3-5
Middle, 6-8
High, 9-12

Time Required
1-2 50-minute class periods

Materials Required
Paper
Pencil
Ruler
Marianas Island Cards
journal

Related Background Reading
Guam: A Natural History, Lawrence J Cunningham

Related Documents
Marianas Island Cards

Related Links

Advance Preparation

- Prepare a large wall in the classroom to become a map of the Islands. Cover the wall with large sheets of blue paper or use a blue tarp. If you have projection capability from your computer, project the map of the Marianas Islands archipelago onto the wall. (The Marianas Islands Archipelago map is provided on the Navigating Change CD- Unit 1- The Voyage).

- Make cut-outs of the main Marianas Islands to place on the wall map during the activity. If there is not enough wall space available, consider developing a large map on the floor. (A floor map could be enhanced with three-dimensional objects, such as figurines of marine animals placed around the islands.)
- Duplicate journal pages 1 - 2 for each student and the Marianas islands cards (one for each group of two or three students)

Background Information

The Marianas Archipelago is a chain of island located between 13°28'N, 144° 47'E and 20°31'N, 144° 54'E. Visually, the islands take the shape of an crescent moon or sinahi, extending from south of Japan to north of New Guinea. To the west of the archipelago is the Philippine Sea and to the east is the Pacific Ocean. According to the 2000 census, the population of the archipelago was 247,658, with only 6 of the 15 islands inhabited (Guam, Rota, Saipan, Tinian, Alamagan, Pagan).

The Marianas Island Cards (.pdf) contains information on each the archipelago as well as information pertaining to the Land, Sea, and People. For further study, refer to Lesson Plan 1.2 Island Investigations.

Assessing Prior Knowledge

Pre-activity:

Ask some basic Marianas Island questions:

Where is Guam located? Can you locate Guam on a world map? Is Guam part of a larger island chain? What is the name of our island chain or archipelago? What is an archipelago? How many islands are in our archipelago? Does the Marianas Archipelago run east to west or north to south? What is the southern most island? Northern? Can anyone draw a map of our archipelago on the board?

Does anyone know what latitude and longitude are on a map?

We're going to learn all the answers to these questions today!

Activity:

1. **Distribute the student journal and assessment pages (from the Unit Introduction) and introduce the unit.** Review the projects and assignments and discuss the journals that students will be producing. Set a deadline for the culminating project and review the sample rubric.
2. **Let's try to list as many of the 15 islands in the archipelago as we can!** Guam, Rota, Aguijan, Tinian, Saipan, Farallon de Medinilla, Anatahan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug, and Farallon de Pajaros.
3. **Challenge students to draw a map of the Marianas archipelago that includes all of the islands that they know.** Check their maps to assess their awareness of our island geography. Ask if anyone included an island beyond Saipan.
4. **Give students 'Latitude and Longitude of the Marianas Islands (blank)'.** Using Guam and Rota as an example, plot Guam and Rota using the latitude and longitude on the blank chart. Teaching Hint: Latitude vs. Longitude. Think of latitude like the rungs on a ladder, these are the horizontal lines on the map, running east to west. Longitude are the long lines extending from pole to pole, running north to south. Have students work in small groups to chart the remaining islands. Students work in pairs to chart the remaining islands in the archipelago.
5. **Project the archipelago (Latitude and Longitude of the Marianas - labeled), have students check their maps against the projected one.** Make corrections as necessary.

6. **Measure the distance between each island using the scale provided.** Measure the total length of the archipelago. Fill in the correct answer on 'Island Hopping' Worksheet.
7. **Use the projected map to review latitude and longitude.** Have students attach strings on the ocean wall map to mark from 13° to 21° North latitude and 144° to 145° East longitude. Use this map to complete the activities in 1.2 Island Investigations.

In depth Activity:

How was life different in the Marianas Archipelago in the 1500's? Student do some research about the state of the Marianas Islands prior to the Spanish occupation and create a journal entry as to how they envision the indigenous people living and thriving in the Marianas Islands.

Extended Activities

Have students use clay, paper mâché, or other materials to collaborate on creating a large three-dimensional model of the Marianas Islands archipelago. Students could look for rocks that resemble the shape of their islands and use these on the model.

