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LESSON PLAN



## Where is our Booth? Clan Organization at the Alþingi, Þingvellir, Iceland in Virtual Reality

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### Introduction

Geography influences the long-term success or failure of a community. For example, your booth location at the local farmer's market could result in greater sales of fresh produce if you are positioned at the entrance to the market rather than tucked into a back corner. If the desk of a political intern is situated nearer to a high-traffic area for important officials, the intern is more likely to be known and receive greater opportunities for future employment. Location is also important to support resources you already have—nearness to a water source, building materials, or food supplies could all contribute to your continued success. The purpose of this lesson is to investigate the characteristics of landscape optimization when choosing an ideal location. Additionally, this lesson seeks to illuminate the link among location, political culture, and participation. This will be accomplished through the historical lens of the Icelandic Alþingi (Althing), or parliament, during the Commonwealth era (930–1262 CE) in Iceland. We utilize a role-playing activity set within the culturally important Icelandic Sagas, namely Brennu-Njal's Saga (The Story of Burnt Niall). The lesson plan provided here is intended as an example of the ways in which GeoEPIC teaching resources can be employed in a classroom focused on Advanced Placement Human Geography, but could be applied to World History: Modern, Macroeconomics, and Microeconomics.

The lesson plan is published in conjunction with the article entitled *From Real to Virtual Reality – Using the Geographic Advantage with Emerging Technology to Pivot an International Interdisciplinary Experience* within this special issue of *The Geography Teacher*. Please see the accompanying article for pedagogical context prior to implementing the lesson plan.

### Lesson Overview

In this lesson, students will explore a virtual reality domain of Þingvellir (Thingvellir), Iceland, coming away with an

understanding of the cultural and political importance of space and place while meeting the objectives from AP Geography and AP Comparative Government (Table 1). Framed around parliamentary proceedings of Commonwealth-era Iceland, interactive lessons allow the learner to participate in preparation for such an event, to make choices, and to determine the outcomes of those choices based on the logic of geographical concepts. Students discover integrated relationships between geography and various other subjects. Because the framework of the lesson involves role-playing, the students are required to investigate the historic, cultural, and physical conditions of the Icelandic setting and the early settlers of Iceland. This is accomplished through several tasks that include the following: (1) a series of readings provided within the lesson, which include historical Icelandic sagas, (2) maps, and (3) short assignments that introduce the student to the critical components of the lives they will be role-playing, the landscapes early Icelanders lived within, and resources the people have available to them. These tasks are also used to introduce geographic concepts such as sense of place, time, and distance.

Undertaking tasks provides context and understanding that allow decisions to be made about locational choices for temporary housing at the Alþingi in order to secure needed resources and undertake critical activities during role-playing activities. Immersion is accomplished in a 2-D or 3-D viewing platform that places students within the sites and sounds of the landscape in a 360-degree viewshed. The viewing platform also permits the students to gather information on physical and cultural features in a spatial context. The experience should offer a feel of attendance at the council setting and effectively allow the student's participation in an early democracy.

The digital content can be viewed across many types of devices. If viewing with the virtual reality (VR) headset option, the student can experience movement with three degrees of freedom, allowing rolling, pitching, and yawing with head movement (first-generation headset technology), or a six degrees of freedom option, incorporating the three degrees of

**Table 1.** Lesson sections matched to National Geography Standards, AP Human Geography Standards, and AP Comparative Government & Politics Standards (Clark 1999; Horne & Thompson 2008; Horton 2010; Karlsson 2000; McCabe 2015; McGuire 2015; AP Central College Board 2020).

