

Reasoning with Physical Geography

Where is Jerusalem located, and how might physical geography affect its location?

For the complete activity with media resources, visit:

DIRECTIONS

1. Students analyze aerial footage, noting physical geologic features that they see.

Ask students about what they already know about Jerusalem. Some students may be very knowledgeable about the conflict or the wall separating the Palestinian territories from Israel. If so, listen but veer students away from sharing information about the conflict to sharing an understanding of the geographic size of the city of Jerusalem.

Explain that students will be watching an Overview of Jerusalem video clip that shows aerial footage of Jerusalem. Review the definitions of the following vocabulary words with students: sea, valley, mountain, plateau, coastal plain, and rift valley. Instruct students to look for these features, and write down which ones they see in addition to any other physical features in the film.

2. Predict Jerusalem's location based on visual evidence.

Ask: *What physical features did you observe in the video clip?* Have students make predictions about where Jerusalem is located based on the features they witnessed in the video clip. Is it near the coast? Inland? Have students write down their predictions, and prompt them to provide their reasoning behind their predictions using the observations they made. After students have finished writing, ask a few volunteers to share their predictions with the class.

3. Identify water features on a map and discuss their impact on Jerusalem's location.

Once students have written down their predictions, distribute copies of the Israel MapMaker 1-Page Map. Ask: *How does the actual location of Jerusalem compare to your predictions?* Have students point out the Mediterranean Sea, the Sea of Galilee, the Dead Sea, the Red Sea, and the Jordan River. Explain that while the Sea of Galilee is called a "sea," it is actually Israel's largest freshwater lake. On the other hand, the Dead Sea is one of the saltiest bodies of water in the world. Ask: *Does Jerusalem's location surprise you? Why or why not?* Have students refine their reasoning for why Jerusalem is located where it is, using the information about water features. Students may also choose to retain their original reasoning.

Break students into small groups and have them share their reasoning with one another. Have groups work together to create a reason for why Jerusalem is located where it is for their group. If students within a group have conflicting reasons, they must work together to come to consensus. Have each group share their group reason with the class. Have students write down their group reason.

4. Students work in groups to add information to their physical map.

Although there are some water features on the map, point out that students are using a political map that conveys political boundaries rather than physical ones. Now, they are going to use different types of maps to add more information to their physical map of Jerusalem. Return to the MapMaker Interactive, project the map, and zoom in on Israel so that the whole country fills the screen.

Have students continue to work in groups, and if there are enough computers, let each group explore the layers of the Interactive MapMaker independently as you read each task. If there are not enough computers, bring up one group for each task to turn on and off the map layers, and the rest of the class may look on.

Groups should work together to answer the following questions about where each physical feature is located, but each student should individually mark the decision on their own map.

Read the following prompts to students:

- Say: *Using the Themes on the left hand side of the screen, click on Physical Systems – Land and turn on the Plate Tectonics layer by checking the box next to the title and then turn on the Earthquakes layer. Clicking these layers will open map keys—click the “x” in the top right hand corner of the each key, as you do not need this information. Ask: Based on this information, mark the Jordan Rift Valley on your map. What water features is it near?* Students should point out that the Jordan Rift Valley contains the Jordan River, the Sea of Galilee and the Dead Sea.
- Say: *Turn off the Plate Tectonics and Earthquakes layers. Turn on the Surface Elevation layer, and turn off the map key. Ask: Based on this information, where is the mountain range in Israel?* If students have a hard time understanding the layer, turn on the Surface Elevation map key by clicking the “i” button to the right of the Surface Elevation title. Higher elevations are warmer colors, and lower elevations are cooler colors. Ask: *Where are the central mountains in relation to the rift valley?* After allowing students the opportunity to answer, turn the Plate Tectonics layer back on so that both it and the Surface Elevation layer display. Students should clearly see that the mountains are located to the west of the Jordan Rift Valley.
- Say: *Turn off the Plate Tectonics layer, but leave the Surface Elevation layer on. Direct students’ attention to the area between the coastline and the mountains. Ask: What is this area called?* Have students recall the different terms they hunted for during step 1, when they watched the aerial footage of Jerusalem. This area is called the coastal plain.
- Say: *Turn off the Surface Elevation layer. Explain to students that they are going to add two more features to their map, the Negev desert plateau in the south, and the hills of Galilee in the North. Ask: How might we tell where these features are located by looking at the map? What layers might we change or turn on?* Listen to student suggestions, and turn on/off various layers of the map that they suggest. Once students are done with their investigations, if no one has suggested turning on a satellite layer, do so by switching the map base layer in the upper right hand corner of the map. On the tool bar, there is a downward arrow next to a box labeled “NatGeo.” Clicking the downward arrow opens a drop-down menu. Select the Satellite option. With this layer displayed, can students tell where the desert is and the hills are based on the vegetation coverage?

