activity Before the Conversation

COMMUNITY CONVERSATION

NAME _____ CLASS _____

TEACHER _____ DATE _____

Instructions: *Read the card that describes the person you will be playing during the conversation. Do some research to learn more about climate change and how this person may be affected by it. In class, you will be expected to participate in a conversation about climate change, but you'll be acting as if you are this person.*

Fill out the questions below BEFORE the Community Conversation. Read the questions on the ***AFTER the Conversation Worksheet*** *so you can think about them during the conversation, but do not answer them until the conversation is over.*

1) *Who from the community will you be playing?*

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2) ***IMPACTS*** *How will climate change affect this person? Consider the person's business or livelihood, recreation and hobbies, expenses, transportation, etc.*

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3) ***CONCERNS*** *What will be some of the concerns this person has about climate change?*

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4) ***IDEAS FOR ACTION*** *Will this person have some ideas about what should be done? If so, what ideas will he/she have?*

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4

Worksheet

activity After the Conversation

COMMUNITY CONVERSATION

NAME _____ CLASS _____

TEACHER _____ DATE _____

Instructions

Review the questions on this page BEFORE you participate in the Community Conversation.

Continue to think about them as you participate—both by talking and by listening. Fill out this worksheet when the conversation is over. You will be handing in both parts of the worksheet.

1) Were you able to express your character's concerns and/or ideas? Did you feel listened to? Why or why not?

2) Other than the concerns you already identified for your character in the BEFORE part of the worksheet, what other concerns did you hear about from other people in the conversation? List at least three.

3) Other than the ideas you had already identified for your character in the BEFORE part of the worksheet, what other ideas for action did you hear about from the other people in the conversation? List at least three.

4) Is it obvious from the conversation what steps and actions should be taken to slow climate change? Was there agreement in the group?

How hard will it be to slow climate change? Why?

EASY		AVERAGE		EXTREMELY DIFFICULT
1	2	3	4	5

Worksheet

Community Profiles *(page 1)*

COMMUNITY CONVERSATION

Cranberry farmer

Cranberry farmer in Wood County in Central Wisconsin

Wisconsin is the country's top producer of cranberries.

Cranberries are grown in bogs, which are a type of wetland. You can start learning more about what is needed to grow cranberries from the Wisconsin State Cranberry Growers website.

Learn more from recent news articles about the impacts of climate change and weather on cranberries.

Try an internet search on: <cranberry + "climate change">. Along with other resources, look for a November 2007 story from the *Christian Science Monitor.*

A cranberry farmer will obviously worry about his/her cranberry crop. But a farmer will also have hobbies.

Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

Sugar maple farmer

Sugar maple farmer in Southern Wisconsin

Wisconsin is the nation's fourth largest producer of maple syrup, which is harvested in the spring from tapping sugar maple trees across the state.

Scientists believe changes in Earth's climate will affect the growing patterns of plants—what plant species can grow where, including the sugar maple. Plants all have specific requirements for growth—soil types, temperature ranges, and precipitation amounts.

Learn more about sugar maples and climate change by trying an internet search on: <"sugar maple" + "climate change">.

Along with other resources, look for a U.S. EPA download (www.epa.gov) on sugar maple habitat shifts, an October 2007 National Public Radio *Morning Edition* story, and a June 2007 report from USDA's National Agricultural Statistics Service.

A sugar maple farmer will obviously worry about whether his/her trees will continue to produce enough maple syrup. But a farmer will also have hobbies. Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

President of a large insurance company

President of large insurance company that has its world headquarters in Wisconsin

Wisconsin is the world headquarters for several large insurance companies. When big storms or other disasters hit, insurance companies pay the costs for their customers to rebuild or fix their buildings and houses.

One of the expected effects of climate change is more big storms and severe weather—hurricanes, floods, droughts, etc.

Learn more about insurance and climate change by trying an internet search on: <insurance + "climate change">. Along with other resources, look for an August 2007 *Scientific American* article, a January 2008 National Public Radio *All Things Considered* story, and an August 2006 KPFA radio story.

