

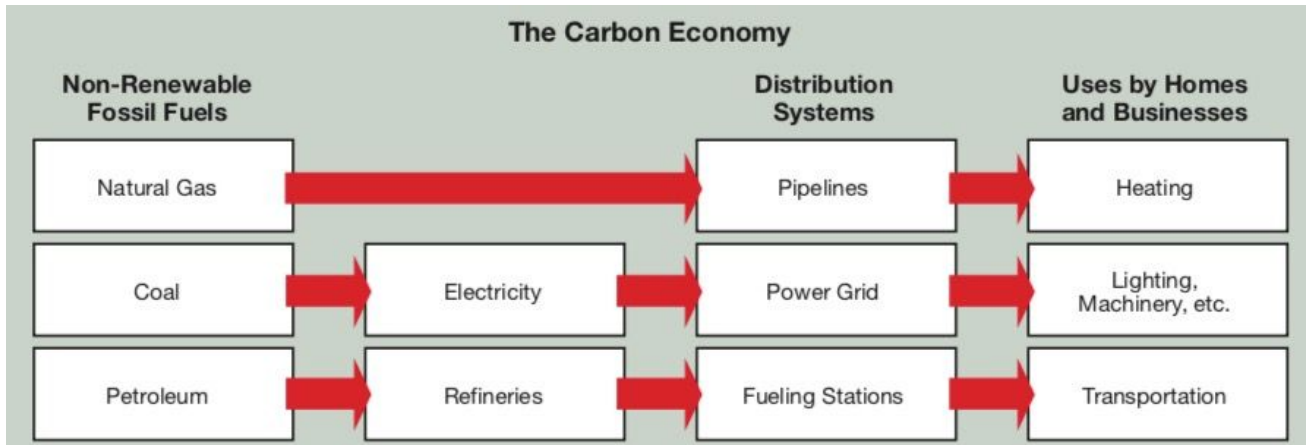
Science 30	Unit D: Energy and the Environment
Lesson 5 - Review	84 mins

# Science 30 - Lesson 41 - Unit D - Mid Review

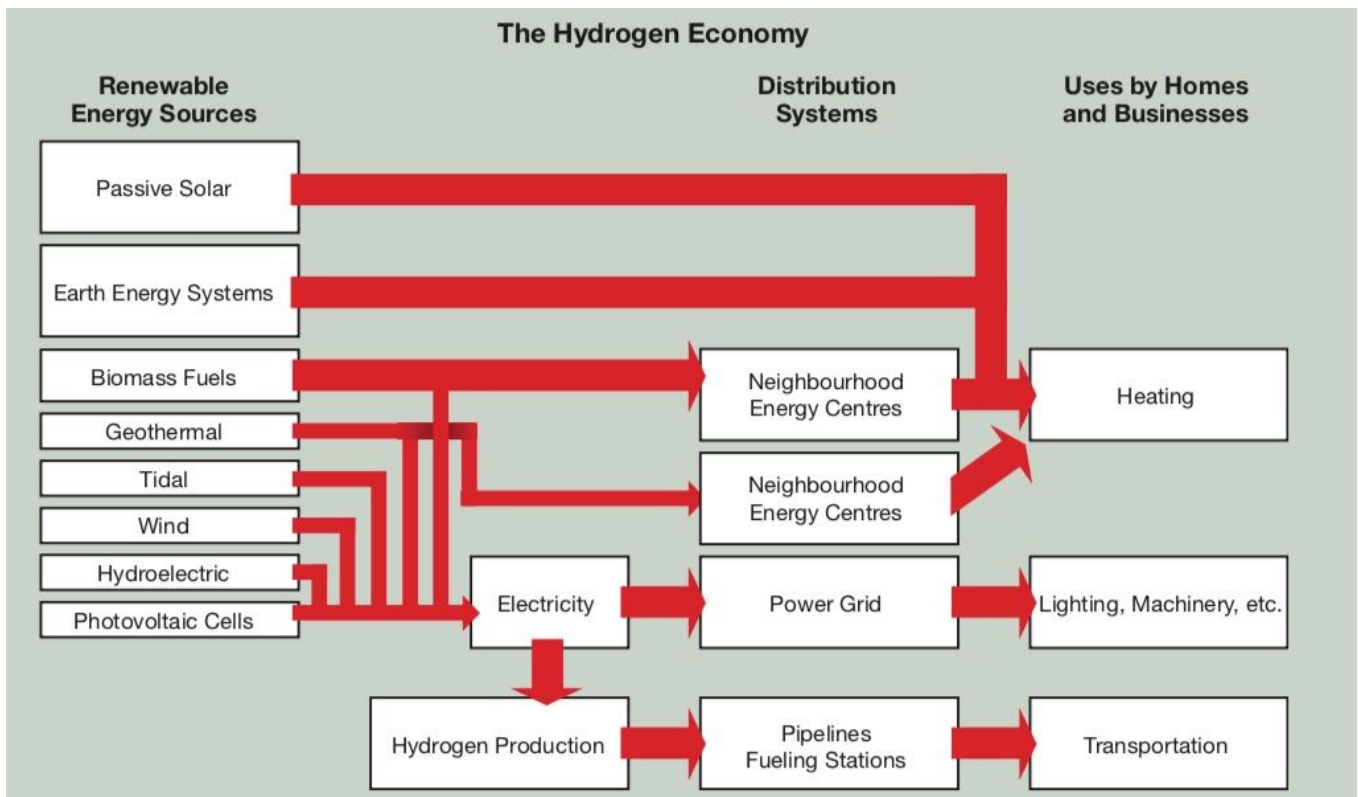
Name: \_\_\_\_\_

Many people think that within the next twenty years, hydrocarbons will no longer be primary sources of energy and that renewable energy sources will have increasing importance. One proposal calls for the use of renewable energy sources to generate electricity and for the use of hydrogen fuel cells in vehicles. Such a proposal would make hydrogen a primary fuel and result in the development of a hydrogen economy.

**carbon economy:** an economy that depends on fossil fuels as the primary source of energy, resulting in excessive emissions of carbon dioxide



**hydrogen economy:** an economy that depends on renewable sources of energy to generate electricity and depends upon hydrogen as the fuel for transportation



1) The following table summarizes the important renewable technologies studied in this chapter. Complete the table.

Renewable Technology	Original Energy Source	Main Use (e.g. heating, electricity)	Key Advantages	Key Disadvantages
Hydroelectric				
Tidal				
Wind				
Solar				
Earth energy system				
Photovoltaic cell				
Geothermal				
Biomass				

2) Explain the meaning of the term sustainable development.

3) A sustainable source of energy must satisfy criteria in three broad categories of sustainability. Describe the key characteristics that describe each of these categories.

4) Describe two renewable ways an individual household can generate electricity.

5) Describe the energy transformations that occur when electricity is produced from geothermal energy. Begin with the original source of the energy and finish with electricity.



11) Note that nuclear fission does not appear as an entry in the hydrogen economy or in the carbon economy. Yet many people think that nuclear power could play a critical role in a period of transition between the current carbon economy and the proposed hydrogen economy.

a) Suggest a reason why nuclear fission does not appear on the flowchart for the carbon economy or on the flowchart for the hydrogen economy.

b) Explain the role that nuclear fission could play during a period of transition between these two economies.