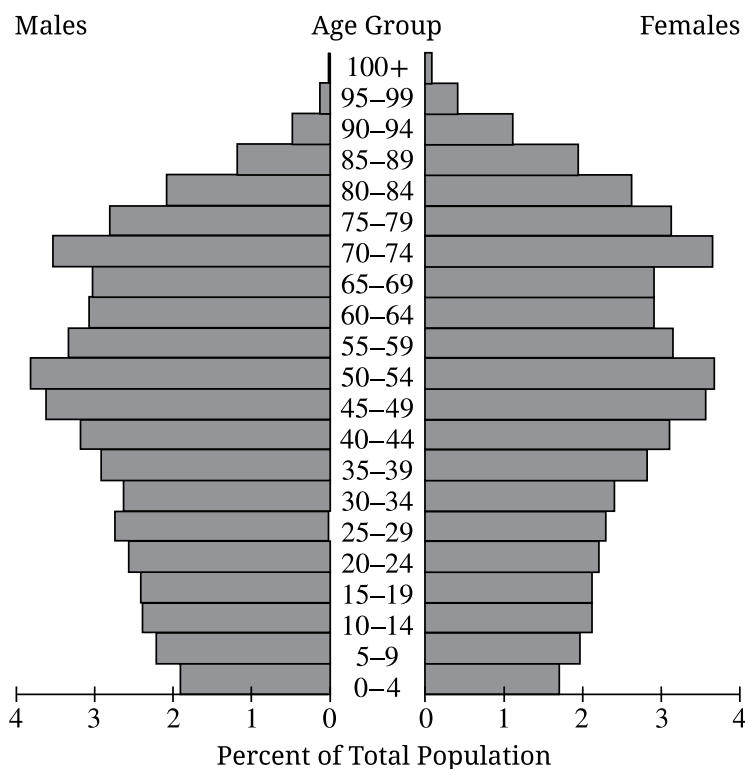


- 1.** The European Union (EU) and Association of Southeast Asian Nations (ASEAN) are supranational organizations composed of independent member states.

Respond to parts A, B, C, D, E, F, and G.

- A.** Define the concept of an independent state.
- B.** Describe one purpose of supranational organizations.
- C.** Describe one global outcome of an increase in international trade.
- D.** Explain how deindustrialization has affected the economy of core countries.
- E.** Explain why international boundaries on land or at sea may lead to disputes over resources.
- F.** Explain how supranational organizations such as the EU or ASEAN may challenge the sovereignty of member states.
- G.** Explain how advances in communication technologies may affect state sovereignty.