Lesson Section	National Geography Standards	AP Human Geography	AP Comparative Government & Politics
Part 1	The World in Spatial Terms (Standard 1)	Unit 1: Thinking Geographically <ul style="list-style-type: none"> <li>IMP3 1.1 Introduction to Maps</li> <li>PSO1 1.5 Human-Environmental Interaction</li> </ul>	
Part 2	The World in Spatial Terms (Standard 1)	Unit 1: Thinking Geographically <ul style="list-style-type: none"> <li>IMP1 1.2 Geographic Data</li> </ul>	
Part 3	The World in Spatial Terms (Standard 2), Places & Regions (Standard 4), Human systems (Standard 9)	Unit 3: Cultural Patterns and Processes <ul style="list-style-type: none"> <li>SPS2 3.5 Historical Causes of Diffusion</li> <li>IMP4 3.7 Diffusion of Religion and Language</li> </ul> Unit 4: Political Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 4.2 Political Processes</li> <li>IMP2 4.7 Forms of Governance</li> </ul>	Unit 1: Political systems, regimes, and government <ul style="list-style-type: none"> <li>PAU 1.2 Defining Political Organizations</li> <li>PAU 1.4 Democratization</li> </ul> Unit 3 Political culture and participation <ul style="list-style-type: none"> <li>IEF 3.2 Political Culture</li> <li>DEM 3.5 Nature and role of political Participation</li> </ul>
Part 4	Human Systems (Standard 11), Environment & Society (Standard 16)	Unit 1: Thinking Geographically <ul style="list-style-type: none"> <li>PSO1 1.5 Human-Environmental Interaction</li> </ul> Unit 4: Political Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 4.2 Political Processes</li> <li>IMP2 4.7 Forms of Governance</li> </ul> Unit 5: Agriculture and Rural Land-Use Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 5.2 Settlement Patterns and Survey Methods</li> <li>SPS2 5.3 Agricultural Origins and Diffusions</li> </ul>	Unit 1: Political systems, regimes, and government <ul style="list-style-type: none"> <li>PAU 1.2 Defining Political Organizations</li> </ul> Unit 3 Political culture and participation <ul style="list-style-type: none"> <li>IEF 3.2 Political Culture</li> </ul>
Part 5	Human Systems (Standards 9, 11)	Unit 3: Cultural Patterns and Processes <ul style="list-style-type: none"> <li>SPS2 3.5 Historical Causes of Diffusion</li> </ul> Unit 4: Political Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 4.2 Political Processes</li> <li>IMP2 4.7 Forms of Governance</li> </ul>	Unit 1: Political systems, regimes, and government <ul style="list-style-type: none"> <li>PAU 1.2 Defining Political Organizations</li> <li>PAU 1.4 Democratization</li> </ul> Unit 3 Political culture and participation <ul style="list-style-type: none"> <li>IEF 3.2 Political Culture</li> <li>DEM 3.5 Nature and role of political participation</li> </ul>
Part 6	Human Systems (Standard 13)	Unit 3: Cultural Patterns and Processes <ul style="list-style-type: none"> <li>SPS2 3.5 Historical Causes of Diffusion</li> <li>IMP4 3.7 Diffusion of Religion and Language</li> </ul> Unit 4: Political Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 4.2 Political Processes</li> <li>IMP2 4.7 Forms of Governance</li> </ul>	Unit 1: Political systems, regimes, and government <ul style="list-style-type: none"> <li>PAU 1.4 Democratization</li> </ul> Unit 3 Political culture and participation <ul style="list-style-type: none"> <li>IEF 3.3 Political Ideologies</li> <li>DEM 3.6 Forces that impact political participation</li> <li>DEM 3.7 Civil Rights and Civil Liberties</li> <li>LEG 3.8 Political and social cleavages</li> </ul>
Part 7	Human Systems (Standards 9, 11), Environment & Society (Standard 16)	Unit 5: Agriculture and Rural Land-Use Patterns and Processes <ul style="list-style-type: none"> <li>PSO4 5.2 Settlement Patterns and Survey Methods</li> <li>SPS2 5.3 Agricultural Origins and Diffusions</li> <li>PSO2 7.7 Spatial Organization of Agriculture</li> </ul>	Unit 1: Political systems, regimes, and government <ul style="list-style-type: none"> <li>LEG 1.9 Sustaining Legitimacy</li> </ul> Unit 3 Political culture and participation <ul style="list-style-type: none"> <li>IEF 3.2 Political Culture</li> <li>DEM 3.5 Nature and role of political participation</li> <li>DEM 3.6 Forces that impact political participation</li> </ul>

freedom from above as well as forward, backward, up, down, left, and right available in the present-day technologies that incorporate body movement depending on the device used. New research indicates that there is enhanced educational gain with the incorporation of VR tools as proprioception balance and vestibular balance deepen learning (Krokos, Plaisant, and Varshney 2019).