An insurance company executive is going to be thinking about insurance claims and opportunities from climate change. But he/she will also have hobbies. Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

Head of paper company

Head of the Wisconsin division of a large paper manufacturing company

Wisconsin is the nation's leading producer of wood pulp, used to make paper and paper products.

Concerns over climate change and the costs and sources of fossil fuels (gas, oil, coal) have led people to look for other sources of energy. One of these is "biofuels," fuels made from plant matter such as corn, switch grass, or wood pulp. Corn has been criticized as a source because, among other reasons, it takes so much energy to grow. But paper pulp has some potential, thus potentially creating a large new market for Wisconsin's paper pulp industry.

Producing paper and paper pulp requires trees. Paper companies own forested lands and lease the logging rights on other land to cut trees they need to make paper and stay in business. But scientists believe climate changes will affect the growing patterns of plants and trees. Plants all have specific requirements for growth—soil types, temperature ranges, amounts of precipitation.

Learn more about climate change, biofuels, and paper pulp by trying an internet search on: <"climate change" + pulp + forest + biofuel>. Along with other resources, look for an August 2007 University of Wisconsin news story on insects and climate change and a Swedish Forest Industries Federation report *Forests and the Climate.*

Fish farmer

Aquaculturist with trout pond

An aquaculturist is someone who raises fish for food, bait, stocking waterways, or fee fishing. In Wisconsin, aquaculture is a growing industry with an annual value of about $9 million per year, producing mostly trout, tilapia, bass, various baitfish, and small fish for stocking waterways.

Warmer water temperatures could mean longer growing seasons, thus increasing the rate at which fish grow. At the same time, some fish species are particularly sensitive to temperature extremes. Water temperature changes can affect fish growth and mortality. As temperature increases, dissolved oxygen in water tends to decrease and more sensitive species cannot get enough oxygen from the water to survive. Changing precipitation patterns—big storms and more droughts or floods—could also impact aquaculture operations. Large rains can cause ponds to overflow while drought can decrease the availability of fresh water.

Learn more by trying an internet search on: <"climate change" + aquaculture + "fresh water">.

A fish farmer will obviously worry about his/her fishery. But a farmer will also have hobbies. Pick an outdoor hobby for your character, maybe something you like to do. How might climate change affect that hobby?

Parent & outdoor enthusiast

Parent of two young children. Avid angler, hiker, and cross-country skier

Wisconsin is a great state for year-round outdoor recreation, offering more than 15,000 lakes and countless streams for fishing. More than 2,700 miles of hiking trails and nearly 700 miles of cross-country ski trails are located on state lands (plus many more under other ownership). Many parents who enjoy outdoor recreation encourage their kids to do the same.

Warmer or sporadic temperatures could affect the fish species able to thrive, the length of ice fishing season, and skiing conditions. Insect populations may also increase, potentially making all types of outdoor recreation less enjoyable. Also, children are at higher risk than adults from many insect-borne diseases and pollution-related illnesses that are more likely to strike when kids are outdoors.

Learn more by trying an internet search on: <"climate change" + snow + "great lakes"> and, along with other resources look for a Michigan Sea Grant article.

Activist for the environment

Environmental activist

Wisconsin has a proud heritage of being an environmentally conscious state. Several famous environmental and conservation leaders have roots in Wisconsin—Gaylord Nelson, the founder of Earth Day; Aldo Leopold, the author of *A Sand County Almanac;* John Muir, the founder of the Sierra Club; Sigurd Olson, author influential in protecting wilderness areas; and Pearl Louise Pohl, an environmental educator, to name a few.

Environmentalists care about clean air, water, and land; protecting human health; promoting environmental stewardship; and maintaining healthy ecosystems. They are involved in trying to change behaviors and laws to better protect the environment and to reduce pollution and other negative human impacts on the earth. Climate change could have a significant harmful impact on the state's, plants, animals, and waterways.

Learn more with an internet search on: <"climate change" + ecosystem + impacts + Wisconsin>. Along with other resources, look for a report on impacts in the U.S. and Great Lakes by ClimateHotmap, a report of Great Lakes region impacts by the Union of Concerned Scientists, and work by the Wisconsin Initiative on Climate Change Impacts.

An environmentalist, like everyone else, will have hobbies. Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect it?

