

Human Systems

Big Idea

Human systems are made up of a network of roads, houses, railways, social services, urban centres, businesses and industries, etc. All of these depend upon and have impacts on natural systems. Towns and cities are examples of human-*built* systems and provinces and countries are human-*defined* systems. The type and size of human systems that develop depend in part upon the natural systems that make up the geography of the place. For example, where soil is rich in nutrients and the climate favourable, the land might be designated as farmland to be used for growing food crops. Or where waterways are easily accessible, shipping or fishing might be the local industry that supports the town or city. Urbanization leads to the reduction of green spaces and an increase in asphalt areas. Such change increases the energy required as well as the land needed for waste disposal, destroying the habitat of plants and animals along the way.

Expectations addressed in this Big Idea
<p><i>Human-Environment Interactions</i></p> <ul style="list-style-type: none"> • [SE] assess how the effects of urban growth (e.g., development on former farm lands, destruction of wildlife habitats, draining of marshes) alter the natural environment <p><i>Understanding and Managing Change</i></p> <ul style="list-style-type: none"> • [SE] analyse the positive and negative effects on people and the environment of the manufacture, transportation to market, and consumption of selected products (e.g., cars, clothing, tropical food products) <p><i>Geographic Foundations: Space and Systems</i></p> <ul style="list-style-type: none"> • [OE] demonstrate an understanding of the regional diversity of Canada’s natural and human systems • [SE] describe the characteristics (e.g., complex, interconnected, affecting natural systems) of human systems (e.g., transportation, communication, infrastructure, energy networks, economic systems)
Links to culminating task
<p><i>Geographic Foundations: Space and Systems</i></p> <ul style="list-style-type: none"> • [OE] analyse local and regional factors that affect Canada’s natural and human systems • [SE] explain the geographical requirements that determine the location of businesses, industries, and transportation systems • [SE] predict future locations of businesses, industries, and transportation systems in Canada

Focus Questions and Answers For tips on using Focus Questions, please see page 2.	
<p>1. What patterns or components exist in human systems? Use a town or city as your example.</p>	<ul style="list-style-type: none"> ▶ <i>Transportation, population distribution and settlement, location of businesses, sewage, parks/green space</i>
<p>2. How do the components of human systems affect natural systems?</p>	<ul style="list-style-type: none"> ▶ <i>Transportation contributes to climate change.</i> ▶ <i>Industry such as mining or the logging of forests alters habitat, soil integrity, etc.</i> ▶ <i>Urban sprawl displaces natural features such as forests, swamps, or other wildlife habitat.</i> ▶ <i>Businesses and industry use natural resources whether it be by extraction or the use of green space, depleting them from the natural ecosystem.</i> ▶ <i>Waste disposal results in massive dumps and sewage systems that increase naturally occurring levels of nutrients on land and in water, altering the habitat for wildlife species and ultimately affecting the food chain.</i>
<p>3. How have these patterns or components changed over time?</p>	<ul style="list-style-type: none"> ▶ <i>Aboriginal settlement patterns tended to be nomadic. Settlement today is more static, more concentrated and dependent on industry, although the move toward electronic business ventures may allow some of the population to relocate away from large urban centres.</i> ▶ <i>The use of natural resources by humans has increased exponentially since the Industrial Revolution.</i> ▶ <i>Transportation networks no longer exist simply within a town; they have grown to accommodate large cities and to connect these cities nationally by car, rail, and air, and internationally by boat and air.</i> ▶ <i>Communication has also lifted the old geographical constraint which placed businesses near their markets; with the growth of the Internet and telephone communication, certain types of businesses can now be located without considering proximity to market.</i>

<p>3. How have these patterns or components changed over time? (continued)</p>	<p>‣ <i>Inexpensive, fossil-fuel based transportation and world trade patterns have freed us from dependence on local produce, making exotic and out-of-season fruits and vegetables available virtually everywhere in the world.</i></p>
<p>4. Why have these patterns changed over time?</p>	<p>‣ <i>Population rising, human consumption rising, technological innovations rising, housing needs rising, development is promoted globally</i></p>
<p>5. How might climate change the way cities or towns are organized with the passing of time?</p>	<p>‣ <i>Coastal towns may have to be relocated away from the shore as water levels rise.</i></p> <p>‣ <i>Fishing settlements may decrease further in number as the availability of fish diminishes with the changing temperatures and currents of oceans.</i></p> <p>‣ <i>Greater urgency to reduce fossil fuel use may prompt new public transit initiatives and town planning may focus on reducing travelling time for residents by increasing density and locating shopping areas nearer residential areas.</i></p>
<p>6. What changes can we make in transportation systems to slow climate change?</p>	<p>‣ <i>Switch to alternative fuel sources such as electricity generated by non-fossil fuel sources, fuel cells or solar power; public transportation such as rail or bus; regulation of driving times (e.g., a daytime curfew driving into a city) and regulating the amount of road construction; switch to walking or bicycling; carpooling.</i></p>