### **National Geography Standards (GENIP), AP Human Geography, and AP Comparative Government & Politics**

The lesson addresses the standards outlined in the table below. In addition, the lesson addresses all five geographic skills listed in the National Geography Standards, Second Edition (Heffron and Downs 2012, 95–104).

### **Learning Goals**

Our learning strategy is structured to prepare the learner for authentic geographic inquiry tasks, specifically geospatial analysis, to support the educational goal of increasing geoliteracy. The task of “selecting an appropriate location for given parameters” is aligned with the higher Bloom level of evaluation (Anderson and Krathwohl 2001). To support the learner to achieve the higher-level cognitive task, we built in lower-level Bloom tasks where the learner is acquiring knowledge and analyzing variables. We included contextual information from the location (Þingvellir) where relevant historical events took place, explaining concepts of place and resource availability decisions to further tie into the educational goal. We also incorporated historical economic and political scenarios

from the Icelandic Brennu-Njal's Saga to help the learner connect the information in a current real-world setting (Brennu-Njals saga 1861).

Specifically, the lesson is broken into seven parts that target the following learning objectives:

- Learning Objective 1: Explain how we describe/determine location on the Earth
- Learning Objective 2: Compare relative and absolute location descriptors
- Learning Objective 3: Assess/evaluate the relationship among location, resources, and travel
- Learning Objective 4: Explore a geographically, historically, and politically important location with attention to available resources
- Learning Objective 5: Evaluate the principles, institutions, processes, policies, and behaviors of democratization
- Learning Objective 6: Explain how democracy could influence religious conversion
- Learning Objective 7: Evaluate and select an ideal location given specific parameters

*Guiding Question:* Where is the best location for a clan booth at the Alþingi, Þingvellir, Iceland?

*Target Audience:* Advanced Placement (AP) Human Geography and Comparative Government high school students and first- or second-year college students

*Time Required:* Three to five class periods of 60 to 90 minutes each; see table in Teacher's Guide for specific part/task timing and skills (<https://geoepic.app>)

### Preparation, Materials, and Instruction

Browser-enabled devices are required as this lesson plan incorporates text, GIS maps, and VR content served through GeoEPIC (<https://geoepic.app/>), a multimodal learning platform. The platform is accessible from desktop browsers, tablets, smartphones, or VR headsets, all browser-enabled devices that have the capability to view immersive 2-D and 3-D environments. GeoEPIC provides a virtual reality field experience that incorporates lessons designed and supported with best practices for experiential learning.

The GeoEPIC site (<https://geoepic.app>) includes a "Resources" tab for educators utilizing this lesson in part or its entirety. All resources are in PDF format and can be universally updated by site technicians as new resources become available. A detailed Teacher's Guide includes background information with lesson instructions, as well as suggested rubrics and an answer guide. Also provided are an estimated time per task table and supplemental resources that link to additional maps, videos, and readings that can help educators scale this lesson to the appropriate age group. Group/Clan Assignment Sheets and Student Worksheets are located under this Resources tab.

The lesson utilizes tasks that address learning objectives for each part. Tasks culminate with a gamified group project that seeks to build critical thinking and increase learner engagement through the VR challenge. The project allows students to select, or "claim," a location to gain an advantageous spatial position that improves the settler's political power or agriculture futures

or to move goods to benefit the merchant class. GeoEPIC's scoring tool allows students to assess their choice of spatial position on the landscape and evaluate their selection. If the position is not advantageous for the group, then students can choose to negotiate their positions and trade claims with the takeaway of a deeper understanding of the lesson objectives of how geography influences people and politics.

### Background

It is the Commonwealth era of Iceland, a rugged landscape of volcanic activity, earthquakes, and extreme temperatures. Iceland is ruled, not by a king, but by regional representatives of landowners and *goðar* (clan chieftains). In this lesson students explore Iceland, the landscape of Þingvellir and role-play participation in the annual Alþingi.

