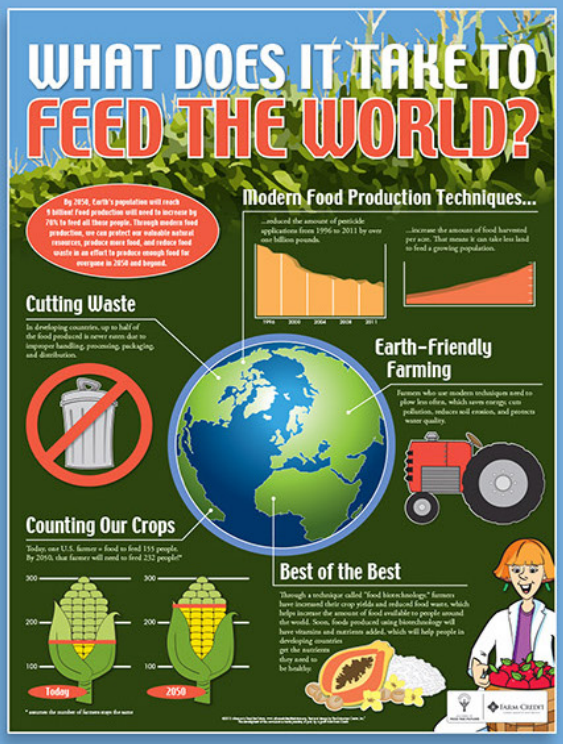
Discussion Guide: What Does It Take to Feed the World?

Start by discussing where food comes from. Ask students, *Have you ever grown a garden?* Talk about some of the challenges that students encountered with their gardens and how they did or didn't solve them.

Next, display this poster in your classroom. For younger students, discuss one section per day. For older students, place the poster at a learning center or invite students to study it on their own prior to discussion. As an alternative, you can print small versions for each student or use your projector to display the poster on your whiteboard.

As you discuss each section, the following are points to cover and ideas for explaining this important information.

By 2050, Earth's population will reach 9 billion people!



- Write out the number 9 billion for students. Have students count the number of zeroes and discuss what else could be measured in billions. (Money? Miles? Grains of sand?) Then, to put the number in context, share these facts:
  - one billion is equal to a thousand millions
  - one billion seconds is equal to 31 years
  - depending on their obits, Earth and Saturn can be about one billion miles apart
- The world population is estimated to have reached 7 billion in 2012. Ask students to select a symbol to use in representing this number. (For example, younger students could draw a stick figure to represent each billion, and older students could do the same to represent each 100,000 million.) Now contrast the number 9 billion.
- What does it mean to increase food production by 70%? Use this as an example for your class: If you have ten homework assignments each week, how many would you have if your homework increased by 70%? That percentage increase will really hit home when students think about having 17 homework assignments per week!
- Ask students, *How old will you be in 2050?* Discuss the fact that this change will come during your students' lives.

Modern Food Production Techniques

- Ask students what a pesticide is. Explain that pesticides are used to kill pests that destroy crops. Have they ever seen family members use pesticides? Farmers and gardeners may also use herbicides, which kill weeds that threaten crops. Ask the class, *How does use of these products lead to more food production?*
- Discuss with students the advantages of decreasing the amount of pesticides used. Can students think of any disadvantages? How do students think pesticide use affects the price of food?
- Whose job is it to come up with techniques to increase food production? Students will see this role combines farmers and researchers alike.

Did you know?
A person who studies soil as it relates to plant growth is an edaphologist.