Name: **Date:** **Class:**

Environmental Justice StoryMap #4: Transportation & Environment

Answer Key

Instructions: Complete the following questions as you explore the Environmental Justice StoryMap #4 Transportation & Environment

StoryMap #4 Link: https://storymaps.arcgis.com/stories/62b1b7aeb1274e04b843d1e291363b56

Think About It: Watch the video and think about what you observe:

1. How much carbon is in a gallon of gasoline, which is a fossil fuel?
   5 pounds of carbon

2. What happens when fossil fuels like gasoline are burned for energy?

   Fossil fuels release carbon dioxide gas, water, and other pollutants when burned.

3. How do fossil-fuel-powered vehicles impact our planet?
   Gas-burning vehicles release a great deal of carbon dioxide, which influences the carbon dioxide levels in the atmosphere, and cause air pollution.

Check for Understanding #1:

4. Describe what a greenhouse gas is in your own words.
   A greenhouse gas is a gas that can trap heat and cause warming of the atmosphere.

5. How are the natural and enhanced Greenhouse Effects similar? How are they different?
   The natural greenhouse gas traps energy from the sun that is absorbed and radiated from earth's surface and thus warms the atmosphere. The enhanced Greenhouse Effect is a human-caused amplification of the natural Greenhouse Effect that results from increased levels of greenhouse gases in earth's atmosphere mainly from fossil-fuel burning, which then enables more heat to be trapped and cause the atmosphere to warm more than normal.

Name: **Date:** **Class:**

Check for Understanding #2:

6. What form of transportation do people mainly use and how far are their average trips?

   Cars, light trucks, motorcycles (over 90%). Less than 6 miles per trip.

7. What form of transportation do people mainly use and how far are their average trips?

   Personal vehicles (cars, light trucks) contribute the most with 58% of the carbon dioxide emissions from transportation vehicle types.

Check for Understanding #3:

8. What are the current pros and cons of electric vehicles vs gas-powered vehicles?

   Answers vary. The pros and cons of EV are that they don't emit any carbon dioxide or emissions into the atmosphere and have higher speeds, but they are also more expensive than gas-powered vehicles and take longer to charge.
   The pros and cons of gas-powered vehicles are that they cost less, going to a gas station is quick and easy, but gas-powered vehicles emit a lot of carbon dioxide and pollution and have slower speeds.

9. Why are zero-emission vehicles like EVs important to make accessible for all people?

   Answers vary. Making zero-emission vehicles like EVs accessible to all people because zero-emission vehicles can reduce regional air pollution impacts, disparities in pollution burdens and emissions of greenhouse gasses that cause climate change.

Check for Understanding #4:

10. Do certain locations of the country have good air quality (green, yellow), and are these areas near any major roadways?

    Answers vary.

11. Do certain locations of the country have poor air quality (orange, red, maroon), and are these areas near any major roadways?

Name: **Date:** **Class:**

Answers vary.

Check for Understanding #5:

12. Describe any patterns that you observed between the locations of **communities of color** and **low-income** areas with probable **high respiratory health risks**.

Communities of color and low-income communities tend to be in areas of high respiratory health risks.

Discussion: Engineering Connections

13. What are some pros and cons of gas-powered vehicles? Of electric vehicles?

Answers vary.

14. What are some ideas and ways to transition from non-renewable (fossil fuels) to renewable (alternative energy) energy sources to power our transportation system now and in the future?

Answers vary.

15. What impact do you think electric vehicles will have on the future sustainability of our transportation systems, air quality, and climate impacts if people have access to affordable EVs and clean energy charging?

Answers vary.