Challenge each group to learn more about their assigned island. Have them research their island and add information about the flora and fauna and any interesting facts they can find. Include surrounding reefs and islands and any sea animals found primarily on or around their island. Place illustrations or cut-outs onto the large wall map near their island. See Unit 2 Land to Sea for more information about island flora and fauna.

Latitude and Longitude of the Marianas (labeled)

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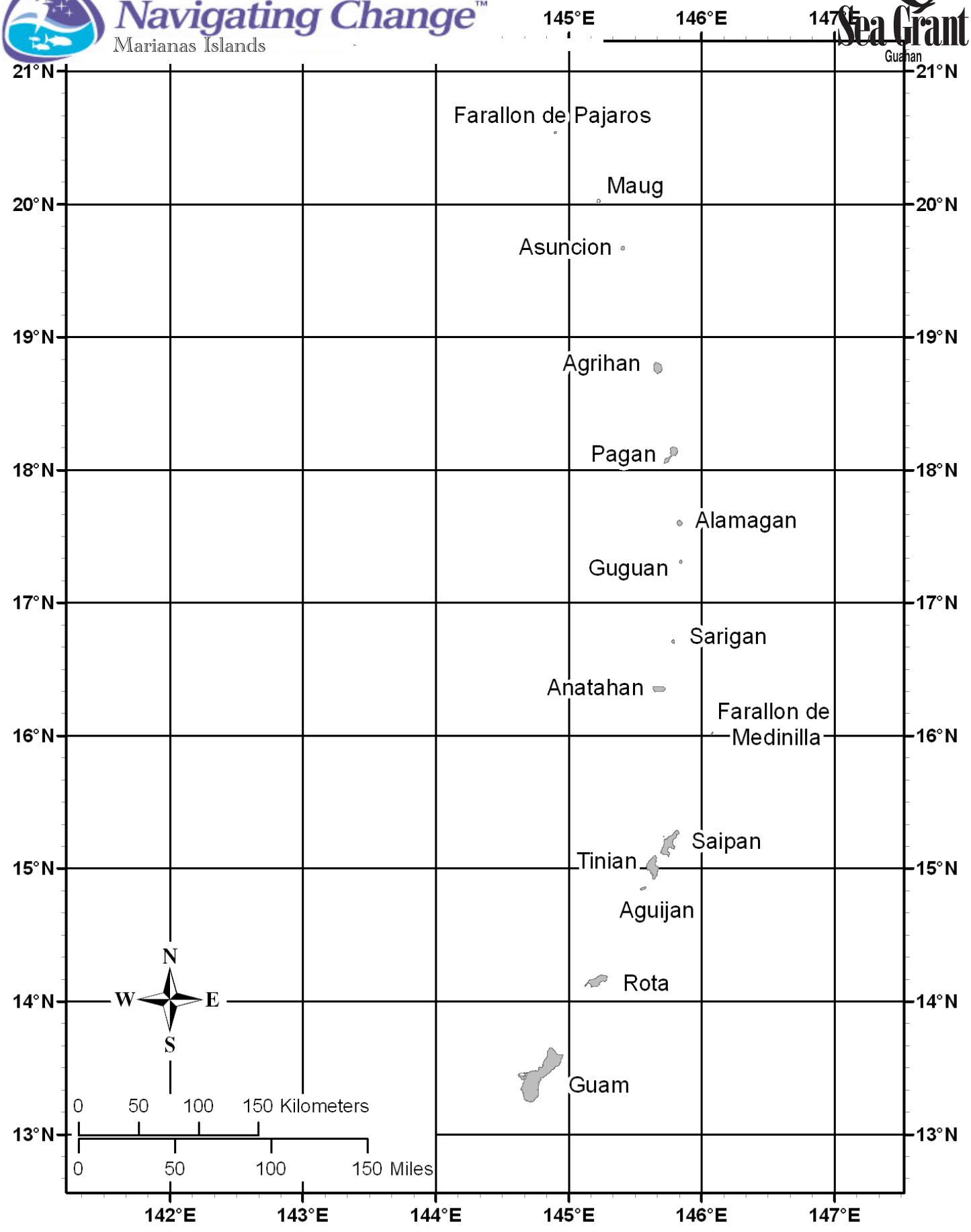