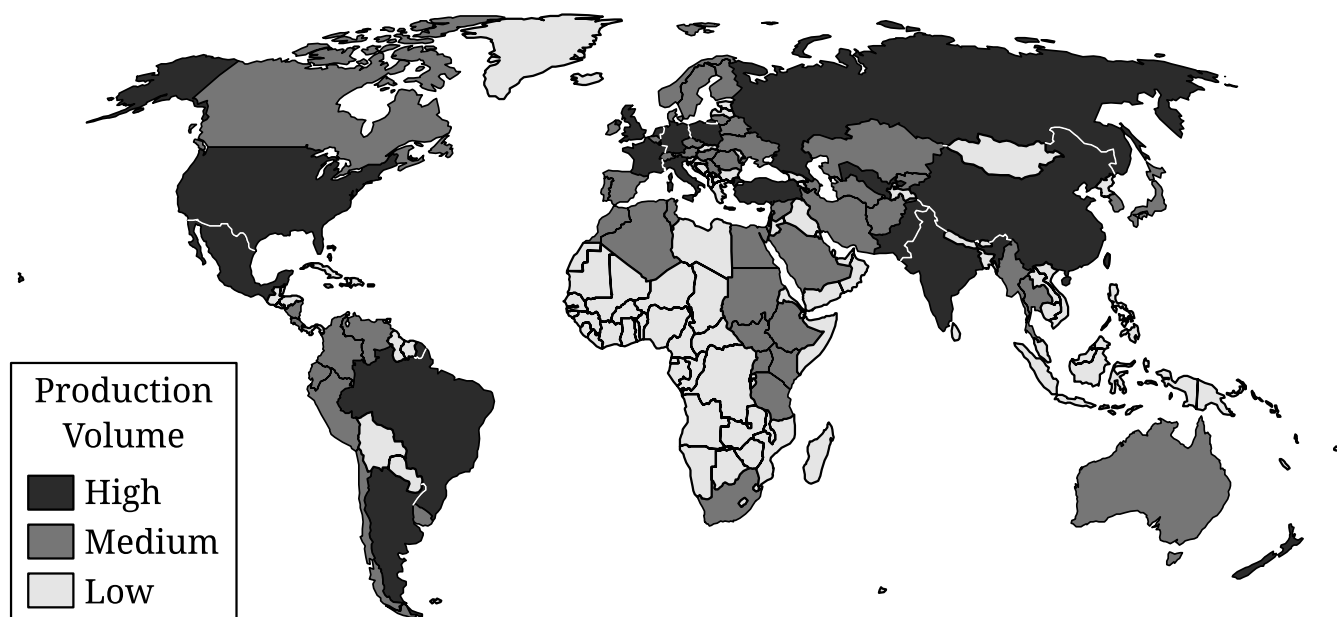
Japan Population Pyramid, 2021

Source: United States Census Bureau International Database

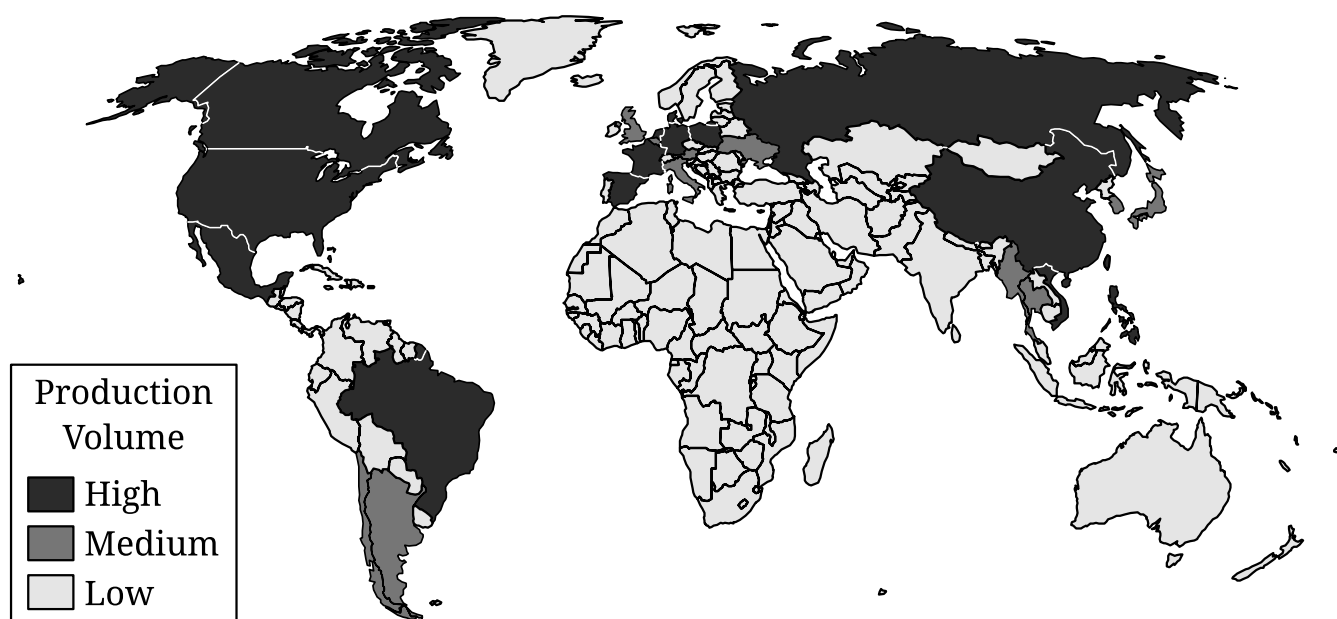
2. A population pyramid shows changes in population over time. A population pyramid breaks down the population by male and female and divides the population into five-year age groupings called cohorts.

