

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface



Image credit: D.J. Zeigler

Economic activities can be found at all scales in India including this small traditional street market in Colaba, Mumbai.



Image credit: iStockphoto.com

The geographically informed person must understand the spatial organization of the economic, transportation, and communication systems that support networks of trade in raw materials, manufactured goods, capital (human and monetary), ideas, and services. Resources are unevenly distributed on Earth, and no country has all of the resources it needs to survive and grow independently. Thus, people must trade with others in increasingly complex global networks.

Therefore, Standard 11 contains these themes: Economic Activities, Location and Spatial Patterns of Economic Activities, and Connecting Economic Activities.

Economic activities depend upon capital, resources, energy, labor, information, and land. The spatial patterns of resources create the networks of trade and economic interdependence that exist at local, regional, national, and international scales. Local and world economies mesh to create networks, movement patterns, transportation routes, communications systems, markets, and hinterlands.

The spatial dimensions of economic activity are increasingly complex. Raw materials may be shipped to locations thousands of miles away for processing and then transported again over equally long distances for assembly or sale. Subsistence farming often exists side by side with commercial agriculture. In many developing countries, millions of people leave rural areas for cities in search of jobs, some of which have been outsourced from industrialized countries. Technology and telecommunications have freed many jobs from being tied to specific locations. Work can be done collaboratively in different locations, taking advantage of different time zones to increase efficiency.

As world population grows, as energy costs increase, as time becomes more valuable, as resources become depleted or discovered, and as new products meet new demands, economic systems need to be more efficient and responsive.

Students must understand world patterns and networks of economic interdependence and realize that traditional patterns of trade, human migration, and cultural and political alliances are being reshaped as a consequence of global interdependence. Understanding these themes enables students to appreciate the impact of global economic processes on places regardless of their size and location.

Container ships are part of the global economic network. The development of container shipping has greatly reduced the cost and time for shipping goods.

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface

4th GRADE

the student knows and understands:

Economic Activities

1. People engage in economic activities, such as producing goods and offering services, in order to earn a living

Therefore, the student is able to:

- A. Describe different ways in which people can earn a living, as exemplified by being able to
 - ▶ Identify and describe examples of jobs that produce goods in the local community (e.g., manufacturing, farming, forestry, mining, artists).
 - ▶ Identify and describe examples of jobs that provide services in the local community (e.g., taxi or bus drivers, hair stylists, doctors, teachers, bankers).
 - ▶ Describe how the types of jobs in the local community have changed over time (e.g., blacksmith to car repair, door-to-door salespersons to Internet-based sales, local grocers and butchers to supermarkets).



A cardboard scavenger in Macau, one of China's Special Economic Zones, works as a gatherer collecting boxes to re-sell or recycle.

Image credit: D.J. Zeigler

8th GRADE

the student knows and understands:

Economic Activities

1. The functions of different types of economic activities

Therefore, the student is able to:

- A. Describe and analyze the functions of economic activities in the primary, secondary, tertiary, and quaternary sectors, as exemplified by being able to
 - ▶ Analyze a list of economic activities and identify them as primary (e.g., forestry, copper mining, and growing coffee), secondary (e.g., producing furniture, copper wire, and grinding coffee beans), tertiary (e.g., furniture sales, selling copper wire, and selling latte) or quaternary (e.g., advertising and marketing research) activities.
 - ▶ Describe the sequence of activities that occur in the manufacture of products (e.g., in the production of a computerized sewing machine, the iron-ore mining is primary, smelting iron and steel are secondary, selling of the steel sewing machines is tertiary, and advertising is quaternary).
 - ▶ Identify a range of everyday items and describe the sequence of routes and steps that are followed as they are converted to a secondary and then a tertiary product (e.g., Canadian forests become lumber that is used to build housing in US communities, Australian copper becomes circuits in wireless telephones made in China that provide a communications service, fish caught in the North Atlantic Ocean are processed into fish fillets that are prepared and served in restaurants).

12th GRADE

the student knows and understands:

Economic Activities

1. The scale and organization of economic activities change over time

Therefore, the student is able to:

- A. Explain how economic activities change over time, as exemplified by being able to
 - ▶ Explain how ways of organizing work processes change the structure of economic activities (e.g., the effects of assembly lines, just-in-time parts deliveries, and robots on automobile production, the effects of bulk purchasing, centralized warehouses, and just-in-time delivery in the success of Wal-Mart).
 - ▶ Explain how, where, and why companies expand (e.g., Starbucks, Wal-Mart, and McDonald's start as local stores, spread regionally, nationally, and then internationally).
 - ▶ Explain how air-freight companies have changed patterns of economic activity (e.g., fruit, flowers, and vegetables are shipped worldwide from East Africa, the Middle East, and South Africa; the role of the FedEx hub in Memphis as a center for repairing computers and electronic equipment).