Shop owner

Owner of a snowmobile sales and rental shop

The first snowmobiles were built in Wisconsin. Eagle River, Wisconsin, calls itself the Snowmobiling Capital of the World. During the 2001-2002 season, a Department of Tourism study estimated $249.5 million dollars were spent in association with snowmobiling in the state.

Warmer overall temperatures and more extreme weather events are predicted as part of climate change, which may worsen snowmobiling conditions or reduce the season length. Snowmobilers often run on deeply frozen lakes, but routes could be limited as temperatures warm. If snow conditions decline, snowmobile shops and other tourism-related businesses can expect less business. Especially in northern Wisconsin, declines in winter tourism have a significant impact on the local economy. The International Snowmobile Manufacturers Association states snowmobile sales have fallen every year but one since 1997.

Learn more by trying an internet search on <snowmobile + "climate change" + Wisconsin>. Look for an article by Jeff Alexander (January 28, 2008) on climate change and ice and snow cover.

Snowboard instructor

Snowboard instructor at Wisconsin ski resort

Snowboarding is a fairly new sport inspired by surfing, skateboarding, and skiing. In the U.S., snowboarders comprise approximately 20% of visitors to ski resorts. Wisconsin boasts more than 30 areas for snowboarding and skiing.

Warmer overall temperatures and more extreme weather events are predicted with climate change. This may shorten the snowboarding season or worsen conditions which will reduce snowboard instructors' business. Hotels, restaurants, and stores that depend on tourists will suffer too. Particularly in northern Wisconsin, the loss of winter tourism has a significant impact on the local economy.

Learn more with an internet search on: <snowboard + snow + "climate change" + Wisconsin>. Among other resources, look for an article by Jeff Alexander (January 28, 2008) about climate change and ice and snow cover, an article by Emily Rabin in *ClimateBiz* (February 2006), and an economic letter from the Federal Reserve Bank (August 2008).

Commercial fisherman

Commercial fisherman on Lake Michigan

Commercial fishing on Lake Michigan is a multi-million dollar industry in Wisconsin. Lake whitefish and chub are the largest component of catches in recent years. Both species prefer cold, deep waters.

Warmer temperatures may be problematic for commercial fishermen targeting coldwater fish. Coldwater fish may relocate to deeper waters than those typically fished with nets if Lake Michigan warms. Lake whitefish reproduction will likely decline as well. When thick ice cover is not present, wind mixes up lake bottom sediments, covering their eggs. Climate change may make the lake more hospitable for exotic species that lead to reductions in native species populations. Pollutant concentrations in the water may increase. This could impact fish health, consumption, and sales. Climate change is also predicted to bring about more extreme weather events. Storms and flooding may limit safe boating days and change stream inputs. Timing and quality of runoff can affect fish survival. On the other hand, climate change may have some positive effects. Populations of warm water fish that also have commercial value may grow and the fishing season may lengthen due to warmer weather.

Learn more by searching the internet for <fishing + "Lake Michigan" + "climate change">.

Head of state tourism

Head of the Tourism Department for the State

Tourism and recreation account for approximately $7 billion in revenue annually in Wisconsin. Common activities for tourists include boating, fishing, hunting, snowmobiling, skiing, and visiting attractions across the state.

Climate change may alter the types of activities and therefore the regions of Wisconsin that the state's Department of Tourism promotes. Since tourism is a big industry in Wisconsin, such changes could have major impacts on the livelihoods of people across the state. Winter sports will probably be most affected by climate change because of warmer temperatures and more sporadic snow. The distribution of plants and animals may shift. Aquatic and terrestrial habitats may support a new mix of species, affecting activities like fishing, hunting, and bird watching. Diseases spread by insects, pollution, and heat-related illnesses may increase.

To learn more, search the internet for <tourism + Wisconsin + "climate change">. Among other resources, look for a Union of Concerned Scientists report.

Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

Lake biologist

University of Wisconsin lake biologist

Lake biology is a study of aquatic organisms, water quality, and interactions between a lake's organisms and their environment.