Alþingi, a two-week long summer assembly, is the oldest parliamentary gathering in the world. Historically located at Þingvellir, Iceland, representatives from all of Iceland's clans meet to trade, form political alliances, dispute claims, and establish commonwealth laws. Þingvellir was chosen as the first meeting place for its convenient location, geographic features, and resources. Clans travel from their farms to the Alþingi and set up their clan booths. The area contains ample flat lands to accommodate large groups, gentle slopes for audience assembly, and abuts a cliff face for sound amplification. It is also noted for its natural resources of firewood and water, as well as good pastures for livestock. Þingvellir is considered the spiritual center of Iceland due to its beauty and ancient cultural history, making it eligible for UNESCO World Heritage status (<https://whc.unesco.org/en/list/1152/>).

Clans booths are locations on the Þingvellir plain to trade goods and pass along news. A clan booth, constructed of turf and stone, serves as temporary residence for a clan during the Alþingi, and a group might return to the same booth year after year. Location of a clan's booth is important for its proximity to resources, as well as its political influence. Therefore this lesson's activity centers around choosing the most advantageous booth site for a clan group and their future in Iceland.

### Procedure: Activity Instruction

The seven-part exercise is further detailed by objectives, materials, and tasks below. Students role-play the clan arrival to Þingvellir and the Alþingi to establish their clan's booth. Students must consider the resources they have brought from their home farms, the resources they will acquire to take home, and their political goals for the assembly. Each student group is supplied with a Clan/Farm Assignment handout.

Students begin this lesson by entering devices and launching GeoEPIC, <https://geoepic.app>, as well as being provided with the Student Worksheet handout for written answers. By clicking on "Lesson" students are directed to the introduction page with links to the parts of the lesson: Part 1, Part 2, Part 3, and so on. Students should be instructed to follow the parts of the lesson in order, but they are free to explore and return to any part/task at any time to gather information or review answers.

## **PART 1: What Is Location?**

**Objective:** Explain How We Describe/Determine Location on the Earth

**Materials Needed:** World Map with Latitude and Longitude Identification, Worksheet with Questions. Part 1 introduces latitude and longitude coordinates and permits practice of the geographic location identification skills at the global scale.

TASK 1: Using the world map provided on page 1 of the Student Worksheet handout, estimate the latitude and longitude of your current location in degrees. Students are introduced to the global latitude-longitude grid. This task allows students to demonstrate comprehension of the latitude and longitude location coordinate system that is fundamental in geography. Students should only estimate degrees of latitude and longitude (without minutes or seconds). Instructors can find the absolute location for this answer by using the search tool in Google Earth (<https://earth.google.com/>). At the scale used in this map, it is difficult to see an individual city, so estimating is good practice to see whether students are able to utilize the latitude and longitude grid system.

TASK 2: Using the same map from the Student Worksheet handout, estimate the latitude and longitude for the city of Reykjavik, Iceland. This task represents additional practice of the previous task and begins to tie in the location content of the rest of the exercise.

## **PART 2: Absolute versus Relative Location**

**Objective:** Compare Relative and Absolute Location Descriptors

**Materials Needed:** Worksheet with Table of Relative and Absolute Location Descriptors. Part 2 challenges students to identify absolute and relative locations for the images and descriptions in the table within the site and located on their worksheet.

TASK 3: Students are introduced to the concept of absolute versus relative location through the table on page 2 of the Student Worksheet handout. They are asked to practice identifying location descriptors for various places around the globe. This task gives students the opportunity to demonstrate their ability to differentiate between absolute and relative locations. The images are arbitrary and can be altered to reinforce important geographic locations for the curriculum. All images were sourced from a searchable, free usable-image site called Unsplash (<https://unsplash.com/>).

## **PART 3: Case Study: Brennu-Njáls Saga and Clan Organization during the Commonwealth Era at the Alþingi, Þingvellir, Iceland**

