

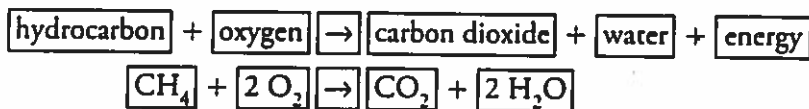
✓ CHECK YOUR LEARNING

Suggested Answers

- Sample answer:
 - I learned in this section about the formation of carbon monoxide, a deadly gas that can form in my house.
 - I understand how incomplete combustion of some hydrocarbons can produce this gas and that I need to ensure that this does not build up in my home.
- $S(s) + O_2(g) \rightarrow SO_2(g) + \text{energy}$
 - $2Ca(s) + O_2(g) \rightarrow 2CaO(s) + \text{energy}$
 - $C_3H_8(g) + 5O_2 \rightarrow 3CO_2 + 4H_2O + \text{energy}$
 - $C_2H_4(g) + 3O_2 \rightarrow 2CO_2 + 2H_2O + \text{energy}$
- hydrocarbon + oxygen \rightarrow carbon dioxide + water + energy
 - $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O + \text{energy}$
- The HHPS symbol on propane indicates that it is flammable and combustible. This means to keep the propane away from heat as it can explode or cause a fire.
 - Burning propane releases carbon dioxide which can be toxic in a closed space. If it undergoes incomplete combustion, carbon monoxide can be produced.
- Keeping your furnace running at peak performance will more completely burn the fuel source, releasing more energy into your home.
- Burning hydrogen is cleaner as there is almost no carbon dioxide released. It is also very readily available. All that is needed is energy to decompose water.
 - It takes energy to remove the hydrogen from water. This is energy that must be used to make a clean energy. So if the method of removing the hydrogen is one that releases a lot of carbon dioxide into the air, then it is possible that maybe this is not the best method to use.
- The five types of reactions that have been discussed are synthesis reactions, decomposition reactions, single displacement, double displacement, and combustion.
- The combustion of other elements, besides hydrocarbons, are typically synthesis reactions. For example, the combustion of magnesium forms magnesium oxide and the combustion of carbon forms carbon dioxide.
 - This occurs when a single element reacts with oxygen.

DIFFERENTIATED INSTRUCTION

- Visual and tactile learners may benefit from creating large cards that show generalized and specific equations for combustion. Cards should be made out of sturdy paper. Students can reuse some cards in different equations. For example:



Similar cards can be made for other reactions. Repeat the process, encouraging students to write additional equations in this format.

- Bodily/kinesthetic and visual/spatial learners might benefit from using models to demonstrate combustion reactions.