Respond to parts A, B, C, D, E, F, and G.

- Identify the recent trend in fertility shown in the population pyramid.
- Based on the data shown in the population pyramid, describe the ratio of males to females in the Japanese population age 80 and above.
- Describe one process that drives urbanization.
- Describe one factor that may lead to a decrease in total population within a more developed country.
- Explain how a country's population pyramid can be used to predict the future needs of the population.
- Explain why the population pyramid provides limited information about immigration to cities in Japan.
- Explain the degree to which a country's population growth rate may be affected by a pronatalist policy. (Response must indicate the degree [low, moderate, high] and provide an explanation.)

Map 1: Cow's Milk Production, 2018

Source: Food and Agriculture Organization

Map 2: Pork Production, 2018

Source: Food and Agriculture Organization

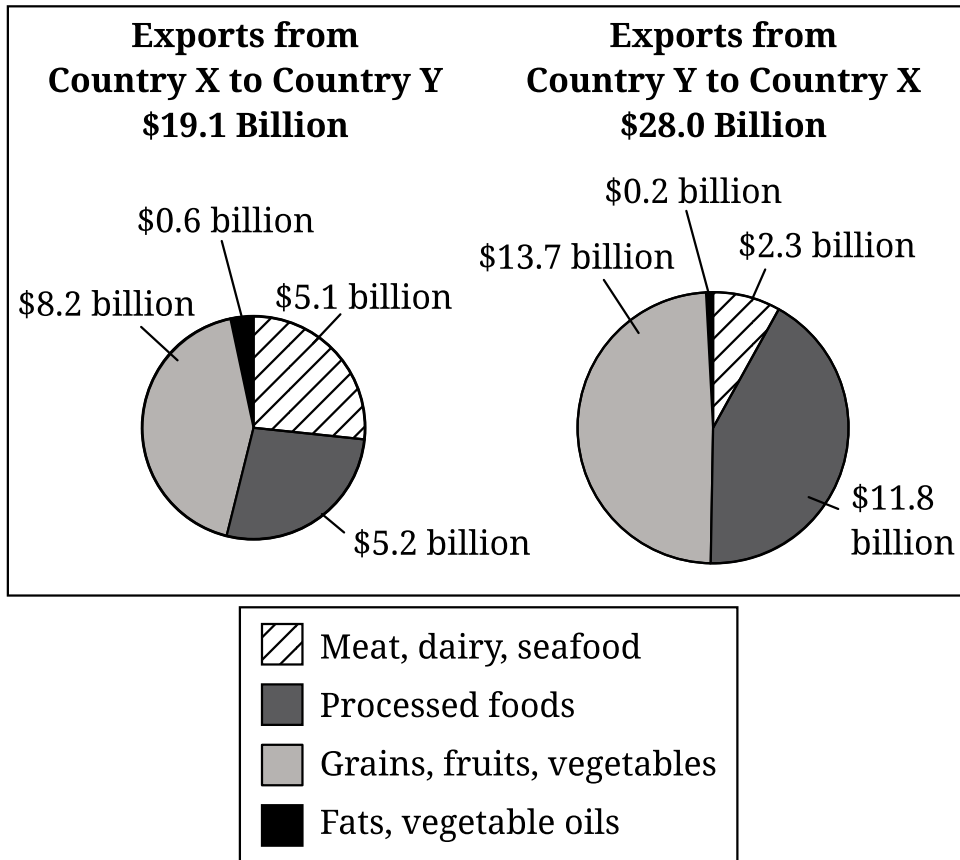
3. The global production of cow's milk and pork results in distinctive spatial patterns of contemporary agriculture and land use.