**Objective:** Assess/Evaluate the Relationship among Location, Resources, and Travel

**Materials Needed:** Student Farm/Clan Assignment Sheets, Map of Clan Farms in Terms of Location to Þingvellir, String/Measuring Tool, Worksheet with Questions. In Part 3, students brainstorm the significance of location for government centers. Instructors may choose the scale (town, city, state, country) for which the students should focus their efforts. Students are introduced to the Alþingi, or the annual Icelandic parliament,

and given a clan farm assignment to role-play for the remainder of the lesson. At this time students should be moved into groups of 3 to 5 persons. They may choose an Icelandic saga character from the list on their clan/farm assignment sheet to deepen the role-play. Students then determine the location of their assigned farms and the location of the Alþingi at Þingvellir by utilizing the map of Iceland. Using the map tool in the interactive map within the site, students investigate and determine a route from their farm to Þingvellir. There are several map layers to explore within the tool so that students can navigate the physical geography of Iceland. Combining the distance information with the parameters provided on their clan farm assignment sheets, students determine the total number of days that it will take their clan to travel to Þingvellir. Answers will determine the order by which a group will select their clan booth location at Þingvellir in the final exercise (PART 15) of this lesson.

TASK 4: Describe the geographical factors that contribute to the significance of a location. Students brainstorm a location known to them for deeper comprehension of the concept of location. They are challenged to identify characteristics that make a location suitable for government. Students consider the variables that make the location of a place important. Instructors can choose the scale at which students brainstorm this activity. In some cases students will be more familiar with their own town or city. However, if the adjacent curriculum supports it, the authors believe that the country scale is more consistent with the rest of this exercise as it encompasses a national-level approach to government. Utilizing governmental buildings such as a state capitol also begins to link to the comparative government goals of this lesson. Students should be instructed to write their answers in the space provided on the Student Worksheet handout. This is also a good time to inform them of the scale of choice made by the instructor.

TASK 5: Role-play an important Icelandic Clan attending the Alþingi at Þingvellir. Students are supplied with a handout of clan/farm assignment containing specific characteristics relevant to selecting the most ideal location for their clan booth at the Alþingi in Þingvellir, Iceland. The characteristics have been generated by details loosely based on the Brennu-Njáls Icelandic Saga. Ideally groups should have at least three, but no more than five members. The scenario guides students to their arrival at Þingvellir. Students must choose a route from their assigned home farms to Þingvellir, navigating through the terrain visible on the relief map (i.e., mountains and glaciers) provided in the Student Worksheet handout. There are additional detailed maps available in the Teacher's Guide at <https://geoepic.app>. Students again demonstrate the application of absolute and relative location. Deeper learning can be explored by applying relative conditions from their home farm to the conditions at Þingvellir, while addressing the geographic attributes of "place" at Þingvellir that make it a democratic location.

TASK 6: Identify a route from the farm to Þingvellir. Utilizing the map on page 4 of the Student Worksheet handout, students identify a route from their home farm to Þingvellir, explain their choice of route, and list the influencing geographic factors guiding their choice. Considering how a clan would travel in the Commonwealth Era will help to conceptualize the journey. Many travelers will be farmers for most of the year and likely be traveling by horseback (famous Icelandic horses), by wagon (goods to sell), or by foot. Travelers will also be herding livestock to sell

or eat. Students may need to be prompted to consider the landscape, as mountains, glaciers, or other obstacles will have to be circumnavigated. Additional resource maps from the Teacher's Guide located in the app (<https://geoepic.app>) may be useful to have available during this task. Historical routes (ideal) have been provided to the instructor for class discussion/debrief.

**TASK 7:** Examine whether the relative location of Þingvellir represents or does not represent a fair and equitable place to hold the parliament for Commonwealth Iceland. Equitability of parliamentary location based on travel is assessed on factors such as distance to travel, travel routes, and ease of travel route based on hazards and challenges (weather, topography, number of travellers, goods for trade, etc.). Þingvellir, Iceland, endured for three centuries as a location that is not exactly central in Iceland, but suitable for other reasons to sustain a young democratic ideal. Students are asked to consider the location of Þingvellir relative to all indicated farms. It should also be noted that seafaring people (i.e., Vikings) are primarily responsible for the settlement of Iceland. Consequently, the settlements are typically coastal or have easy coastal access. The inland areas were largely covered in snow and ice for much of the year and were not heavily populated in the time of the Commonwealth. As students address the context of the location and of the journey between farms and Þingvellir, it is likely that they will also identify that Þingvellir's location is skewed to the southwest of the island and seemingly does not represent a fair and equitable location to the indicated farms. Achieving the most ideal democratic location can never be perfect for all people. Answers for the Student Worksheet handout (on page 4) regarding the equity of location should be supported by examples to strengthen the student's argument.

