EARTH SCIENCE LARSH NAME:_____

*Annotate the following article by highlighting important concepts. Additionally, include margin notes that tie in what you already know about Earth's systems, weather & climate.

7 Ways to Reduce CO2 Emissions Pollution in Industry

Steps Industry Can Take to Reduce Impact on Climate Change

BY MARNI EVANS Updated June 25, 2019

The Intergovernmental Panel on Climate Change (IPCC) has reported to the United Nations that the Earth's climate system is undoubtedly getting warmer and concluded that it is more than 90 percent likely that the accelerated warming of the past 50-60 years is due to human contributions.

As the levels of carbon dioxide (CO2) and other greenhouse gasses increase, more heat is "trapped" in the earth's atmosphere and global temperatures rise. It causes significant changes in the timing and length of the seasons as well as the amount and frequency of precipitation. Climate change can have effects on rising sea levels, flooding, droughts or a range of other ecosystem changes that affect life on earth.

How to Reduce CO2 Emissions in Industry

The Industry sector produces goods and raw materials for everyday use, every single day. The greenhouse gasses that industrial production emits are split into two categories:

Direct Emissions- Greenhouse emissions that are produced at the facility itself.

Indirect Emissions, which are associated with the facility's use of energy, but happens off-site.

Even relaxing comfort standards by turning down the heat while at night and keeping temperatures moderate at all times. Setting the thermostat just 2 degrees lower in winter and higher in summer could save about 2,000 pounds of carbon dioxide emissions each year.

The Top 7 Ways That the Industry Sector Can Reduce CO2 Emissions Include:

Measuring Carbon Footprint:

By assessing how much pollution an organization's actions generate, you can begin to see how changing a few policies here, and there can significantly reduce the overall carbon footprint.

A carbon footprint can be measured by undertaking a Greenhouse Gas (GHG) emissions assessment. Once the size of a carbon footprint is known, a strategy can be devised to reduce it, e.g., by technological developments, better process and product management, changed Green Public or Private Procurement (GPP), carbon capture, consumption strategies, and others.

Putting a Cap on It - Carbon Capping:

The United States Carbon Cap-and-Trade Plan is a policy that would essentially put a price on carbon dioxide emissions by auctioning off permits to emit the gas. Each large-scale emitter, or company, will have a limit on the amount of greenhouse gas that it can emit. The firm must have an “emissions permit” for every ton of carbon dioxide it releases into the atmosphere. These permits set an enforceable limit, or cap, on the amount of greenhouse gas pollution that the company is allowed to emit.

Over time, the limits become stricter, allowing less and less pollution, until the ultimate reduction goal is met. It is similar to the cap and trade program enacted by the Clean Air Act of 1990, which reduced the sulfur emissions that cause acid rain, and it met the goals at a much lower cost than industry or government predicted.

Reducing Energy Use (Buildings Are the Biggest Energy Users): The building industry now has more energy efficiency certifications than ever. The standards help set measurable and achievable goals for energy use reductions, and some of the most common certifications include:

LEED for New Construction or Existing Buildings: Operations and Maintenance

Energy Star Target Finder
Net Zero Energy Building Certification
High-Performance Building Program by ICLEI

The industry sector can ensure new buildings are made to be energy efficient by earning any of these ratings. Each of the rating systems assists building owners in reducing the amount of energy used from 12% all the way to 100% reduction in typical building energy use.

Rewarding Green Commutes:

Encouraging employees to switch to public transportation, carpooling, biking, telecommuting and other innovative ways to save energy and reduce greenhouse gas emissions on the way to and from work can add up and have tremendous effects. Employers can offer commuter benefits that address limited or expensive parking, reduce traffic congestion, improve employee recruiting and retention and minimize the environmental impacts associated with drive-alone commuting.

Standing Up Against Coal, Tar Sands and Fossil Fuels:

Coal is the only fossil fuel (aside from unconventional fossil fuels, such as oil shale, tar sands, and methane hydrates) plentiful enough to contribute the amount of CO_2 necessary to trigger irreversible climate change. Businesses that make a conscious effort to switch from coal to more sustainable energy sources, such as wind or solar power, can help to reduce CO_2 emissions greatly.

Investing in Renewables:

If undertaking new energy-efficient building initiatives are out of the question, or an organization simply can't afford to put solar panels on buildings, there are alternatives. The mitigation of carbon footprints through the development of alternative projects, such as solar or wind energy or reforestation, represents one way of reducing a carbon footprint and is often known as Carbon Offsetting.

Learning to Adapt to Climate Change:

Climate change is already being felt in towns and cities across the country. Hundreds of municipalities have centered their climate change efforts on mitigation work and have successfully reduced their greenhouse gas emissions and lessened their climate impacts. However, with the increasing effects of climate change becoming apparent, municipalities are beginning to assess their vulnerability to the changes that are already underway, and developing responses that protect their citizens and their economies.