Respond to parts A, B, C, D, E, F, and G.

- A. Identify an example of a culture trait.
- B. Describe the spatial pattern of cow's milk production in Africa, shown in Map 1.
- C. Based on Map 1 and Map 2, compare the spatial patterns of cow's milk production and pork production in Asia. (Response must include both maps in the comparison.)
- D. Describe one environmental effect of agricultural land use such as commercial animal farms.
- E. Explain how the globalization of agriculture may affect local culture traits.
- F. Explain why regions of agricultural production may become interdependent.
- G. Explain how domesticated animals such as pigs spatially diffused to create the spatial pattern shown on Map 2.

STOP

END OF EXAM

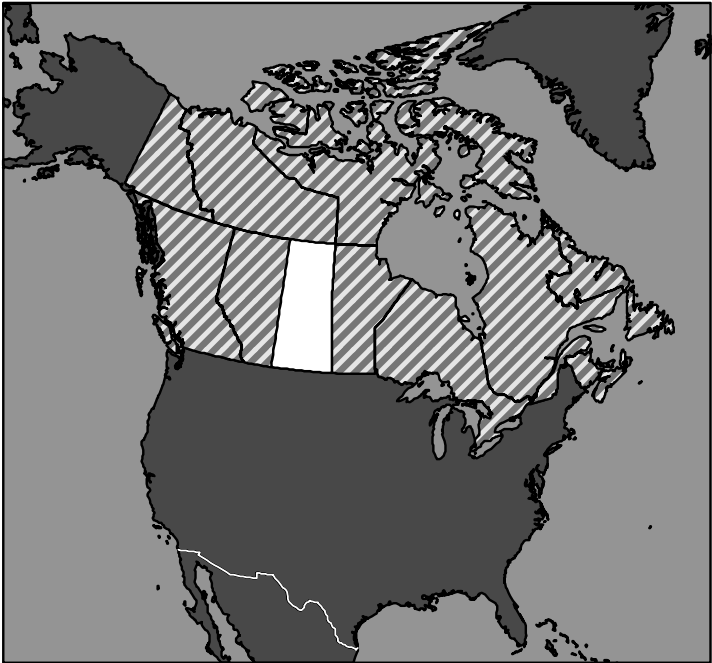
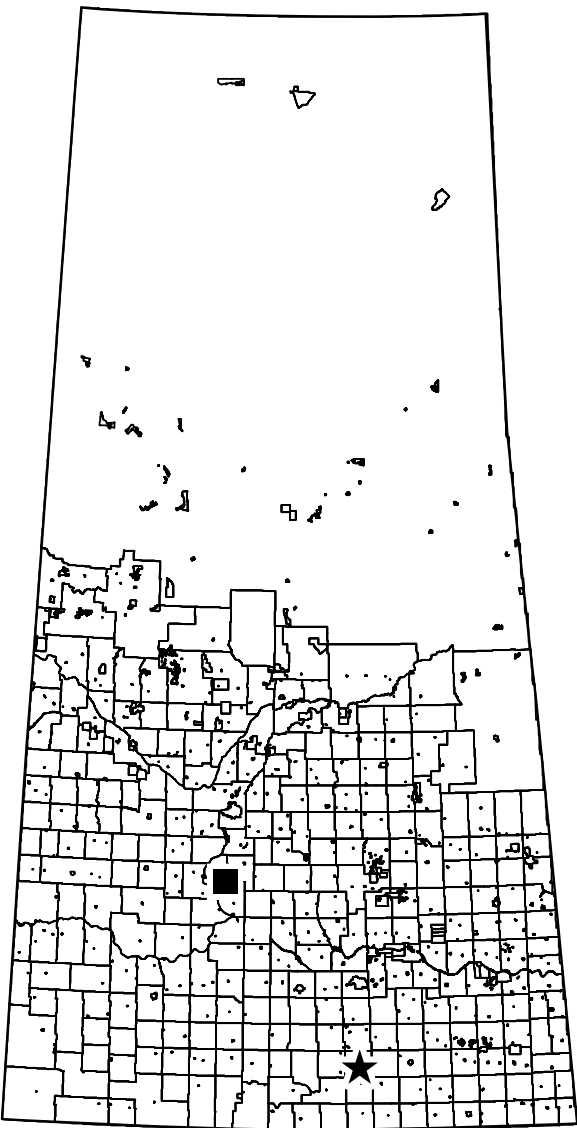
Food Exports Between Country X and Country Y

