



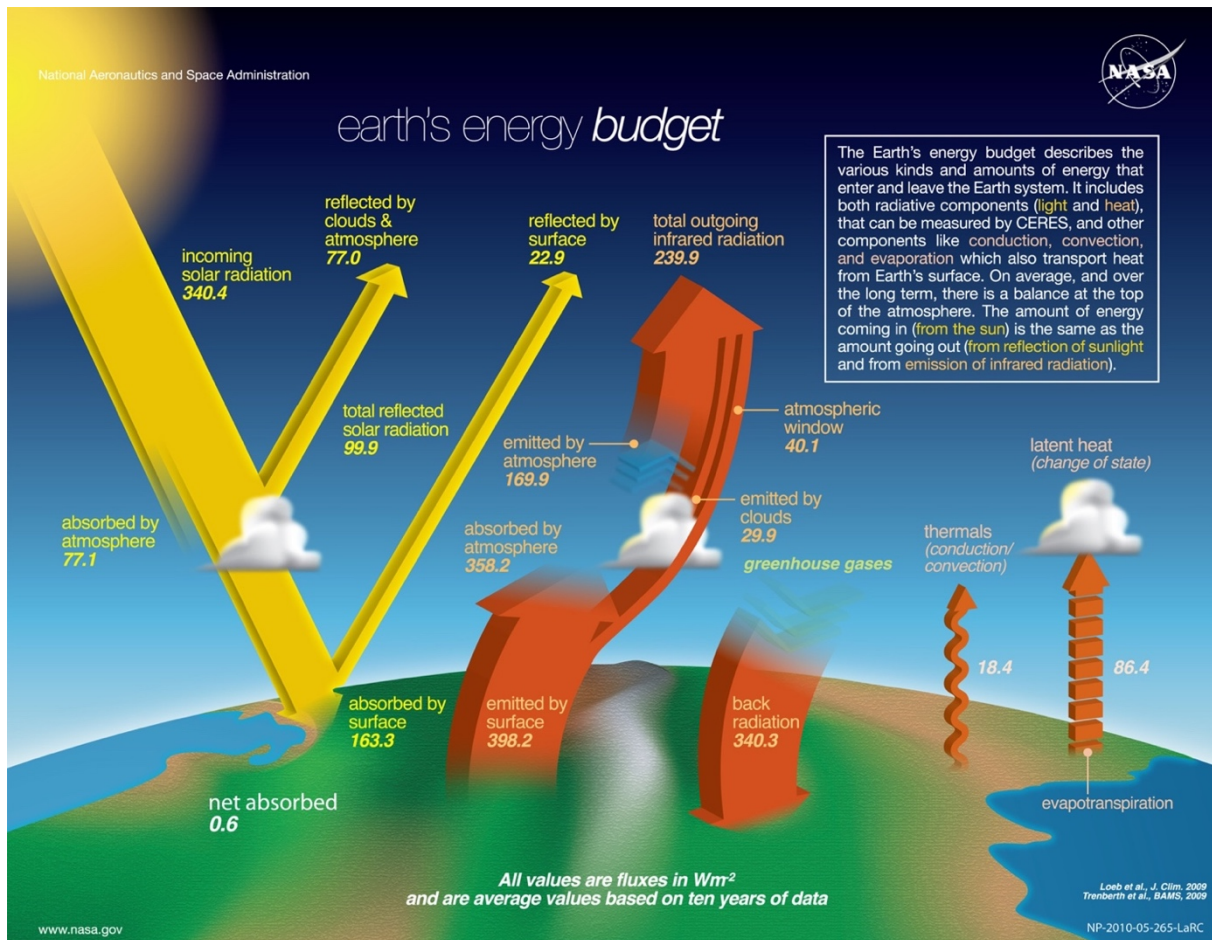
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Greenhouse Effect Worksheet

Sample Answers

Directions:

Study the diagram below, and then answer the questions that follow.



Source: NASA. (2016, March 21). The NASA Earth's energy budget poster. Retrieved from http://science-edu.larc.nasa.gov/energy_budget/

Which arrow in the diagram above shows the greenhouse effect?

The red arrow labeled "back radiation" shows heat that was reflected up from the Earth's surface, trapped by greenhouse gases, and reflected back to the Earth's surface.





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In the first column of the chart below, review the five activities that increase the amount of carbon dioxide (and other greenhouse gases) in the atmosphere. Come up with an idea for reducing carbon emissions from each of those activities, and list it in the second column.

Greenhouse Gas Activities and Actions

Activities That Generate CO ₂ and Other Greenhouse Gases	Actions That Reduce Emissions of CO ₂ and Other Greenhouse Gases
Producing electricity via fossil fuels (coal and natural gas)	We can replace fossil-fuel powered power plants with plants run by wind, solar, or geothermal energy.
Using vehicles powered by fossil fuels (cars, buses, trucks, ships, trains, and airplanes)	We can walk and bike more, design more fuel-efficient vehicles, and use vehicles that are not powered by fossil fuels.
Industrial activities (factories and construction)	Using new technologies, industries can replace harmful processes and substances with new ones that consume less fossil fuel and that release less greenhouse gas into the air.
Activities within homes, schools, and businesses	People in homes, schools, and businesses can look for ways to use less electricity; we can reduce, reuse, and recycle rather than purchasing new things.
Agricultural activities (livestock and agricultural production)	Using new technologies, agricultural industries can replace harmful processes and substances with new ones that consume less fossil fuel and that release less greenhouse gas into the air.
Cutting down forests	We can be very careful to replace trees we cut down; we can use equipment and technology that conserve energy.





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Reflection Questions:

1. What does the phrase "carbon footprint" mean?

It refers to the amount of carbon dioxide and other carbon compounds emitted by a person, group, city, etc. due to their direct or indirect consumption of fossil fuels.

2. What steps can you, personally, take to reduce your carbon footprint?

I can bike to school and bike or walk other places that are nearby. I can buy less stuff that I don't really need and be sure to turn off lights and conserve energy whenever possible.

3. Suppose you have a friend who wastes a lot of electricity and other resources. What could you say to your friend to encourage him or her to change some of those wasteful habits?

I could tell my friend that human activities have seriously impacted the balance of carbon in our atmosphere. Because so many of the things we humans do now release carbon into the atmosphere, carbon is accumulating there and trapping heat. This is causing our Earth to warm up in some places and experience terrible climate changes in other places. If we all continue to do what we've been doing, the problem will get much worse. However, if we change our habits so that we put less carbon into the atmosphere, we can help be part of the solution instead of being part of the problem!