**TASK 8:** Determine whether the location of the Alþingi should be centered on the island. Make an argument, supported by evidence, regarding the strengths or challenges of a centrally located parliament of the Icelandic people. Students should write their answers in the space provided on page 5 of the Student Worksheet handout. An extension of Task 7, this task guides the student toward a deeper connection between location and equity. Absolute location (centrality) might be more equal, but attributes such as resources, ease of travel, and so on can influence equity for each participant.

**TASK 9:** Calculate the number of days it will take to travel to Þingvellir. Students are asked to complete a table and calculation (page 5 of the Student Worksheet handout) to determine the number of travel days for their journey. The data come from a combination of map distance measurements and characteristics sourced from the Brennu-Njáls Icelandic Saga on their assignment sheet. The calculated answer will determine the order by which each group will select their clan booth location at Þingvellir in the final exercise of this lesson. Distance calculations will require the student to utilize geographic mapping skills. No group will be able to take a direct route due to the topography of Iceland. The number of people traveling is provided for each group. Students will also calculate the resource time based on goods they are bringing. The instructor will coordinate the site selection order within the app. An available site can only be selected once, on a first-come, first-served basis, per round of the lesson. Additional information to help facilitate calculation of travel days is available in the Teacher's Guide on the <https://geoepic.app> site.

#### **PART 4: Explore the Resources of Þingvellir, Iceland. 3-D Resources (Oculus) or 2-D Resources (Computer) May Be Used to Complete This Task**

**Objective:** Explore a Geographically, Historically, and Politically Important Location with Attention to Available Resources

**Materials Needed:** Link to 360° Virtual Reality Environment for Alþingi, Þingvellir, Iceland (GeoEPIC: <https://geoepic.app>), Electronic Devices for Students (Cell Phones, Tablets, Computers, VR Headsets, Worksheet with Questions). For Part 4, students enter the virtual reality environment by clicking "Enter VR." Within the VR environment, there are options for how to explore based on the technologies available to the student (see below). Students explore the area of Þingvellir to assess the available resources. They will use the table in the student worksheet to take notes about the relative location of the resources available.

- If students are using a desktop computer or tablet, they will use the cursor to navigate in the image and explore Þingvellir.
- If students are using a VR headset, they will use the VR controller to navigate and explore the photosphere.

**TASK 10:** Þingvellir: Explore the resources of the plain where clan booths will be set up. Identify and describe key resources and their relative locations below. These descriptions will help each clan to select the best site for a booth in Part 7 of this exercise, so students should be detailed and think about the resources they must sell (economics) and the resources that the clan might need. Students will interact with an app containing VR360. If available, this space can be explored in 3-D with ocular immersive devices. Otherwise it can be explored in 2-D on a computer or device screen. Students will use the worksheet to help guide exploration by finding specific necessary resources available at Þingvellir. Students must give detailed descriptions of relative location while keeping in mind the needs they have for the resources they have transported to the site. The notes they make in this task will help to inform their choices in Part 7.

#### **PART 5: Political Importance at the Alþingi**

**Objective:** Explain the Principles, Institutions, Processes, Policies, and Behaviors of Democratization

**Materials Needed:** Link to 360° Virtual Reality for Alþingi, Þingvellir, Iceland, Electronic Devices for Students (Cell Phones, Tablets, Computers, VR Headsets, Worksheet with Questions). Part 5 introduces the structure of the first parliament. Students have been provided some legal disputes and potential alliances in their clan farm assignment for resolution at the Alþingi. These variables are based on stories from Brennu-Njáls Saga (The Story of Burnt Niall). Reviewing their exploration of Þingvellir will help determine whether political goals influence the placement of clan booths at Þingvellir.

**TASK 11:** Compare the country's political system to the one explained for Commonwealth Iceland in this lesson. Students begin to associate comparative government utilizing what they

know about their own government and what they are learning about the first European democracy. Individual student knowledge of governmental structures from previous lessons may vary. A scoring guide has been provided for this task.

