

Combustion in our Community

Combustion of fossil fuels plays an important role in our society. The reaction produces heat that we use to make electricity, heat homes, cook, and much more. As we have seen from our study of the combustion of ethanol, combustion of hydrocarbons also produces carbon dioxide. The carbon dioxide is a greenhouse gas that contributes to global climate change.

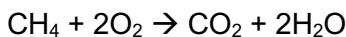
Your task is to design an infographic that helps your community become aware of the usefulness and the environmental impact of combustion of fossil fuels.

Gathering Information for your graphic

A. Fossil fuel combustion as a source of heat

Natural gas is a mixture of gases found underground in places where ancient plants and animals have decayed. It is a fossil fuel. It is about 95% methane (CH₄) with small amounts of other gases such as ethane (C₂H₆) and propane (C₃H₈) mixed in. It is commonly used in home heating and cooking. It can also be used to heat dryers and water in homes. Your school labs may be equipped with natural gas outlets for Bunsen burners. Some power plants burn natural gas to produce electricity.

The main component in natural gas is methane, CH₄. Like ethanol, it undergoes combustion.



1. Explain the energy transformations involved in the combustion of methane. Why does this reaction and the combustion of other fossil fuels generate heat?

2. How is natural gas used in your home or school?

3. Are any other fuels burned in your home or school? List the fuel(s) and their uses.

B. Hidden uses of fossil fuels. How much of your electricity comes from fossil fuel combustion?

Most of the electricity used in this country is generated by burning a fossil fuel like coal or natural gas. The heat produced is used to turn water into steam that turns a turbine. The energy sources used to generate electricity vary widely from state to state.

What fuels and sources of energy are used in your state? Use the *Energy Information Association* website (<https://www.eia.gov/state/>) to fill in the table below.

Top 4 energy sources for your state	Involves combustion?		Major uses of energy source
	Yes	No	

Digging Deeper

You can learn more about how electricity is generated from steam produced by combustion at the following web sites:

- <https://www.youtube.com/watch?v=ouWOhk1INjo>
- https://en.wikipedia.org/wiki/Thermal_power_station

Design an infographic

Design an infographic to raise your community’s awareness of how much our life styles depend on combustion of fossil fuels and how combustion of fossil fuels affects the environment. An infographic is a way of conveying information with pictures and graphs and few words. Infographics can take many forms: poster, brochure, webpage. You can choose any of these formats, but your infographic should include:

- the uses of fossil fuel combustion in your school or in homes in your community
- the role of combustion in producing electricity in your community
- why combustion of fossil fuels generates heat
- the impact of the resulting CO₂ on the environment