Image credit: D.J. Zeigler

This McDonald's restaurant in Tel Aviv, Israel is an example of a US-based business that has expanded internationally.

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface

4th GRADE

the student knows and understands:

Location and Spatial Patterns of Economic Activities

2. Some locations are better suited than others to provide certain goods and services

Therefore, the student is able to:

- A. Identify where goods and services are produced and consumed, as exemplified by being able to
- ▶ Identify on a map where produce items in the local grocery store are grown or produced.
 - ▶ Identify on a map where students' clothing items are produced.
 - ▶ Identify on a map where teachers and school employees received their post-secondary education.
- B. Analyze and explain why some goods and services are produced in certain places, as exemplified by being able to
- ▶ Analyze the connection between areas producing fresh fruits and vegetables and the area's growing conditions and seasons (e.g., Southern Hemisphere summer produce is transported to the Northern Hemisphere during its winter, tropical fruits requiring more consistent tropical temperatures are grown at certain latitudes).
 - ▶ Analyze a map of oil wells in the United States and explain why oil refineries are often located near the oil wells.
 - ▶ Analyze a map of cotton production and a map of climate zones to explain why cotton production is primarily located in certain regions of the world.

8th GRADE

the student knows and understands:

Location and Spatial Patterns of Economic Activities

2. Access to factors of production, such as capital, labor, raw materials, and energy, influence the location of economic activities

Therefore, the student is able to:

- A. Compare and explain the advantages of one location over another in the access to factors of production, as exemplified by being able to
- ▶ Explain why certain locations have developed a reputation for producing specific goods or services (e.g., Wyoming is known for its coal and natural gas deposits, China is known for assembly and manufacturing labor, New York is known as a center for investment capital).
 - ▶ Construct and analyze maps of the relationships between the different resources in various manufacturing industries (e.g., automobiles with the sources for glass, tires, sheet metal, and assembly locations; computers with the sources for circuit boards, software, electrical components, wireless chips, and assembly locations).
 - ▶ Construct a map that explains good US locations for access to a young, highly educated workforce by comparing maps of population density, education levels, and age groups.

12th GRADE

the student knows and understands:

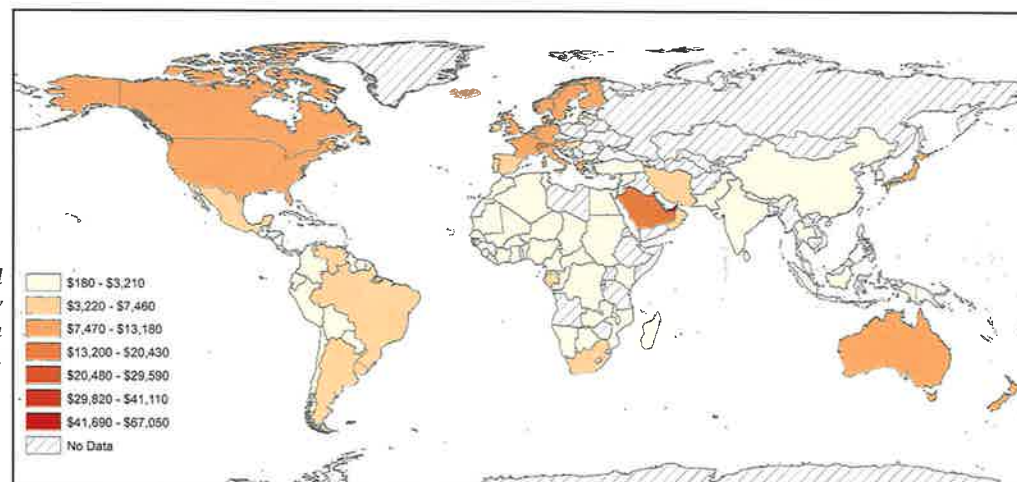
Location and Spatial Patterns of Economic Activities

2. Patterns exist in the spatial organization of economic activities

Therefore, the student is able to:

