Chief Reader Report on Student Responses:

2019 AP® Human Geography Free-Response Questions

Set 1

• Number of Students Scored	225,235			
• Number of Readers	862			
• Score Distribution	Exam Score	N	%At	
	5	24,373	10.8	
	4	41,004	18.2	
	3	45,253	20.1	
	2	37,707	16.7	
	1	76,898	34.1	
• Global Mean	2.55			

The following comments on the 2019 free-response questions for AP® Human Geography were written by the Chief Reader, Seth Dixon, Associate Professor, Political Science Department-Geography Program, Rhode Island College. They give an overview of each free-response question and of how students performed on the question, including typical student errors. General comments regarding the skills and content that students frequently have the most problems with are included. Some suggestions for improving student preparation in these areas are also provided. Teachers are encouraged to attend a College Board workshop to learn strategies for improving student performance in specific areas.

Question #1   **Topic:** Cities and Urban Land Use

Max. Points: 7   **Mean Score:** 2.44

What were the responses to this question expected to demonstrate?

Students were expected to learn about a variety of issues associated with the growth and decline of urban communities, including economic and social problems such as limited access to food stores and public services. Students were expected to be able to evaluate problems associated with urban sustainability. The term "food desert" was defined in the stem of the question. This allowed students to demonstrate their ability to use and interpret geospatial data and to analyze quantitative and qualitative data to understand the demographic and population characteristics of cities.

In part A students were asked to identify the kinds of information geographers would use to map a food desert. In part B students were expected to identify and explain two reasons for food deserts in urban areas in developed countries. In part C students were asked to identify and explain one impact of living in a food desert.

Skills required of the students were (1) the ability to apply spatial thinking to a salient problem such as food access and food affordability in a developed city; (2) the ability to identify and then describe at least two types of spatial data that would be used to map a food desert; (3) the ability to apply their knowledge of economic, cultural, and political geography to an urban issue; and (4) the ability to evaluate the impact that a lack of affordable and healthful foods would have on someone living in a food desert.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

The key to part A was understanding that geographers need spatial data in order to map a food desert. Geographers can map the distance between where people live and where healthful food is located, or they can map the location of where people are and whether they have access to public transportation or a private vehicle. Geographers can also map data that show where grocery stores are located versus socioeconomic and demographic information such as income, race, and age. Students who recognized a relationship among these types of spatial data showed skills in thinking spatially. This is a foundational skill in geography, and while this question did not ask students to read a map, it asked them to demonstrate the first step in making a map: collecting data. An important skill demonstrated in this part of the question was to recognize that location and distance are critical spatial requirements to map out a food desert. Some responses simply stated that geographers could use geographic information systems (GIS), but responses only received credit if they referenced the type of data layers or information that would go into the GIS. Others described qualitative data such as surveys but did not provide a spatial context. Many responses described the quantity of grocery stores or the total numbers of people but did not connect grocery stores to where people lived, failing to understand this critical spatial relationship. Some responses did not demonstrate a clear understanding of the term food desert, even though the term was defined in the stem of the question. Some confused a food desert with an actual desert and responded with a focus on physical geography (the use of information on climate, soil type, or precipitation). Students also focused on the production and transportation of food from agricultural areas, incorrectly connecting to threshold and range concepts, or describing physical geographical barriers (mountains and rivers) that would prevent the delivery of food to an urban area.

In part B students were asked to identify and explain two reasons that food deserts exist in urban areas in developed countries. The key to part B was understanding why food deserts may exist, or, in other words, to focus on "the why of where." The most common responses focused on economic reasons such as poverty, lack of public transportation, or car ownership. Many students did not fully understand that this question was at the urban scale. This led to focusing incorrectly on responses that identified and explained the von Thünen model or Weber's least cost theory. Some responses focused on the cost of transporting food from agricultural areas to cities as a reason that stores would have unaffordable food. Some responses focused on blockbusting or redlining as a reason, but failed to explain how this would be applicable to food deserts specifically. Another common misunderstanding was to identify high land values as resulting in food deserts. Other misunderstandings included identifying "suburbanization" as a reason for food

deserts, incorrectly correlating this to food deserts in cities. Finally, some responses equated areas with high crime as reasons for food deserts. Many students confused "reason" for "impact." For example, some responded that a "preference for fast food/convenient food" was a *reason* for a food desert.