Research is continuing on how human-induced climate change is likely to affect natural systems. Water quantity and quality will be impacted by temperature and precipitation pattern changes. Scientists have already observed increasing water temperatures and decreasing periods of ice cover. Lake levels are expected to drop. Certain cold water species like trout may disappear locally due to changing conditions while other species such as warm water bass, algae, zebra mussels, and exotic sea lampreys might increase in abundance. Insects and diseases may also increase, making the outdoors a more hazardous work place for lake biologists. Costly and time-consuming lake restoration projects could become more common in an effort to maintain functioning lake communities.

Learn more with an internet search on: <lakes + "climate change" + Wisconsin>. Among other resources, look for the Environmental Protection Agency's trail cards about climate change and wildlife and for an article by the Union of Concerned Scientists.

Pick an outdoor hobby for your character. How might climate change affect that hobby?

Head of power plant

Head of an electric power plant in Wisconsin

The U.S. consumes more electricity per year than any other country. We depend on electricity to keep our food safe, lights on, computers and appliances working, and houses warm or cool. Generating electricity from fossil fuels like coal is the number one source of greenhouse gas emissions. Coal accounts for 70% of the energy used in Wisconsin to produce electricity.

Electricity use may shift with climate change. Hotter summers may result in more air conditioning while warmer winters will mean reduced heating. Thermal power plants, including coal-burning and nuclear plants, are less efficient as temperatures warm. Hydroelectric power plants may be less effective if stream levels drop. Warmer temperatures also affect transmission lines, increasing blackouts. To combat climate change, alternatives to fossil fuels may be favored and electric power plants would need to invest in new technologies. Because building new power plants is very expensive, electric utilities encourage energy conservation—they actually can make more money if people use less energy!

Learn more by searching the internet on: <electric + generation +"climate change">. Along with other resources, look for an August 2008 article in *Geotimes* and for energy statistics from Wisconsin's Office of Energy Independence.

Avid gardener

Gardening enthusiast

Gardening can be a relaxing and inexpensive hobby. It can also be a costly and time-consuming hobby if plantings include species requiring frequent watering, fertilizing, or being inside for winter. Before buying plants, gardeners refer to plant hardiness zone maps to determine which plants will survive their winters.

Between 1990 and 2006, plant hardiness zones were changed across much of Wisconsin to reflect warmer average minimum temperatures in winter. This means less hardy plants can now survive here. The ranges of unwanted weed species are likely to shift and even expand with the changing climate. Climate change will also alter precipitation patterns—long dry periods will increase the need for watering while intense rains may drown some plants. Native plant gardening is growing in popularity because species that evolved here require less maintenance, but climate change could make Wisconsin inhospitable for some of our own native plants.

Learn more by doing an internet search on: <plants + hardiness + "climate change" + Wisconsin>. Along with other resources, look for a 2007 article about gardening in the *New York Times* by Shailia Dewan and an Arbor Day Foundation animation of the hardiness zone changes.

Beekeeper

Wisconsin beekeeper and honey producer

Honey bees produce honey, but also are critical for pollinating crops to produce seeds and fruits. The honey bee is Wisconsin's state insect.

Climate change is predicted to include overall warming and more extreme weather events. Honey bees are very sensitive to spring cold snaps. They rely on plant pollen and nectar for food. If blooming times are out of sync with bee activity, both plants and bees are likely to suffer. Wild bees and managed honey bees are disappearing at unprecedented rates. As of 2008, the cause of bee colony collapse is still uncertain but some theories include long distance movement of bees, pesticides, genetically modified organisms, mites, diseases, and malnutrition. Climate change may exacerbate bee colony collapse by increasing stress and decreasing food availability, weakening their immune systems. Climate change may make honey and beeswax production more difficult and lead to the decline of important pollinators.

To learn more try an internet search on: <bees + "climate change">.

Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

Island resident

Washington Islander

Washington Island is in Lake Michigan off the tip of the Door County peninsula. Year-round residents and visitors depend on a ferry to get themselves and any goods or supplies to and from this Wisconsin island.

Water levels in Lake Michigan have been dropping for a number of years and, in 2007, were nearing historic lows. The cause is unknown: some believe climate change has increased evaporation from the lake, especially in winter as there is less ice cover, as well as decreased rainfall to replenish the lake. Other theories include natural lake level fluctuations and water loss from dredging a river to Lake St. Clair and Lake Erie.