TASK 12: Examine the legal/political goals for the clan that need to be accomplished at Þingvellir. Based on the activities of most importance from the clan group assignment sheets, students will determine how near or far from Law Rock (Lögberg) the clan should be located. Explore Þingvellir and locate Lögberg, as well as the Lögrétta (Law Assembly) terrace, and the booths of the influential Goðar (Snorri Sturluson and Gizur the White). The most advantageous location will be determined for each clan booth given the political needs of the clan with an explanation of the group's reasoning. Students have been supplied with the legal and political goals of their clan for consideration at the Alþingi. These goals come from the Brennu-Njal's Saga, but they are not exactly consistent with a single visit to the Alþingi, as the Saga spans several years. Student groups must weigh the value of proximity to influential members of the law council and proximity to Law Rock with their clan's needs for resources. Political posturing presents highly subjective ideas. The authors have ranked the needs of the farm assignments as high/medium/low/none for the associated best-location algorithm. This task could lead to interesting conversations about politics and influence in government during the classroom discussion.

### **PART 6: Fire, Religion, and the Alþingi**

**Objective: Explain How Democracy Could Influence Religious Conversion**

**Materials Needed:** *Link to English Version of Niall's Saga (Chapters 96–101), Worksheet with Questions ([https://sagadb.org/brennu-njals\\_saga.en](https://sagadb.org/brennu-njals_saga.en))*. In Part 6 students explore Brennu-Njal's Saga by reading a short excerpt about the parliamentary action that converted Icelandic Pagan faith to Christianity (chapters 96–101). Students may read the saga sections through this link ([https://sagadb.org/brennu-njals\\_saga.en](https://sagadb.org/brennu-njals_saga.en)), which is also linked directly to the relevant chapters within the app. Instructors may wish to provide paper handouts of the chapters as well. An abbreviated version of the saga chapters has been provided in the Teacher's Guide resource (<https://geoepic.app>). Answers to Task 14 should focus on the democratic process in the story.

TASK 13: Read chapters 96 to 101 of Brennu-Njal's Saga ([https://sagadb.org/brennu-njals\\_saga.en](https://sagadb.org/brennu-njals_saga.en)) Students may find the English translation of the saga challenging to read. However, the authors believe this exercise and the basic understanding of the story will be beneficial. The discomfort with old language structure and differing cultural norms allow for conversation and growth. We have also provided a summary of the Brennu-Njal's Saga relevant chapters for the instructor in the Teacher's Guide resource.

TASK 14: How did democracy influence the conversion of Iceland from Paganism to Christianity? Students will provide their answers in a written paragraph demonstrating their comprehension of the basic story of the transformation of the Icelandic religion from Pagan to Christian through a democratic process. As this decision was certainly emotional for the Icelandic Commonwealth, religion can be a very personal topic for any person; the authors caution that grading parameters should focus

on the parts of the student answers that are related to the democratic process and not the potential religious commentary. In order to assist in this endeavor, we have provided a suggested scoring guide.

### **PART 7: Choose the Clan Booth Location**

**Objective: Evaluate and Select an Ideal Location Given Specific Parameters**

**Materials Needed:** *Worksheet with Scale for Ranking Variables in the Selection of a Perfect Site, Class Discussion Questions, Instructor Maps with Identified Buffers and Ancient Travel Routes*. Finally, in Part 7, students take all of the information gained throughout the lesson to help choose the most ideal location for their clan booth. For this task they will click on Part 7 in the lesson and click "Enter VR." Again, once students have entered the VR environment, there are options for how to explore based on the availability of technologies. The "Map" button links to the map that shows the location of the team farms in the map of Iceland. The "Area" button turns on the "polygon" feature of GeoEPIC. Polygons are color coded and embedded with scores ranking the site suitability for the following criteria: Pasture, Wood, Water, and Politics. Students should explore these areas along with their collected data from the tasks in this lesson.

The instructor will start the ordered selection process for clan booth location. Student groups choose the polygon for their booth based on the order that they calculated in Part 3. When it is their turn, they will use the cursor or controller to click on the polygon they have chosen. A window will open with the title of the Area and the rankings of the resources. Click "Claim" to populate the polygon with a booth. The booth color will reflect the score of their site selection based on the farm chosen. Booth color suitability is ranked as follows:

- Green for a high suitability score (1–0.75)
- Blue for a medium suitability score (0.74–0.5)
- Orange for low suitability score (0.49–0)

Suitability has been calculated based on the parameters given in the clan farm assignment sheets. There is a "most suitable" polygon for students to claim determined by the parameters provided in the clan/farm assignment handouts.

