

Technology and Scientific Advancements The first modern computers weighed around 30 tons. They were huge and only a few corporations had them. But in the 1940s, these computers changed the way businesses were run; they took only seconds to do what might have taken days to do by hand. Countries around the world had to adapt to new technology to stay up to speed in the global economy. Even in the average home, computers became incredibly important. Regular people started getting online in the 1980s, and home computers became more popular with the Internet Revolution in the 1990s. It changed the way people communicated now that they could communicate with anyone, anywhere, at any time in seconds. Letters, landline phones and faxes were replaced by texting, email, social media, and mobile phones. Another important invention of the 20th century was television, which became popular in the US after WWII. Networks began broadcasting nightly news segments, and the television quickly replaced the radio as a major news source. The internet is now a major news source, including sites run by television networks. The US and USSR were also locked in a space race, starting when the Soviet Union launched the first artificial satellite, Sputnik, in 1957. The next year, the US launched a satellite and founded the National Aeronautics and Space Administration (NASA). The Space Race led to a focus on math and science in American schools. In April 1961, Yuri Gagarin of the USSR was the first person to orbit the earth. The US's Neil Armstrong and Edwin "Buzz" Aldrin were the first people to walk on the moon, on July 20, 1969, during the Apollo project. Since then, humans have sent machines into space to explore Mars and other planets. Robots have travelled to the sun, to comets, to asteroids, and past the edge of the solar system. Vaccination has also risen as a major scientific advancement. The Polio vaccine, introduced in 1955 by Dr. Jonas Salk, was given to prevent the transmission of Polio, which paralyzed and killed thousands of people in the US every year, without a cure. Bad cases of Polio can destroy the body's ability to breathe by paralyzing the muscles involved. A common treatment before mass vaccination was the Iron Lung – a machine that pressurized the body so the patient could draw breath. Vaccinations for Measles, Mumps, and Rubella (MMR), Diphtheria, Tetanus, and Pertussis (DTaP), and Chickenpox (Varicella) are now common place for most children in developed nations, and have prevented the death of millions of people.

The Environment Humans made a lot of technological advances in the twentieth century, but they also made some pretty big mistakes. Cities grew too fast and too big. Factories and a desire for expensive projects like cars and phones led us to neglect something very important: Mother Nature. We've overused land and soil, leading to desertification. We've cleared forests (deforestation) to build houses and factories. Our factories have poured harmful chemicals into our air, creating smoggy skylines, acid rain, and climate change. Desertification is the depletion of plants and topsoil in semi-arid lands, causing them to become deserts; often a byproduct of population growth. Acid Rain is precipitation- such as rain or snow – with high levels of acid forming chemicals. These chemicals are usually released in the air by pollution. Deforestation has hit tropical rain forests, where 50% of the world's species of plants and animals live. Rain forests are sometimes called the "lungs" of the plants- they're crucial to our survival because they remove carbon dioxide from the air and provide us with oxygen to breathe. The Greenhouse Effect is the warming of the earth due to carbon dioxide buildup in the atmosphere. The greenhouse effect (an increase in the overall temperature of the earth's atmosphere due to the greenhouse effect) contributes to global warming- which doesn't mean that everywhere is hotter all at the same time. It's part of overall climate change and can contribute to rising sea levels, the melting of polar ice caps, and severe droughts and storms. Climate change can cause famines when crops can't grow and, in turn, make regions of the planet unlivable, and it can even completely flood inhabited islands. Some people consider climate change to be the most important issue currently facing humans –

even bigger than the wars and political disagreements of history – because it affects the future livability of the entire planet. Sustainable Development is the development that meets our needs while also allowing us to conserve natural resources through recycling, water conservation, and other programs to reduce waste and the dumping of toxic materials. In 2010, nearly two hundred nations made a promise to reduce carbon emissions when they signed an international agreement called the Kyoto Protocol. The US (which produces a lot of carbon emissions) didn't ratify this important treaty. However, in 2015, the United Nations Conference on Climate Change (also known as the COP21 or the CMP11) was held in Paris, France. The 195 participating countries, including the US, agreed to reduce greenhouse gasses. The goal is to keep global warming to less than 2 degrees Celsius.

Today's Global Interdependence With today's technological advances in communication, nations and communities are more closely connected than ever before. This has led to people and nations becoming more interdependent (relying on each other). In a global economy, multinational corporations do business throughout the world. A chain of restaurants that is in the US and France and Russia and everywhere else is sign of globalization. Globalization is the process of making something worldwide, or global. There are advantages to being so connected: Organizations from different countries can work together to solve major issues like poverty, climate change, terrorism, and nuclear proliferation. Proliferation is a rapid spread or growth. Aside from the UN, other organizations have developed in this era of global interdependence, such as the World Trade Organization (WTO). The WTO was formed in 1995 to increase trade by setting rules for international trade and to address other issues affecting the global economy. The creation of the European Union (EU) in 1993 established a common currency, the Euro, across European member nations. Stemming from the European Economic Community (EEC), this economic union was created to strengthen the economies of member nations and encourage trade and travel. Travel between member nations doesn't require a passport, and a person from Spain who wants to move to France can work or study there without a visa.

Check your understanding. Record your answers in complete sentences on lined paper.

1. What were the first modern computers like?
2. How has the internet revolutionized the modern world?
3. What has been the impact of vaccination?
4. Name some of the downsides of all our rapid improvements in technology.
5. What is the greenhouse effect?
6. What are the consequences of climate change?
7. What document was signed in 2010 by nearly 200 nations as a promise to reduce carbon emissions?
8. What is globalizations?
9. The European Union stems from
 - a. The EEC
 - b. The WTO
 - c. NAFTA
 - d. The UN