5. Discuss the relationship between the physical features and Jerusalem's location.

Ask: *What do you notice about where Jerusalem is located in relation to the physical geography of the region?*

Answers should include that Jerusalem is located between the coastal plain and the Judean desert, at the top of a mountain range. Point out that Jerusalem is relatively isolated and that it is not close to important freshwater sources (Sea of Galilee and the Jordan River). Invite students to share their thoughts on why this is a logical place to build a city. Ask: *Do we have all of the information we need?*

Have students reread their group reasoning about why Jerusalem is located where it is, then have them read the first half of the Water Works article. Afterwards, have groups discuss this new information. How did it compare to their original group reasoning? Have groups refine their reasoning about why Jerusalem is located where it is.

TIP

The transparency of each layer on the MapMaker Interactive can be adjusted if students are having trouble

seeing map features and overlapping layers. To adjust, move the cursor along the Transparency scale that is located underneath each Layer title in the Themes box.

MODIFICATION

To increase the difficulty of the activity, use the Israel MapMaker 1-Page Map to adjust the map so that place names are not included on the map. Ask students to label the map themselves.

SELF ASSESSMENT

Have students return to their original predictions, revisions, and group reasons they wrote down. Have them write a few sentences at the bottom of the paper about their thought process, and how the introduction of new information affected their reasoning.

EXTENDING THE LEARNING

Pull Jerusalem up on the MapMaker Interactive. Turn on the Population Density layer, and have a class discussion about the relationship between where people live and where physical features are located.

OBJECTIVES

SUBJECTS & DISCIPLINES

Educational Technology

- Educational media

Geography

- Cartography
- Geographic Information Systems (GIS)
- Human Geography
- Physical Geography

Science

- Physical sciences

LEARNING OBJECTIVES

Students will:

- Identify physical geological features visually and in mapping representation
- Interpret the affect of physical geography on the location of a city

TEACHING APPROACH

- Learning-for-use
- Object-based learning

TEACHING METHODS

- Discovery learning
- Discussions
- Reflection
- Visual instruction

SKILLS SUMMARY

This activity targets the following skills:

21st Century Skills

Information, Media, and Technology Skills

- Information Literacy

Learning and Innovation Skills

- Communication and Collaboration
- Critical Thinking and Problem Solving

Critical Thinking Skills

- Analyzing
- Applying

Geographic Skills

- Acquiring Geographic Information
- Analyzing Geographic Information
- Answering Geographic Questions
- Organizing Geographic Information

CONNECTIONS TO NATIONAL STANDARDS

National Council for Social Studies Curriculum Standards

- Theme 3: People, Places, and Environments

National Geography Standards

- Standard 1: How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
- Standard 12: The processes, patterns, and functions of human settlement
- Standard 15: How physical systems affect human systems
- Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface
- Standard 4: The physical and human characteristics of places
- Standard 7: The physical processes that shape the patterns of Earth's surface

National Educational Technology Standards for Students (NETS[®]S)

- Standard 2: Communication and Collaboration

PREPARATION

WHAT YOU'LL NEED

Materials You Provide

- Markers
- Paper

Required Technology

- Internet Access: Required

Physical Space

- Classroom
- Computer lab

Grouping

- Small-group instruction

Resources Provided: Websites

- National Geographic Education MapMaker Interactive
- National Geographic Education: MapMaker 1-page Maps: Israel