2. Country X and Country Y have a long-established trade relationship in agricultural products. Country X is a developed country, and Country Y is a developing country.

Respond to parts A, B, C, D, E, F, and G.

- Using the data in the charts, identify the largest food export category between the two countries.
- Using the data in the charts, describe the difference between the two countries in the meat, dairy, and seafood category.
- Define the concept of comparative advantage.
- Describe one effect of Green Revolution technologies on food supplies in developing countries.
- Explain how advances in agricultural technology may increase the carrying capacity of land.
- Explain the degree to which the economies of Country X and Country Y are interdependent. (Response must indicate the degree [low, moderate, high] and provide an explanation.)
- Explain how the charts provide limited information about economic development.

Map 1: Political Divisions in Saskatchewan, Canada



- Saskatchewan
- Other Canadian provinces and territories
- Other countries

0 100 miles

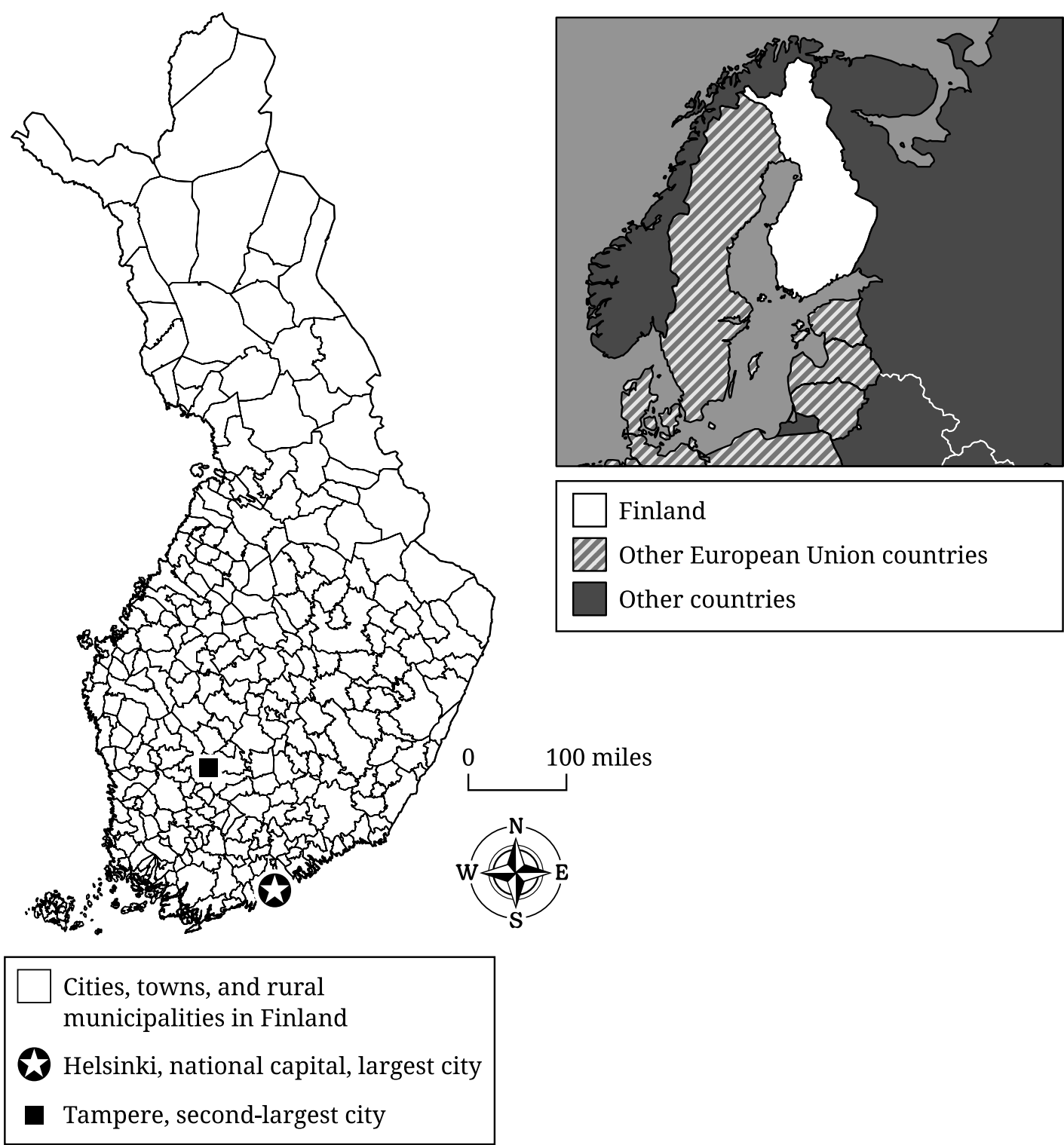


- Cities, towns, and rural municipalities in Saskatchewan
- ★

 Regina, provincial capital, second-largest city
- Saskatoon, largest city

Source: Statistics Canada

Map 2: Political Divisions in Finland



Source: ESRI Data Partners

3. The two maps show political boundaries in Saskatchewan, Canada, and in Finland. Both Finland and Saskatchewan are home to populations of indigenous peoples with a significant amount of political autonomy. Finland is a member state of the European Union.

Respond to parts A, B, C, D, E, F, and G.

- A. Identify the scale of analysis used for Finland's political divisions in Map 2.
- B. Define geometric boundaries as shown in Map 1.
