

NAME:

UNDERSTANDING HUMAN IMPACT ON EARTH SYSTEMS

EVIDENCE OF BASIC KNOWLEDGE

BLU - Not there yet 2 -Nearing Proficient 3- Proficient 4- Beyond Proficient

Science concepts and processes that help us have a more global understanding of our earth and the role human activity has on it. Specific ideas relate to the greenhouse effect, human consumption of fossil fuels and the effect this has on global systems.

1. Where does the energy that warms our earth and atmosphere come from?

2. Our atmosphere is filled with lots of gases ranging from nitrogen to water vapor. What force holds these gases in the atmosphere?

3. What two gases make up the majority(about 99%) of the atmosphere?

4. The remaining 1% of the atmosphere is made of argon and greenhouse gases. Name two of these greenhouse gases.

5. In what form/s does the wave energy from the sun come in? Circle the answer that is most correct.

a. Ultraviolet

c. Infrared

b. Visible light

d. All of the listed – a, b, & c

6. When this light(wave energy) reaches the earth some of it is absorbed and some of it reflects back toward space as infrared waves. What happens to the infrared waves that reach greenhouse gases?

7. What happens if these infrared waves reach a non-greenhouse gas?

8. Why is the greenhouse effect an essential "a great" thing? Explain using a couple complete sentences.

9. In the PhET simulation, what happens to the average temperature of the earth when we increase the amount of greenhouse gases in the atmosphere?

10. What evidence do scientists have that shows that the levels of greenhouse gases have increased in the last 100 years? How do scientists obtain this evidence from years prior to humans records?

11. What percentage of climate scientists attribute climate change to activities humans do regarding energy? Circle the answer that is correct?

- a. 56%
- b. 12%
- c. 97%
- d. 70%

12. What is one natural occurrence or event that has happened through time that could explain the periodic changes(rise and fall) in greenhouse gases.

13. What greenhouse gas is produced when humans combust(burn) fossil fuels?

14. What is one natural thing/system that uses or changes carbon dioxide gases?

15. How are fossil fuels made?

16. Why are fossil fuels considered non-renewable even though they technically are still be made?

17. All of the following are reasons humans extract fossil fuels from the earth. What is the number one use of these fossil fuels? Circle the answer that is most correct.
- a. Making plastics for various products.
 - b. Providing the fuel to power transportation.
 - c. Providing the energy needed to generate electricity.
 - d. Heating homes and buildings.

17. What are two alternatives for producing electricity other than burning fossil fuels?

18. There are numerous motivators or reasons people concern themselves with their energy use. List two different reasons people concern themselves with reducing their energy use.

19. What is one action adults can take to reduce their carbon footprint?

20. What is one action you can take on a daily basis that will help to reduce your carbon footprint?