Resources Provided: Audio & Video

- Overview of Jerusalem

Resources Provided: Articles & Profiles

- Water Works

BACKGROUND & VOCABULARY

BACKGROUND INFORMATION

Israel and the Palestinian territories are located in the Middle East along the Mediterranean Sea between Egypt and Lebanon, and to the west of Jordan. The bounds of the historical region of Palestine have varied through time, but it is generally agreed that the land between the Mediterranean Sea and the Jordan River constitutes its core. The Palestinian territories, or occupied Palestinian territories, are generally defined as the Gaza Strip, West Bank, and East Jerusalem—lands occupied by Israel after the 1967 Six Day War but not including Golan Heights. A 1993 peace agreement gives areas of the West Bank and Gaza limited Palestinian autonomy. The future for these autonomous areas and 3 million Palestinians is subject to Israeli-Palestinian negotiations.

At 22,072 sq km (8,522 sq mi), the state of Israel is slightly larger than the state of New Jersey in the United States. The Gaza Strip is 360 sq km (139 sq mi), and the West Bank is 5,860 sq km (2,263 sq mi). Jerusalem is claimed as the capital of both Israelis and Palestinians. It is a holy city for three of the world's major religions: Judaism, Christianity and Islam. Jews view it as the capital of the United Kingdom of Israel. Christians revere it as the site of Jesus Christ's final days and death, and Muslims recognize it as the gateway to God where the Prophet Muhammad ascended to heaven.

The region has both a Mediterranean climate and a semi-arid climate. It is mostly hot and dry in the south, and moist with mild winters and dry summers in the north. A desert plateau, the Negev, is in the south. In the north, the rich soil of the Jezreel plain and the rugged hills of Galilee are the agricultural heartland of Israel. Moving west to the east across the country, there is a low coastal plain, central mountains, and finally, the Jordan Rift Valley. East of the Jordan River the land is dominated by large outcroppings of black basalt rock. The Jordan Rift Valley is a strike-slip fault between the Israel-Sinai Sub-Plate and the Arabian Plate. Jerusalem is located atop this central mountain range.

The region's water features have played an important role throughout its history. Today, ports on the Mediterranean Sea connect Israel with Europe and Africa and provide food—fish—for many of the region's inhabitants. The Dead Sea is over 400 m (over 1300 ft) below sea level and is the lowest place on the surface of the Earth. It is also one of the saltiest bodies of water in the world. Although it cannot supply irrigation or drinking water, the Dead Sea provides other economic commodities such as minerals extracted from its water. The Sea of Galilee, also known as Lake Kinnaret or Lake Tiberias, is an important freshwater source. It is Israel's largest freshwater lake. The Jordan River (which functions as a natural border between Israel and Jordan) begins at Mount Hermon in the Anti-Lebanon Mountains in the north, and flows south until it ends in the Dead Sea.

PRIOR KNOWLEDGE

- Basic mapping skills

RECOMMENDED PRIOR ACTIVITIES

- None

VOCABULARY

Term	Part of Speech	Definition
aerial map	<i>noun</i>	representation of spatial information as visualized from a point in the atmosphere high above the ground.
aerial map	<i>noun</i>	representation of spatial information as visualized from a point in the atmosphere high above the ground.

coastal plain	<i>noun</i>	low, flat land lying next to the ocean.
coastal plain	<i>noun</i>	low, flat land lying next to the ocean.
plateau	<i>noun</i>	large region that is higher than the surrounding area and relatively flat.
plateau	<i>noun</i>	large region that is higher than the surrounding area and relatively flat.
political map	<i>noun</i>	representation of spatial information, marking boundaries of states, countries, or other government divisions.
political map	<i>noun</i>	representation of spatial information, marking boundaries of states, countries, or other government divisions.
rift valley	<i>noun</i>	depression in the ground caused by the Earth's crust spreading apart.
rift valley	<i>noun</i>	depression in the ground caused by the Earth's crust spreading apart.
sea	<i>noun</i>	large part of the ocean enclosed or partly enclosed by land.
sea	<i>noun</i>	large part of the ocean enclosed or partly enclosed by land.

FOR FURTHER EXPLORATION

Websites

- CIA WorldFactbook: Israel



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