Low water levels mean the channel for the ferry has to be dredged, which is both expensive and disrupts the lake bottom affecting water quality and aquatic habitat.

To learn more try an internet search on: <"Lake Michigan" + "lake level" + "Washington island">. Look for a January 2008 *Washington Post* story on Great Lakes water levels and a July 2001 *Milwaukee Journal Sentinel* article on Lake Michigan levels receding.

Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

SCUBA diver

Avid recreational SCUBA diver

SCUBA stands for self-contained underwater breathing apparatus. In Wisconsin, recreational SCUBA divers enjoy exploring shipwrecks and caves and viewing underwater creatures. But many SCUBA divers love to dive in warm seas viewing colorful coral reefs. Coral reefs are formed by many tiny organisms (coral polyps) that secrete calcium carbonate to form hard exoskeletons that make up the structure of the reefs. Corals often have special relationships with algae and fish, making the reef a rich biodiverse ecosystem essential to a host of other marine organisms. They are critical to many fish species we use for food and are a source of compounds used in medicine.

Coral reefs are sensitive to a variety of environmental factors including physical disturbance, excessive nutrients, salinity, and pH. Coral polyps are extremely sensitive to temperature and are already living very close to their upper temperature limits. Global warming may lead to widespread coral death and degradation with the subsequent collapse of coral reef ecosystems. A report by the World Wildlife Fund estimates 24% of coral reefs are already at imminent risk of collapse.

Learn more with an internet search on: <"coral reef" + "climate change">. Along with other resources, look for an article at *Encyclopedia of Earth* about climate change and coral reefs, an April 2005 *Science Daily* story, and a report from the Pew Center about climate impacts on coral reefs.

Baseball bat manufacturer

Wisconsin-based baseball bat manufacturer

Professional baseball players only use solid wood bats. Today wood bats are made from white ash or sugar maple trees. Both tree species grow in Wisconsin, although sugar maple, the state tree, is more common. Maple bats are increasing in popularity and may soon become the primary option because of a devastating pest killing ash trees across the country.

In addition to ash being under attack by exotic beetles, climate change is also predicted to make ash a less suitable wood for baseball bats. Warmer temperatures and longer growing seasons will likely result in a softer wood rather than the hard, dense wood optimal for bats. Maple wood may suffer similar consequences and maple tree range in the state may decline. Wood bat manufacturers may need to import their wood from colder climates or shift production to use different materials. Baseball and other warm weather sports may become more popular as the summers get longer.

To learn more search on: <"baseball bats" + "climate change">. Look for a July 2007 *New York Times* article.

Park ranger

Apostle Islands park ranger

The National Park Service (NPS), according to its mission, "preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations." One of its northernmost parks, Apostle Islands National Lakeshore, consists of 12 miles of mainland Wisconsin along Lake Superior and 21 islands. Park rangers carry out a variety of duties including education, fire control, park management, and campground operation.

Climate change will make it difficult for the NPS to achieve its mission. Northern parks, like the Apostle Islands, are expecting to see greater warming than southern parks. Plant and animal species' life cycle events are expected to occur earlier, and it is feared that crucial relationships between species may get out of sync (e.g. predator/prey, flower/pollinator). Species distributions may shift northward or some species may disappear, changing the overall character of parks. The summer recreation season at the Apostle Islands may lengthen but insect pest populations are also expected to increase. Shoreline park facilities may need to be updated to accommodate predicted lower water levels. Extreme weather events that are expected with climate change would impact park visitor experiences and may damage park buildings and roads.

Learn more with an internet search on: <"climate change" + "Apostle Islands" OR "Lake Superior">.

Store owner

Air conditioner store owner

Air conditioners use 5% of the electricity produced in the United States. Due to fossil fuel combustion for the electricity, and because they contain potent greenhouse gases, fluorocarbons, air conditioners make significant contributions to climate change. In order to combat climate change, greenhouse gas emissions will need to be drastically reduced.

