Around the world, people grow crops and eat a variety of foods. Geographic factors such as soil type, climate, and landforms affect the types of food that are grown and eaten in different places. These factors also affect how much food can be produced. For example, because of climate, some regions can grow crops only in the summer. This limits the supply of fresh local fruit and vegetables in the winter. The southern areas of Asia have a mild climate and plentiful rainfall. These factors make it suitable for growing rice. Asia produces about 90 percent of the world’s supply of rice (Figure 6.4). It is not surprising that rice is a staple, a regularly eaten food, of many Asian diets.

**FIGURE 6.4** This is a rice field in China. Growing rice takes a lot of land, changes the landscape, and uses a lot of water.
By examining the physical geography of a region, we can try to make inferences about local peoples’ diets. For example, let’s consider the diet of a family in Mongolia. Mongolia is located in Asia, near China. It is a mountainous country with four seasons. The average temperature in summer is about 20 °C and in winter around –20 °C. There are large cities, but many families still live in small villages or towns. Many work on large commercial ranches or on farms that raise animals. If we want to know what foods a Mongolian family eats, we can gather clues by looking at the landscape (Figure 6.5). Because of the many ranches, they have access to foods such as meat and eggs, food that comes from animals. The landforms and climate of Mongolia make it difficult to grow fruits and vegetables. Therefore, these are not likely to be traditional foods of Mongolia.

Agricultural practices also affect how much food can grow. Geographers have categorized farming into two main types: subsistence farming and commercial farming. Subsistence farming is small-scale farming. It focuses on growing food for the farmers and their families. A wide variety of crops are grown and a few livestock, such as chickens or goats, are raised. Tools used for farming are often simple. Commercial farming, on the other hand, is large-scale farming. It involves growing or raising large quantities of one or two types of crops or livestock for sale. Commercial farming requires much larger areas of land, and it relies on large mechanical farm equipment, such as tractors.

Religion, culture, tradition, and preference are other factors that can influence people’s diets. As mentioned in the chapter opener, shark-fin soup is a luxury dish. What factors influence your diet?
SOIL DEGRADATION

In recent years, changing climates and increased demand for food have forced many farmers to use soil that is not as rich in nutrients as it once was. Farmers overuse the soil and do not give it time to rest between crops. This means that the soil cannot renew its nutrients. Because of this, many soils have suffered soil degradation—they have become poorer-quality soils. The soil is less productive, meaning it cannot grow as much food as it did before. Also, the poorer the soil quality, the poorer the food quality. A number of factors have decreased the quality of soil around the world.

PROTECTING SOIL HEALTH

Figure 6.6 shows areas of concern for soil health around the world. Many people are concerned about soil health because a lot of soil is being misused and overused. Unhealthy soil is unable to renew itself.

Some people are working to help save soil in their country. For example, the New Zealand government has reacted to the fact that 50 percent of its soil on the east coast has degraded. One strategy is to plant trees to protect soil from erosion.

Organic farming is another way to reduce soil degradation. Organic farming techniques often leave some areas unfarmed, which helps reduce erosion. Natural fertilizers such as manure may be used. Instead of using chemicals to control insects and weeds, natural methods are used. One example is to encourage insect-eating birds.

Crop rotation is another method used to protect soil. It means varying different types of crops in one area in a cycle, rather than growing the same crop in the same area over and over. This helps to manage soil fertility and reduces the chance for pests and diseases.

**FIGURE 6.6** This map shows the level of concern for soil health around the world.

**Global Areas of Concern for Soil Health**

- **Level of Concern**
  - Red: serious concern
  - Orange: some concern
  - Yellow: low or no concern

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**Why is soil health not always protected around the world?**

- **Soil degradation** loss of soil quality and ability to grow plants
KEHKASHAN BASU: GREEN HOPE UAE

The United Arab Emirates (UAE) is a country located on the southern shore of the Persian Gulf. It was here that Kehkashan Basu was born. On the eastern coast there are steep mountains, but farther inland is largely a desert region. The desert contains a vast area known as the Empty Quarter. Not many species can live here due to the severe heat. When Basu was 11, she learned at school that, long ago, her country had been a lush, green paradise. This shocked her. She began to become more and more interested in the current state of our planet. While the changes in her home’s landscape had not been caused by human actions, she learned about other places where that was the case. She learned about the destruction of the Aral Sea in Kazakhstan and Uzbekistan, and about land degradation along rivers in India. Basu became more vocal about environmental issues at her school and in her community. She was actively involved in many organizations that encouraged young people to become more environmentally responsible.