TASK 15: Data collected throughout this lesson will help rank the available site polygons in the virtual reality interface. Student groups will evaluate all of the information about location, resources, and political needs to rank the available polygon choices for their clan booth site location. Based on the order in which the student groups arrive to Þingvellir (calculated in Part 3: Task 9), the instructor will facilitate the first-come, first-selection activity. It is advised to check the group's calculations for accuracy prior to this task. Once a polygon has been selected, it is no longer available. Consequently, a team may not get their highest-ranked site.

TASK 16: Class-wide discussion. After students have completed the placement of their booths in the open plain of Þingvellir, the instructor will lead the class discussion. Students have the opportunity to see whether their choices were the most ideal locations for *all* of the groups (clans) with

their unique scenarios. The results are calculated using an algorithm with all of the available variables, but students may have some clever ideas or considerations that have not been made by the authors. Instructors may offer the right to appeal to another group or to exchange sites or have students bring a grievance to the Law Council at Lögberg, solving any disagreement about location through a democratic process. Students could elect representatives (goðar), but the instructor keeps the role as the Lawspeaker. We have provided a variety of discussion questions and additional maps in the Teacher's Guide resource of the app; however, these should be modified to fit the goals of the individual classroom. Examples of the recommended discussion questions include the following: How would alliances improve the chances of settlement in favor of a clan during a dispute, and what might be considered an "exemption" from the law? How large of a pasture area was needed to support the flock and livestock that was brought to the Alþingi? How much pastureland would be required for up to 4,000 participants? How important was the material economy to the Viking culture? Which gender would have been most involved in sail making, textiles, weapons, household goods, and so on?

### Assessment Strategy

As mentioned above, assessment structures for the unit facilitates the guiding question for the lesson/unit: *Where is the best location for a clan booth at the Alþingi, Þingvellir, Iceland?* For the lower-level Bloom tasks, traditional assessments (e.g., worksheets and short-answer questions) enable the student to monitor their own progress throughout the learning by providing informal, formative checks for understanding. Cooperative, experiential learning provides a unique opportunity for students to collaborate to reflect on a section if they find they are not retaining information and/or not successful on the assessment, thus developing crucial skills in persistence and mastery. Instructor-graded assessments are embedded as components of a performance-based, real-world assessment. To help align the assessment items with the learning objectives, similar language was used. For Part 3, the learner is asked to "select the most ideal location for given parameters," so the assessment directly aligns with the goal of the learning. Furthermore, Tasks 11 and 14 utilize the same framework used by the Advanced Placement Human Geography Course and Exam Description (2019) and bridge multiple units and skills to provide a similar, yet collaborative experience with the questions on the exam. Sample scoring guides can be found at the GeoEPIC website (<https://geoepic.app>). Finally, students continually engage in Bloom's higher-level thinking skills by analyzing, synthesizing, and evaluating geographic and historical data to answer open-ended questions with the help of their peers.

### Conclusions

Throughout this lesson, students explore geographic characteristics as well as political concepts and processes through authentic role-playing as participants at the Alþingi

parliamentary assembly during The Commonwealth era in Iceland. Set within the cultural context of Brennu-Njal's Saga, students travel virtually to Þingvellir, Iceland, from their home farms. They must geographically assess the landscape characteristics, environmental resources, and political advantages within a VR environment to identify the ideal location for their booths, which will garner the best representation within a community.

This educational experience allows students to interact with emerging technologies, including tools that immerse them in landscapes in order to guide decision-making and enhance engagement in the lesson. Students utilize geographic, mathematical, and critical inquiry skills to accomplish a variety of tasks during their exploration. GeoEPIC teaching resources are designed to provide easy integration of multidisciplinary content through global exploration as characterized by this lesson. Historical Iceland provides a rich and fascinating backdrop for students' geophysical and geopolitical education.

### Notes on Contributors

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