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Latitude and Longitude of the Marianas

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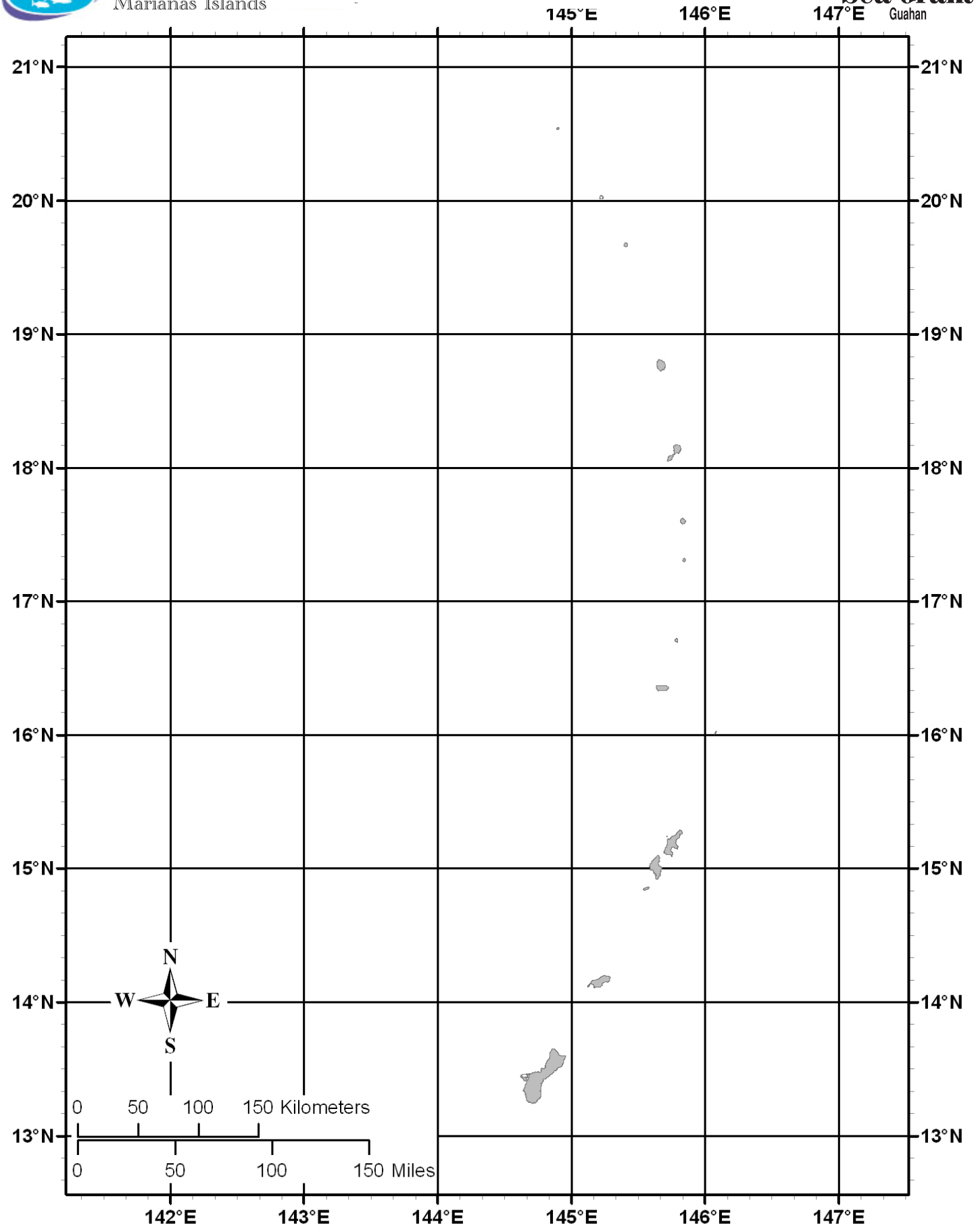

Latitude and Longitude of the Marianas - (blank)

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