

SC.912.L.17.20 AA	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	High
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The global rate of population growth has been declining. The United Nations projects that the world’s population will stabilize at 9.7 billion by the year 2050. However, population growth rates are uneven across Earth. Population growth tends to be the highest in countries that can least afford it. Already limited resources are strained further, and natural resources—ground water, land for farming, forests—are ever more quickly depleted or polluted.

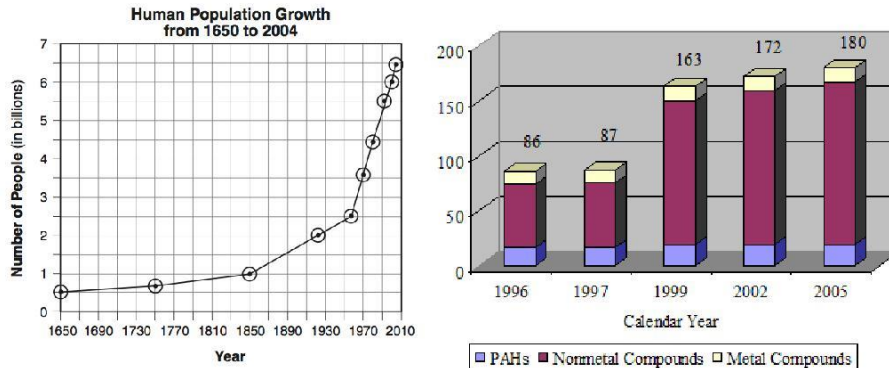
No one knows whether the Earth can support six billion people indefinitely, much less the far larger population that lies in our future. Building a sustainable world is the most important task facing humanity’s future. The quality of life available to your children in the new century will depend to a large extent on our success.

One industry where sustainable practices can help support human activity without depleting natural resources is agriculture. Sustainable agriculture refers to farming that remains productive and profitable through practices that help replenish the soil’s nutrients, reduce erosion, and control weeds and insect pests. In an ecosystem, decomposers return mineral nutrients to the soil. However, when the plants are harvested and shipped away, there is a net loss of nutrients from the soil where the plants were growing. The amount of organic matter in the soil also decreases, making the soil less able to hold water and more likely to erode.

One way to protect soil is through the planting of cover crops. After harvest, farmers can plant cover crops, such as rye, clover, or vetch, instead of letting the ground lie bare. Cover crops keep the soil from compacting and washing away, and they help the soil absorb water. They also provide a habitat for beneficial insects, slow the growth of weeds, and keep the ground from overheating. When cover crops are plowed under, they return nutrients to the soil.

Rotational grazing can also protect land resources. Farmers who raise cattle and sheep can divide their pastures into several grazing areas. By rotating their livestock from one area to another, they can prevent the animals from overgrazing the pasture. This allows the plants on which the animals feed to live longer and be more productive. Water quality improves as the pasture vegetation becomes denser. Animals distribute manure more evenly with rotational grazing than they do in feed lots or unmanaged pastures.

1. How have advances in manufacturing, agriculture, and transportation improved people’s lifestyles as compared to 100 years ago? Give specific examples.
2. How have these improvements created problems for Earth’s ecosystems? Give specific examples.
3. The following graphs are of Human Population Growth and of —Air Toxic Inventory.¶



Describe the general trends observed.

4. Name some ways humans combat air and waterway pollution?
5. Describe the process of biomagnification and why it is of great concern.
6. Justify your answer with an SRE.

Public officials in Florida had to decide whether to build a new coal-fired electric power plant or invest in developing more solar energy. Which of the following sums up the arguments likely made by those who favored coal and those who favored solar energy?

F. pro coal: coal mines need more business; pro solar: Florida is an ideal state for solar energy because of its abundant sunshine

G. pro coal: invest in this relatively cheap and reliable energy source; pro solar: invest in solar energy because coal supplies are running out faster than oil supplies

H. pro coal: coal is a relatively cheap and abundant energy source; pro solar: Florida is ideal for solar energy, which produces no pollutants, because of its abundant sunshine

I. pro coal: a coal-fired power plant gives off less pollution than any other type of power plant; pro solar: investments in solar energy will help develop technologies for safer nuclear power plants

Statement	
Reason	
Evidence	