In part C, many students correctly identified an impact but did not explain the impact in depth. In addition, some responses incorrectly identified famine, starvation, and increases in death rates as an impact. In both parts B and C, many responses assumed minorities and immigrant populations were poor.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

Despite a food desert being explicitly defined in the stem, some students struggled to understand what a food desert is. I recommend teaching students to not rush through a stem, but teach them to learn the material in the stem and to make connections with other content already learned to then be able to answer the question better. Many students seemed to see this as an agricultural question, rather than a social/urban issue. I believe that, upon seeing the term food, they mentally started accessing agriculture and rural land use concepts without considering the spatial context of the question, which is explicitly about neighborhoods in U.S. cities. Too many students are in a rush to start writing before understanding what they should be writing about.

Common Misconceptions/Knowledge Gaps	Responses that Demonstrate Understanding
• Students would discuss multiple concepts related to food deserts, but many were unable to distinguish between the causes of food deserts and the impacts that result from food deserts.	• The best answers noted that food deserts exist because a lack of transportation limits access to healthy food. • Residents living in food deserts will be more likely to have health problems; the community might respond by incentivizing new businesses to move in, having mobile vendors, and promoting alternative agricultural strategies.
• Students often answer questions at the wrong scale, and many students approached this question at the national scale.	• The better answers recognized that national averages fail to account for regional variability and, more importantly for this question, national and regional initiatives might still fail to address the needs of particular neighborhoods if the resources are clustered in ways that put the residents at a disadvantage.

Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

- Get students to identify the scale of analysis in the question, and get them to answer accordingly.
- Teach students to identify the scale of analysis in the question, and teach them to answer accordingly.
- Teach students issues of social equity in lower-income neighborhoods beyond knowing that these are areas of poverty.
- Explore critical social issues in Unit 6: Cities and Urban Land-Use Patterns and Processes beyond urban structure and models.
- Show examples demonstrating that food insecurity is an issue even in developed countries, reflecting inequality at the very local, neighborhood scale. I recommend starting with a neighborhood near your school.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

- In AP Classroom, teachers will find a rich, new collection of resources for the 2019 school year that includes newly created formative and summative assessment items for every unit of the course and that represents each of the types of questions on the AP Exam. This includes practice FRQs for teachers to use as formative assessment pieces beginning with scaffolded questions that represent what students are ready for at the beginning of the school year and an increased challenge as teachers progress through the course.
- The U.S. Department of Agriculture has effective resources around food deserts, including an interactive Food Desert Locator: https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/.
- Agyeman, Julian, and Alison Hope Alkon, eds. *Cultivating food justice: Race, class, and sustainability*. Cambridge: MIT Press, 2011.
- PBS has a short video on food deserts: https://www.pbs.org/newshour/health/takes-grocery-store-eliminate-food-desert.
- Harris, Cathy. 2017. *Overcoming Food Deserts in Your Community: How To Start a Home, School or Community Garden, Food Co-op or Food Coalition*. CreateSpace Independent Publishing Platform.
- Battersby, Jane. 2011. "The State of Urban Food Insecurity in Cape Town." Security Series No. 11. Kingston and Capetown: Queen's University and AFSUN.
- Joassart-Marcelli, Pascale, and Fernando J. Bosco. 2017. *Food and Place: A Critical Exploration*. New York: Rowman & Littlefield.
- Shaw, Hillary J. 2014. *The Consuming Geographies of Food: Diet, Food Deserts and Obesity*. New York: Routledge.
- Shaw, Julia, and Hillary Shaw. 2018. "Austerity and Food Poverty: the vicious circle of obesity, ill-health and deprivation." *Policies & Politics* (blog), *Centre for Urban Research on Austerity*. May 2, 2018.
- The website Citylab has some interesting articles that connect to Unit 6 generally and food deserts specifically: https://www.citylab.com/equity/2018/01/its-not-the-food-deserts-its-the-inequality/550793/ .
- Various news articles, podcasts, and videos about food deserts compiled by the chief reader: https://geographyeducation.org/tag/food-desert/ .

Question #2 **Topic:** Population and Migration

Max. Points: 7   **Mean Score:** 3.60

What were the responses to this question expected to demonstrate?

This question was expected to demonstrate students' abilities across several aspects of the course. In part A, students were expected to understand that maps are used to represent and identify spatial patterns, demonstrate regional thinking, applied at the local, national, and global scales, and understand that "demographic factors that determine population growth are fertility, mortality, and migration." While on the surface this part of the question seemed quite simple, it was not.

In part B, students were expected to demonstrate knowledge that measures of development are used to understand patterns of social and economic differences at a variety of scales. Students were also expected to be able to describe how western Europe's economic development levels impact the region's infant mortality rates.