- A. Identify and analyze the origins and development of and changes in patterns of economic activities, as exemplified by being able to
- ▶ Analyze cases that stretch or change interpretations of traditional theories of location, such as Weber's Least Cost (e.g., Japanese cars made in the United States, airline ticket and insurance claim processing in Ireland, US medical procedure results being read and interpreted by physicians in India).
 - ▶ Compare the changing patterns of production for major industries in the United States (e.g., the movement of the furniture industry from New England and the Upper Midwest to the Carolinas, the movement of the forestry industry from New England to the Carolinas and Georgia to the Northwest, textile production from New England to the Carolinas to overseas).
 - ▶ Analyze how the evolution and development of capitalism influenced human migrations (e.g., movement of people from rural areas to developing urban centers, European migration to the United States, colonialism and the African slave trade).

As an economic indicator, Gross National Income (GNI) per capita is commonly used by geographers to show disparities in the level of wealth per person by country.



Data source: The World Bank 2009. Map credit: Department of Geography, University of North Alabama/Lisa Keys-Mathews

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface

4th GRADE

the student knows and understands:

Connecting Economic Activities

3. People and countries trade locally produced goods and services for goods and services that are produced in other places

Therefore, the student is able to:

- A. Identify items produced locally for consumption elsewhere and items produced elsewhere that are consumed locally, as exemplified by being able to
 - ▶ Identify items produced in the local region for consumption in another location (e.g., raw and processed agricultural products, paper products, furniture, tires, plastics).
 - ▶ Identify the types of products that were historically produced in a region and the places to which these products were shipped.
 - ▶ Identify items students depend on in their daily lives (e.g., gasoline for transportation, food, clothing, power for electricity) and identify which of these are produced in other places.
- B. Describe the reasons why people and countries trade goods and services, as exemplified by being able to
 - ▶ Describe the reasons why students trade different food items in the lunchroom or cafeteria.
 - ▶ Identify where common household items originate or are manufactured (e.g., appliances, furniture, food items, clothing) and describe why the items were made or grown in that location (e.g., good soil and climate conditions, raw materials needed for production, available labor, transportation hubs).
 - ▶ Describe how trade affects the way people earn their living in different regions (e.g., the flow of fuels from Southwest Asia to industrialized, energy-poor regions of the world, the flow of electronic goods from Pacific Rim nations to the United States).

8th GRADE

the student knows and understands:

Connecting Economic Activities

3. The world is increasingly interdependent as a result of flows of people, capital, information, raw materials, and goods

Therefore, the student is able to:

- A. Explain why increasing economic interdependence, and therefore globalization, depend on systems that deliver goods and services within and between regions, as exemplified by being able to
 - ▶ Analyze the spatial variations in the production of goods and services with the variations in the demand for goods and services and explain the resulting interdependence (e.g., animal antibiotics produced in Europe and used in Africa, seed corn harvested in Iowa and planted in South America, silicon computer chips made in California installed in computers manufactured in China).
 - ▶ Analyze the routes used by container shipping to transport internationally and nationally (e.g., on ships, railways, and semi-trailer trucks).
 - ▶ Analyze the advantages and disadvantages of different countries and regions in the production of a commodity (e.g., athletic shoes made in China with low-cost labor versus distance from markets, wireless electronics produced in California because of entrepreneurial capitalism and a skilled workforce versus offshore production of low-cost substitutes).

12th GRADE

the student knows and understands:

Connecting Economic Activities

3. Economic systems are dynamic organizations of interdependent economic activities for the production, exchange, distribution, and consumption of goods and services

Therefore, the student is able to:

- A. Explain how the economic systems of countries and regions consist of multiple coordinated economic activities, as exemplified by being able to
 - ▶ Analyze the importance of location and geographic distribution in relation to the advantage for countries that belong to the European Union (EU), North American Free Trade Agreement (NAFTA), and Central American Free Trade Agreement (CAFTA) (e.g., common boundaries to expedite movement of goods and products, reduction of transport time and distance, complementary production so that products made in one country are in demand in several others, cooperative arrangements for piecework on parts that are eventually assembled in one or more of the membership countries).
 - ▶ Construct flow maps showing the movement of resources to production centers and the flow of finished products to consumption points and analyze the impact of the production process on regional and national economies (e.g., flows of petroleum, clothing products, electronics).
 - ▶ Explain why places become major hubs of economic activity (e.g., research universities provide ideas and skilled labor to Silicon Valley's computer manufacturing companies, low-cost labor in Chinese cities provide the incentive to move manufacturing jobs from the United States and Europe).
- B. Explain why and how economic systems change, as exemplified by being able to
 - ▶ Explain how technological developments in transportation systems have changed production and consumption patterns and increased the flow of commerce around the world (e.g., the roles of wagons, railroads, canals, container shipping, air travel, and satellites in moving goods, people, and information).
 - ▶ Explain how the development of communication systems changed the way in which economic systems operate (e.g., the effects on speed and volume of communications from mail to telegraph to telephone to cell phone to Internet).
 - ▶ Analyze the impact of globalization on less-developed and developed regions and nations in terms of costs and benefits. (e.g., manufactured products at a lower price and economies of scale have both negative and positive consequences).

