

Effects of Climate Change



on the Water Cycle

DIRECTIONS

Please read the excerpt below and use your knowledge of the water cycle to make predictions about the effects of climate change on the water cycle.

The water cycle is a delicate balance of precipitation, evaporation, and all of the steps in between. Warmer temperatures increase the rate of evaporation of water into the atmosphere, in effect increasing the atmosphere's capacity to "hold" water.

Increased evaporation may dry out some areas and fall as excess precipitation on other areas. Over the past 50 years, the amount of rain falling during the most intense 1% of storms increased by almost 20%.

Warming winter temperatures cause more precipitation to fall as rain rather than snow. Furthermore, rising temperatures cause snow to begin melting earlier in the year. This alters the timing of streamflow in rivers that have their sources in mountainous areas.

Excerpted from: EPA - Climate Impacts on Water Resources
www.epa.gov/climatechange/impacts-adaptation/water.html#watercycles

PREDICTIONS

Using the excerpt above and your knowledge of the water cycle and processes like evaporation, what do you think some of the effects of climate change are on the water cycle?

ANSWER KEY

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Student answers will vary, but may include some of the following:

- *Higher rate of evaporation of water into the atmosphere because of warmer surface, air, and water temperatures*
- *Changing precipitation patterns – more precipitation in some areas and less in others, more severe storms*
- *More precipitation falls as rain instead of snow because of warmer winter temperatures*
- *Snow is melting earlier, which alters the timing of streamflow and reduces the availability of water during the late spring and summer months when demand is highest*
- *Sea level rise because of increased water temperatures and melting glaciers and ice*