- C. Describe one function of internal boundaries.
- D. Explain how the spatial organization of a country such as Canada is affected by a federal system of governance.
- E. Explain how the supranational organization shown in Map 2 may limit the actions of Finland as a member state.
- F. Describe one characteristic of a cultural landscape that may reflect cultural beliefs and identities.
- G. Explain how communication technologies may affect the cultural patterns of indigenous languages.

STOP

END OF EXAM

**SELECTED TECHNOLOGY RESEARCH AND DEVELOPMENT AREAS
IN THE MEDICAL FIELD**

Category	Product or Service
Biotechnology:	• Genetic engineering research • Biochemistry research • Diagnostic and testing science
Gene therapies:	• Cancer treatments • Neurological treatments • Rare and genetic disease treatments • Antiviral treatments and vaccines (e.g., Moderna)

3. Since the 1980s, the northeastern United States has developed into a major global center of high-technology industry that specializes in the medical field.
- A. Describe the spatial pattern of the companies and institutions shown in the inset map.
 - B. Describe the concept of a growth pole.
 - C. Explain ONE way education infrastructure affects a region's potential for high-technology development.
 - D. Explain how the pattern shown on the map resembles the galactic city model.
 - E. Explain ONE way local economic changes may be a result of deindustrialization.
 - F. Explain how the products and services listed in the table demonstrate that this economy has moved into the quaternary sector.
 - G. The map focuses on a regional scale. Explain a possible limitation of drawing country scale conclusions from a regional scale map.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

STOP

END OF EXAM

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