In part C, students were expected to demonstrate an understanding of how two different Sustainable Development Goals (SDGs) apply to rural communities in South Asia. At its highest level, the question measures students' understanding of spatial patterns, measures of development, and the SDGs.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

This question was primarily concerned with concepts from both Unit 1: Thinking Geographically and Unit 7: Industrial and Economic Development Patterns and Processes. Many responses did not demonstrate that students had gained the skills to read a map, interpret spatial patterns, and identify regions. Additionally, it was evident that students needed more practice with understanding infant mortality rates as a basic measure of development and how the infant mortality rate is measured: number of deaths per 1000 births. A cogent answer in part A could have read: "The predominant range for infant mortality rate in South Asia is 30–59, and in western Europe it is 2–14."

In part B students were asked to "[d]escribe two economic reasons for the level of infant mortality rates in western Europe." Many students were able to describe one of the five possible reasons for the low infant mortality rates in western Europe. Many students began their responses by identifying universal healthcare, a higher standard of living, more developed economies, or more educational opportunities. To receive a point in part B, students then needed to complete the description in greater detail, for example, by stating that "Western European countries have a higher standard of living, which provides greater access to consistent and sufficient healthy foods for parents and infants." This was not simply an identity point.

In part C students needed to use the Sustainable Development Goals (SDGs) to "identify and explain a specific way in which each of the following United Nations Sustainable Development Goals are intended to affect infant mortality rates in a rural community in South Asia." The two SDGs were Quality Education and Clean Water and Sanitation. While many students earned both the "identify" and "explain" points, others did not. Some students provided a clear identification without an explanation, while others provided a correct explanation but lacked a clear identification.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

Many students did not know how to read the legend of the map. Incorrect responses often tied infant mortality rates to percentages or ratios rather than rates, incorrectly identified the infant mortality rate as deaths per 10,000 births; misread the ranges (for example, 2–10 instead of 2–14); described a simple spatial pattern (for example, "clusters") rather than identifying a predominant range; or listed all the ranges present in South Asia. Students did not earn points if they simply responded that the predominant ranges were high (for South Asia) or low (for western Europe). It is clear that basic map reading skills are still necessary and worth assessing.

A number of students identified the birth rate as a percentage or as a ratio instead of a rate (i.e., number of deaths per 1,000 births). If students referenced the numbers as percentages or ratios, they did not receive the point for part A. Some students confused western Europe's level of economic development with that of regions where economic development is low or very low. Also, some students stated that a low infant mortality rate means a declining economy.

Common Misconceptions/Knowledge Gaps	Responses that Demonstrate Understanding
• Some students knew that Europe's high development was correlated with low infant mortality but struggled to describe the economic reasons for development levels in a meaningful way.	• Better responses were able to describe economic reasons for the low levels of infant mortality in western Europe (universal health care, improved sanitation, increased post-natal care, etc.).

• There were problems with identifying regions. Some students did not give information for the requested regions and instead gave ranges for other regions such as sub-Saharan Africa. Many students included China, North Korea, and Vietnam as examples of countries in South Asia (no examples were needed, but this explains where they went wrong).
 • Some merely restated the prompts such as "[c]lean water and sanitation prevents disease." No change is implied.
	• Better responses were able to:
	   ○ Identify the regions listed
	   ○ Read the map legend
	 • "Improved access to safe drinking water prevents disease." This response connotes a change to the water situation in a rural community.

Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

- Teach basic map reading skills.
- Regularly have students read and interpret the maps in their AP Human Geography textbook. Reading and interpreting maps from the textbook is a great bell-ringer activity and/or a great exit activity, but most importantly should be a regular part of main instructional activities.
  Explain the common types of measures used with demographic data and how they are commonly used. For example, how is a rate (e.g., number of deaths per 1,000 live births) different from a percentage (e.g., percent urban)? Furthermore, how are rates and percentages different from ratios? For example, the Population Reference Bureau Glossary (https://www.prb.org/glossary/) describes a common ratio used in the AP Human Geography course: "A dependency ratio is the ratio of people in a dependent age group (those under age 15 or ages 65 and older) to those in the economically productive age group (ages 15 to 64) of a population. For instance, a child dependency ratio of 0.45 means there are 45 children for every 100 working-age adults."
- Use demographic data to teach about regions and countries within regions. Along with the data, use more contextual photos of life outside the U.S.
- Teach students to be specific in their writing. For example, part A asked for a range, so a set of numbers was expected. "High" and "low" were too vague for this answer. In part B, students needed to write more than "Western Europeans have health care." Students need to learn to "close the loop" in their writing. Many students introduced good ideas but failed to tie their ideas back to the question or fully explain the connection to what the question was asking (i.e., how different factors affect infant mortality rates).
- Teach the command verbs. Students need to be able to differentiate how "identify," "describe," and "explain" are different from one another.
- Teach the regions of the world and how to remember them. In the same vein, students need to know the difference between countries, regions, continents, and supranational organizations (e.g., the United Nations is not a country).
- Use infant mortality rates and other metrics to compare countries and regions. This can be used to discuss how these indicators ties to levels of economic development.
- Teach students that there are wealthy regions of the world outside of the U.S. The U.S. is not the only wealthy region.
- Engage students in studies of the SDGs. The SDGs are inherent in the course. (See the resource on the AP Human Geography community.) The SDGs can be studied as they appear in the course, all at once in Unit 7, and/or on a review day because they are integral to the course. (See the SDG roundtable discussion lesson at the AP Human Geography community.)
- Use case studies that highlight specifics of places. For example, if students had read or viewed a case study of rural South Asia working to improve education or its water system, they would have had specific information to use in support of their explanations in part C. This would also validate the lived experiences of people from other communities.
- Be careful not to teach regions in such a way that reinforces stereotypes. Thinking across scales, most regions have wealthier and poorer countries. Variations of wealth also occur within countries no matter their overall level of development.
- By the same token, such case studies can also give students specifics of how to discuss places that are economically developed, be they countries in western Europe or parts of South Asia. Students respond well to case studies that make the world seem real.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

- In AP Classroom, teachers will find a rich, new collection of resources for the 2019 school year that includes newly created formative and summative assessment items for every unit of the course and that represent each of the types of questions on the AP Exam. This includes practice FRQs for teachers to use as formative assessment pieces beginning with scaffolded questions that represent what students are ready for at the beginning of the school year and an increased challenge as teachers progress through the course.

- Use the TODALSIGss + SD lesson on the AP Teacher Community for Human Geography to teach map reading skills. You can search for it by typing "TODALSIGss" in the search box.
- Use the Population Reference Bureau's World Population Data sheet information to compare infant mortality rates across countries and regions. Use the accompanying interactive maps to have students actively examine this data. The 2018 data sheet is available at: https://www.prb.org/2018-world-population-data-sheet-with-focus-on-changing-age-structures/ and the interactive mapping site is at: http://www.worldpopdata.org/map.
- Human Development Index data: http://hdr.undp.org/en/composite/hdi
- There are multiple resources which aid in classroom instruction about the Sustainable Development Goals. One of the main platforms for learning about the Sustainable Development Goals is https://www.un.org/sustainabledevelopment/. The *Why It Matters* summaries for each goal are very accessible readings for students.
- The Atlas of Sustainable Development (http://datatopics.worldbank.org/sdgatlas/) provides a resource for simultaneously teaching about the sustainable development goals and engaging students in analyzing maps and data corresponding to each goal.
- Another website with data on the SDGs is Our World in Data's SDG Tracker available at https://sdg-tracker.org/.
- You and your students may also be interested in the SDGs in Action App.

Question #3   **Topic:** Political Organization of Space

Max. Points: 6   **Mean Score:** 1.70

What were the responses to this question expected to demonstrate?

Students were expected to define the term "devolution" and describe how specific forces related to culture, economics, and physical geography can contribute to devolutionary pressures in the abstract. Then students were to apply this understanding to identify and explain the political impact of cultural differences within one of two specific countries: Spain or Nigeria. Students were being asked to show their knowledge of human geography across multiple units of the course by utilizing a scale-of-analysis approach to the question. Students could discuss devolution as a transferring of power to different scales within a country.
Several skills were required of the students to be able to answer this question: using critical analysis, identifying factors that create spatial patterns and processes, and the ability to examine real-world examples to see what abstract concepts look like on the ground.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

This question was primarily a political question with links to culture and economics. The key to part A was being able to define devolution. Some students did not have a clear understanding of the term; a majority of the students who failed to earn the point on this question defined devolution as the opposite of evolution or as the creation of a new state. Those students who earned higher scores on this question tended to define the term as the transfer or movement of power from the scale of national power to that of regional and local power, which was preferable to more simplistic answers such as "breaking up of a state."

