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Worksheet

1. What percentage of the incoming solar energy is reflected by the atmosphere and the clouds?
   atmosphere 6% clouds 25%
2. What percentage of the incoming solar energy is absorbed by the atmosphere and the clouds?
   19%
3. What percentage of the incoming solar energy is absorbed by Earth's surface (land and oceans)?
   51%
4. What percentage of the incoming solar energy ends up being reflected/radiated back into space?
   reflected 30% radiated 70% total 100%
5. What would happen if less solar energy was reflected/radiated back into space?
   the Earth's average temperature would increase
6. What would happen if more solar energy was reflected/radiated back into space?
   the Earth's average temperature would decrease
7. What has a higher albedo, ice or open ocean?
   ice
8. If an increase of one degree in global temperatures causes the Arctic Ocean to remain ice free for two additional weeks each year, how will it affect the ocean's albedo? Why?
   less ice will reflect less solar energy resulting in a lower albedo (which will, in turn, result in less ice ... and so on.)
9. If the ocean's albedo decreases, how will this affect ocean temperatures and ice formation in the winter? Explain.
   ocean temperatures will rise as the ocean absorbs more solar radiation. This will result in less ice formation in winter.

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10. When forests are cleared, the soil exposed often has a smaller albedo than the trees that were there. What effect does that have on the local temperature?

the local temperature goes up as the soil absorbs more solar radiation

11. What is the effect of wearing dark clothes in strong sunlight rather than lighter colored clothing?

dark clothes absorb more sunlight, causing you to get hot.

12. What effect do clouds have on the albedo of the earth?

they increase the albedo by reflecting more solar radiation

13. What effect does dust in the atmosphere have on the albedo of the earth?

it increases albedo by reflecting more solar radiation

14. What effect does a large volcanic eruption have on the albedo of the earth?

it increases albedo by reflecting more solar radiation

15. Cities commonly have low albedos. Why?

the materials used to construct roads, buildings, and houses are typically dark (concrete, asphalt, shingles) and reflect less solar radiation

16.