Because of her work, Basu was selected to be an international delegate at a United Nations (UN) conference in 2012. The conference was held in Brazil and focused on sustainable development. She won an award from the UN for her essay “Let Us Go Land Degradation–Neutral—Save It from Destruction.” She was the only child at the UN conference. That same year, she also attended a second UN conference in Qatar, this one focusing on climate change.

Basu is the founder of a youth organization called Green Hope UAE. The organization promotes awareness of environmental damage and teaches young people about actions they can take for a sustainable and peaceful future. Green Hope UAE has organized events such as tree planting (Figure 6.7) and cleaning up litter. The Green Hope UAE website provides a place where young people can share what they are doing in their local communities to ensure a green future. Basu is passionate in her belief that young people must work toward a peaceful, green future. Her goal is to get children and youth involved in the movement for an environmentally sustainable future.

The Dubai Municipality recently named Basu and Green Hope UAE as the first Ambassadors of Sustainability. She was honoured for her and her team’s outstanding contributions and project for eco-friendly waste management.

Basu is tireless in her efforts. Why has she become such a strong advocate? She believes that her birthday is the key. She was born on June 5, which is also World Environment Day.

A CALL TO ACTION

1. What are some actions that you are already taking to help the environment?
2. What are some environmental concerns in your community? How could you get involved in addressing them?
Circle graphs, or pie charts, can be used to show how a set of data is divided into its parts to make up a whole. Circle graphs show information for a set point in time. They do not show changes over time. Circle graphs are useful for displaying specific types of data, such as amounts and percentages.

To create a circle graph you must know what the total value of the data set is (the “whole”) and then determine what percentage each part is. Figure 6.8 shows a data table and its corresponding circle graph.

<table>
<thead>
<tr>
<th>Composition of Soil</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>mineral matter</td>
<td>45%</td>
</tr>
<tr>
<td>air</td>
<td>25%</td>
</tr>
<tr>
<td>water</td>
<td>25%</td>
</tr>
<tr>
<td>organic material</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

**FIGURE 6.8** The composition of soil includes mineral matter, air, water, and organic material.

Now, use the data provided in Figure 6.9 to make your own circle graph.

**STEP 1**
Look at the data provided in Figure 6.9. Since the data is not provided as percentages, you need to convert each amount into a percentage of the total. You can round the percentage to the nearest whole number.

**STEP 2**
Draw a circle, and then draw in a sector (pie piece) for each percentage of the global food supply.
- Mark the centre of your circle.
- Determine the size of each sector by calculating how many degrees are in each sector. A circle has 360°, so 20 percent (0.20) would be calculated as follows: 0.20 x 360 = 72°.
- Use a protractor to draw each sector.

**STEP 3**
Label each sector with a descriptive name and the percent.

**Global Food Supply**

<table>
<thead>
<tr>
<th></th>
<th>Amount (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>eaten</td>
<td>380</td>
</tr>
<tr>
<td>lost in production</td>
<td>145</td>
</tr>
<tr>
<td>wasted by consumers</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>580</td>
</tr>
</tbody>
</table>

**FIGURE 6.9** The global food supply per person is around 580 kg. About 380 kg is eaten, 145 kg is lost in production, and 55 kg is wasted by consumers.
SOCIAL IMPACTS

Not only do foods vary from one part of the world to another, but the ability to access that food also varies. Not everyone has equal access to food. The United Nations estimates that 870 million people, or one in eight, suffer from undernourishment, or not having enough good-quality food.

FOOD LOSS AND FOOD WASTE

Approximately one-third of all food grown worldwide is lost or wasted (Figure 6.10). Food loss refers to food that is discarded during the harvesting, production, and distribution processes. Food waste is food that is discarded by consumers and by places that sell food. One study showed that Canada, the United States, Australia, and New Zealand waste about 110 kg of food per person per year. Sub-Saharan Africa (below the Sahara Desert), on the other hand, wastes 6 to 11 kg of food per person per year. The pattern of food waste depends on location, income, and what and how much people eat.

FIGURE 6.10 Large amounts of fruit and vegetables that have been discarded

I wonder how I can help reduce food waste?

CHECK-IN

1. PATTERNS AND TRENDS  Examine the map of areas of soil health concern in Figure 6.6 on page 176. What geographic regions are represented in the areas of low or no concern?

2. EVALUATE AND DRAW CONCLUSIONS  Choose one country and research the types of food usually eaten by people who live there. Create a chart to compare the foods eaten in that country to the foods you eat. List one reason why the foods might be similar and one reason why they might be different.

3. COMMUNICATE  Calculate how much food waste your class creates in one week. Before you begin, decide how you will collect this data. Will you weigh it? Will you use a container to estimate its volume? Use this data and the information in this text to create posters and announcements to inform other students about food waste and its impact on your school, community, country, and the world.