6 actions
preventing climate change

1. Reduce emissions

2. Save energy

3. Implement the 3 sustainability "Rs"

4. Your diet? A low-carbon one

5. Take action to save forests

6. Demand sustainable measures

Sustainability for all www.activesustainability.com

acciona

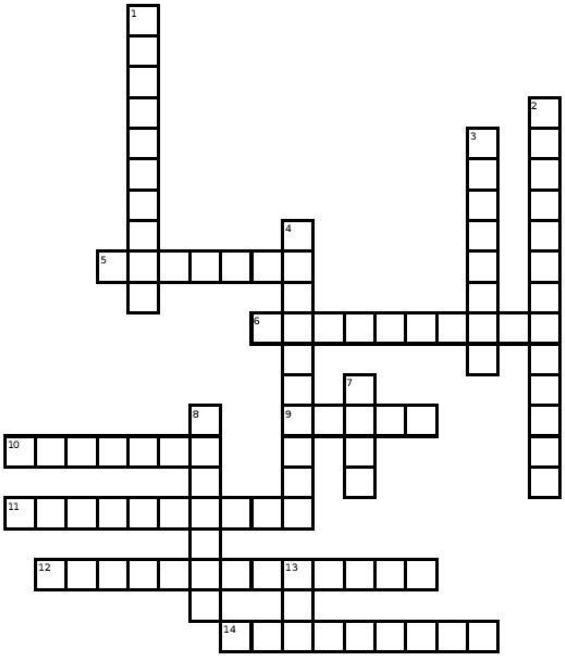
Choose 1 of the 6 actions you can take to help prevent / mitigate climate change shown on the previous page

Which step did you choose?

Why did you choose this step?

Explain how the step you choose will help to prevent / mitigate climate change using concepts and vocab covered in chapter 14.

Climate Change Crossword



Down:

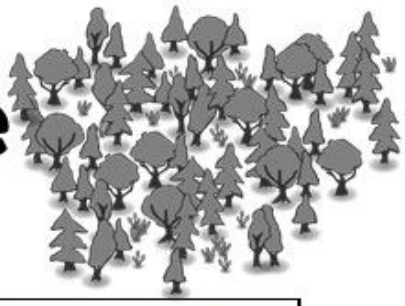
1. Created by refining petroleum oil. Burning of this substance often produces greenhouse gasses
2. When natural or pristine forest is removed for development or for the harvesting of lumber
3. substance that is released or discharged
4. The mixture of gasses that trap heat in Earth's atmosphere
7. A dark colored substance that is mined and burned for a form of "dirty" energy
8. The most abundant greenhouse gas. It is naturally produced when organic matter decays
13. Created by trapping dead plant and animal matter between layers of rock for hundreds of thousands to millions of years

Across:

5. The current conditions of the atmosphere. It can be effected by the water cycle, temperature, pressure, location, and human activity.
6. Ground that is permanently frozen. Now being seen thawing due to climate change
9. A gas made up of three atoms of oxygen bonded together that protects our planet from the suns ultraviolet rays
10. The pattern of weather over a long period of time
11. The mixture of gasses that envelope the earth
12. A colorless and odorless gas that is produced when fossil fuels are burnt.
14. A contaminating substance

Name: _____

Climate Change Word Search



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S	B	G	Z	W	P	F	T	N	M	O	K	W	P	S	H	E
P	S	X	G	R	E	E	N	H	O	U	S	E	G	A	S	L

FOSSIL FUEL
WEATHER
ATMOSPHERE
DEFORESTATION
CARBON DIOXIDE
GLOBAL WARMING
EVAPORATION
GLACIER
OZONE
NITROUS OXIDE
METHANE
GEOSPHERE
GREENHOUSE GAS
RADIATION
CLIMATE CHANGE

PRACTICAL ACTION

CLIMATE CHANGE

M	E	C	M	P	G	R	E	E	N	H	O	U	S	E	G	A	S
E	G	E	S	N	O	C	E	X	D	D	R	O	U	G	H	T	E
F	L	O	O	D	I	N	G	T	R	S	I	A	I	N	E	X	D
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O	B	G	Y	F	T	T	E	N	N	I	D	A	V	H	A	T	B
T	A	A	O	C	V	I	E	C	E	U	I	P	L	C	E	M	E
E	L	L	F	G	E	S	L	T	W	S	X	I	E	E	E	M	W
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A	U	F	O	C	G	H	E	I	Y	D	O	E	E	I	I	N	S
P	O	L	L	U	T	I	O	N	N	B	L	C	F	T	Y	L	E

CLIMATECHANGE
FLOODING
DROUGHT
TEMPERATURE
CARBONDIOXIDE
GREEN
GLOBALWARMING
GREENHOUSEGAS
POLLUTION
CARBONFOOTPRINT
SUSTAINABILITY
WEATHER
FOSSILFUEL
BIOFUEL
ENVIRONMENT
RECYCLE
RENEWABLEENERGY
EXTINCTION
METHANE
BIODIVERSITY
SEALEVEL