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface

4th GRADE

the student knows and understands:

Connecting Economic Activities

4. Networks of transportation and communications are used to move information, products, and people

Therefore, the student is able to:

- A. Describe and analyze different modes of transportation and communication used to move people, products, and ideas from place to place, as exemplified by being able to
- ▶ Describe the different modes of transportation used for specific products and ideas (e.g., barges and trains for bulky heavy items, airplanes for high-cost perishables, pipelines for liquids and gases, telephones or Internet for ideas and information).
 - ▶ Describe the different modes of transportation and communication used by students' families in their work and daily lives and construct a graph with the results to analyze which modes are employed most often.
 - ▶ Describe how transportation and communication have changed economic activities by constructing a timeline of technological developments (e.g., opening of the American West with the trans-continental railroad, improved road construction and increases in long-distance trucking, refrigerated trucking resulting in more fresh fruits and vegetables, air cargo increasing the distances goods may be shipped).
 - ▶ Describe the time and distance required by different methods of shipping to transport products globally (e.g., ships are least expensive, slower, and require large cargoes; trains are confined to railway track routes, are relatively fast, and less expensive for long hauls than trucks; trucks have access everywhere there are roadways, are fast for delivery; airplanes are the most expensive and are used to transport goods with high value and small mass/weight; Internet reduces the time and cost of transporting digital goods and information).

8th GRADE

the student knows and understands:

Connecting Economic Activities

4. Economic systems are dependent on integrated transportation and communication networks

Therefore, the student is able to:

- A. Identify and describe examples of how people, products, and ideas move using integrated transportation and communication networks, as exemplified by being able to
- ▶ Analyze systems for the movement of people and goods (e.g., hub and spoke systems for air travel, US mail, United Parcel Service and FedEx use airplanes, large trucks, and small trucks for global delivery depending on the size and weight of the cargo and its origin and destination).
 - ▶ Explain the methods for tracking shipments of commodities and products through different transportation networks locally and globally (e.g., use of GPS-based technologies to track and manage inventory and transport, use of tracking codes available to the customer, barcodes that permit scanning of containers for location, radio frequency identification [RFID] tags and location-based technology systems).
 - ▶ Explain the geographic implications of the Internet for the shopping, purchasing, transporting, delivering, and paying for customer items (e.g., shopping is completed without regard to distance from vendor, shipping costs are dependent on distance and method of conveyance, travel is eliminated for the customer, purchase may be made on a 24-hour schedule and delivered next day to the door).

12th GRADE

the student knows and understands:

Connecting Economic Activities

4. Improvements in transportation and communication networks reduce the effects of distance and time on the movement of people, products, and ideas

Therefore, the student is able to:

- A. Explain the effects of technological changes in communications and transportation systems on the speed and distances over which people, products, and ideas move, as exemplified by being able to
- ▶ Explain how time-space compression has changed modern locational decision-making (e.g., distributed remote office locations, international staffing to optimize time zones, telecommuting options in the workplace).
 - ▶ Identify and explain technological developments over the past 75 years having the most impact on overcoming time and distance (e.g., container shipping, air freight, Internet connections, satellite communications).
 - ▶ Explain the technologies that allow migrants to maintain their linguistic culture and identities longer than prior immigrant groups (e.g., mobile phones, Internet connectivity, Web-based translation services).

Image credit: Susan Gallagher Heffron



Shipping companies use canal systems to transport finished products from glass factories on Murano Island in Italy.

GEOGRAPHY STANDARD 11: The patterns and networks of economic interdependence on Earth's surface



A segment of the 800-mile-long Trans-Alaska Pipeline System winds through the wilderness making connections between Prudhoe Bay and Valdez for the transport of oil.



The route of the Trans-Alaska Pipeline System. The pipeline serves as one type of transportation network used in the global oil trade.