However, warmer temperatures predicted due to global warming will likely result in greater demand for air conditioners in homes and businesses. Air conditioner sellers may experience increases in business but see a change in the products requested. Energy efficient units, like those qualified as Energy Star, may sell better and air conditioner sales and repairmen may need to meet higher environmental standards.

Learn more with an internet search on: <"air conditioning" + "climate change" + Wisconsin>. Among other resources, look for an *International Herald Tribune* article about global warming and air conditioning in Italy and a Pew Center report from November 2006.

Zookeeper

Director of a large urban zoo

Well-managed zoos are concerned with the conservation of species worldwide and teach the public about species and conservation needs. Zoos may also lead off-site research to determine how animals behave in their natural environments. Zookeepers perform a wide range of duties including feeding, cleaning cages, monitoring animal health, performing research, and working with the public.

Climate change is predicted to result in the extinction of many animals. Animals living in the coldest regions near the poles will likely find it difficult to survive because they cannot migrate to reach optimal temperatures and their habitat range will decrease significantly. In 2008, polar bears were listed as federally threatened because the Arctic sea ice habitat is declining. As animal populations decline, zookeepers may be even more critical in preventing species extinctions through their research and breeding programs. Zookeepers' day-to-day jobs may also become more challenging with global warming as they attempt to mimic the animals' natural habitats to keep their animals healthy and safe.

Learn more with an internet search on: <zoos + "climate change">. Along with other resources, look for an article about the National Zoo's research on migratory birds and climate change.

Head of DNR

Head of Wisconsin Department of Natural Resources (DNR)

The primary mission of Wisconsin's Department of Natural Resources is to protect and enhance natural resources for current and future generations. The DNR is responsible for managing 1.4 million acres of state-owned land, maintaining a clean environment, and providing outdoor recreation opportunities. The agency balances the interests of multiple groups (e.g. loggers, snowmobilers, birders, anglers, factory owners, local citizens) and the health of natural resources during decision making.

Warming and extreme weather events predicted because of climate change may cause shifts in terrestrial and aquatic habitats, put endangered species further at risk, impact outdoor recreation, and increase problems such as damaged timber and exotic invasive species. DNR is in charge of regulating air pollution emissions that will likely be key in reducing greenhouse gases. The agency may also play a role in finding solutions, perhaps biofuel production or sequestering carbon on public lands.

Learn more with an internet search on <Wisconsin + DNR + "climate change">. Along with other resources, look for an article from *Wisconsin Natural Resources* magazine about warming trends.

Nonprofit agency volunteer

American Lung Association volunteer

Founded in 1904 the American Lung Association is a voluntary organization that works "to prevent lung disease and promote lung health." The organization conducts research, advocates for laws, communicates with doctors and patients, and educates the public about respiratory health. Along with some paid staff, there are more than 200,000 volunteers.

Warmer temperatures are predicted due to climate change. Hot weather can prove especially dangerous as it can convert air emissions into unhealthy ground-level ozone. Warmer temperatures can also lead to increases in forest fires, a source of airborne toxins. Plant pollen may increase and aggravate asthma and allergies. Climate change is also expected to bring more extreme weather events. More flooding could cause a rise in the species and abundance of molds, which can cause asthma and infections. To increase energy efficiency, buildings may be better insulated. As ventilation is reduced, mold and radon can become bigger problems. Radon is the main cause of lung cancer in non-smokers.

Learn more with an internet search on <"respiratory health" + "climate change">.

Recycling business

Owner of a recycling business

Recycling is the reuse of materials to make new products. Wisconsin's recycling law bans the incineration or landfilling of many items such as yard waste, tires, newspaper, glass, aluminum, and some plastics to encourage recycling. Recycling reduces waste, leads to the production of less air pollution than making products with unrecycled materials, and saves energy. Using recycled materials reduces electricity consumption and, thus, greenhouse gas emissions from the burning of fossil fuels. It also lessens emissions of greenhouse gases from incinerators and landfills.

As climate change awareness increases, more products may be recycled in an effort to reduce the production of greenhouse gases. Perhaps the use of recycled materials will be required for some products. This would increase the demand for recycled materials and the value.