In part B students were asked to describe how the forces of cultural diversity, regional economic differences, and physical geography and territorial size can contribute to devolutionary pressures within a country. Many students did not earn a point for cultural diversity as they were not specific enough with their description. Students who did well on this part of the question were able to describe differences at the scale of one region having predominantly secondary sector jobs as compared to regions dominated by primary sector activities. In relation to physical geography and territorial size, this point was the most accessible for students to earn. A large percentage of students were able to describe how physical barriers, distance from the capital, and territorial size contribute to devolutionary pressures within a country. Students who did not earn this point did not mention any specific barriers in their responses.

In part C many students correctly identified but did not explain a political impact resulting from devolutionary pressures related to cultural differences in Spain or Nigeria. In addition, some responses did not identify whether they were referring to Spain or Nigeria. Many students did not have a clear sense of how to apply their knowledge of devolution to what they perceived to be taking place in either Spain or Nigeria, even though there were clues in the map. Clues such as distinct regions with specific culture groups being identified in the stimulus provided should not be ignored. It was clear that a large percentage of students lacked content knowledge related to devolutionary pressures. Students also did not use the provided maps as they attempted to explain political impacts of devolution in the examples of Spain and Nigeria. The students who scored well showed a clear grasp of how devolution impacts these two countries at multiple scales of analysis.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

It is difficult for students to score well on an FRQ when the "easy" definitional point is still a substantial hurdle for many. A large percentage of students did not know the definition of devolution. If they did know it, many only knew it at a very cursory level (e.g., "breakup of a state"). Many students did not know the difference between a nation and a state. Approximately 70% of students chose to write about Spain in part C, which suggests that most students had a more limited knowledge of Nigeria.

Students struggled to describe cultural diversity beyond stating that there are multiple cultural groups. The common response of "culture groups" was not accepted, as it did not show an understanding of how diversity is represented within a country. Many students also struggled with understanding the concept of scales of analysis. Many approached devolution as a class issue (i.e., rich vs. poor) rather than describing regional economic differences as a devolutionary pressure.

Making connections across course units is still a challenge for many students. Students clearly struggle with reading maps, understanding map legends, and using the data on the map to answer the question. In addition, many students did not move past restating the question in their responses.

Common Misconceptions/Knowledge Gaps	Responses that Demonstrate Understanding
• Describing cultural diversity in general terms rather than giving any specifics.	• Better responses described how spatial patterns of different linguistic, religious, or ethnic groups contribute to devolutionary pressure within a country.
• Lower-ability students approached the cultural differences in terms without any specifics that described how these forces contributed to devolutionary pressure in one of the listed countries (e.g., places with cultural differences will want more local autonomy).	• Well-prepared students described the differences in a spatial manner using the information on the map. For example, regions that have linguistic differences from the rest of Spain such as Galicia and Catalonia will want more local control to enact different policies than those that are in place in the rest of Spain.

Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

- Consider using ESPeN (Economic, Social, Political, and Environmental) or SPEED (Social, Political, Economic, Environmental, Demographic) types of analysis/activities to help students understand the various geographic themes associated with each topic.
- Strongly encourage students to format their responses based on how the question is written. Students should label their responses to correspond with each part of the question (part A, part B, etc.). Clearer writing and better organization maximize a student's opportunity to receive points.
- Prepare students to explain examples when provided with maps (or other stimuli) using the information from the map.
- Use multiple resources (not just one textbook) to prepare students for all topics covered in the AP Human Geography Course and Exam Description (CED).
- Use vocabulary lists, but make sure that students do more than just define the terms. Ensure that students can apply concepts to a variety of situations or places.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

- In AP Classroom, teachers will find a rich, new collection of resources for the 2019 school year that includes newly created formative and summative assessment items for every unit of the course and that represents each of the types of questions on the AP Exam. This includes practice FRQs for teachers to use as formative assessment pieces beginning with scaffolded questions that represent what students are ready for at the beginning of the school year and an increased challenge as teachers progress through the course.

- Devolution is a good political topic that can be taught well with current events and news sources. Current events can be a good way to read, analyze, and apply geographic concepts.
- Use the devolution examples cited in the CED, specifically those of Spain, Belgium, Canada, and Nigeria. These four examples being called out in the CED and two examples from that list being selected for this FRQ are not coincidental.
- Some textbooks have devolution in them, others do not. Provide some resource to direct students.
- Various news articles, podcasts, and videos about devolution compiled by the chief reader: https://geographyeducation.org/tag/devolution/