Learn more with an internet search on <"climate change" + recycling>. Along with other resources, look for information on the University of Michigan's website.

Tree farmer

Wisconsin woodland owner and tree farmer

Tree farmers can refer to people who plant a single tree species such as balsam fir Christmas trees or manage their land for renewable forest products. Wisconsin's 16 million acres of forestland cover nearly half of the state. Individuals and families hold the largest portion (57%) and 260,000 private, non-industrial landowners own 9.7 million acres of woodland.

Climate change will bring warmer temperatures and more extreme weather events. Potential negative impacts include changes in the species of trees found in our natural forests, more drought and heat stress on forests, increased pest problems, and increased tree damage from wildfires and storms. Potential positive impacts of warming include new opportunities to sell trees for alternative energy or to be paid to maintain trees to lessen greenhouse gases; increased tree growth due to higher concentrations of carbon dioxide, a gas that plants need for photosynthesis; and longer growing seasons.

Learn more with an internet search on: <forest + "climate change">. Along with other resources, look for a story by the Union of Concerned Scientists about forests and climate change.

Pick an outdoor hobby for your character, maybe something you also like to do. How might climate change affect that hobby?

Epidemiologist

Wisconsin Department of Health epidemiologist

Epidemiologists study the health and illnesses of populations. They work to protect public health and prevent illness.

Climate change will cause warmer temperatures and more extreme weather events. In Wisconsin, warmer temperatures and longer warm-weather seasons may increase the spread of diseases carried by animals, like Lyme disease and West Nile virus.

Warmer temperatures will likely increase the range and spread of diseases more typically affiliated with tropical areas. Extreme weather events may lead to increases in waterborne diseases and communicable diseases. Communicable diseases usually associated with cold weather may decrease. The changing climate will result in new plants moving into an area and other plants disappearing, possibly triggering more allergies in some people and fewer in others. As the climate changes, epidemiologists will likely be challenged to keep up with rapidly changing disease patterns. Their research and recommendations for illness prevention may become more critical to everyone's well being.

Learn more with an internet search on: <disease + "climate change">. Along with other resources, look for an article in the *Canadian Medical Association Journal* (March 11, 2008) about disease distribution.

Sphagnum moss harvester

Wisconsin sphagnum moss harvester and supplier

Sphagnum moss grows in marshy areas. Its ability to hold 20 times its weight in water makes it invaluable in the garden/nursery business. Wisconsin—the only state that produces sphagnum moss commercially—produces 300,000 bales annually. The harvest runs from spring until marshes freeze in the fall. Central Wisconsin has beds of sphagnum that remained from a sprawling marshland created when the glaciers receded.

Sphagnum's relationship to climate change is unclear and under study. Warmer weather may lead to more rapid decay of this dominant plant of peat lands, producing more greenhouse gases.

Or, a warmer climate may increase the growth and accumulation of peat, thereby decreasing greenhouse gases. Scientists have used sphagnum moss as an indicator of climate change, studying the changes of its range. In sub-Antarctic areas, higher than average temperatures and wind speeds and lower than average humidity and precipitation are destroying moss beds.

Learn more with an internet search on: <"sphagnum moss" + Wisconsin + "climate change">. Among other resources, look for a February 1994 article by Gignac and Vitt.

Student

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High school student from your neighborhood

Students are our future. Their actions, choices, and future roles in society will either further exacerbate human-induced global climate change or, conversely, will reverse the process and protect our planet and society. Each student has his or her own hobbies, life-style choices, and hopes for a personal and professional future. What are yours?

What impacts do you have on the global climate right now? Human-induced climate change is caused by increases in greenhouse gases, mostly from energy use—gasoline-powered vehicles and the electricity it takes to heat our water; keep our lights on; warm and cool our houses; and run our computers, TVs, and other appliances. The effects of climate change aren't as simple as warmer winters and hotter summers. Expect more violent storms, changes in plants and animals around you, changing patterns of pests and disease, more expensive energy and transportation, etc.

To learn more about how climate change may affect you, try some internet searches on "climate change" combined with words that reflect what you like or would like to do. To understand how you can make a difference, search for "climate change" and words like "greener" or "solutions" or "actions."

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