

17.1 Hidden Energy Uses: Background Information

What do you think of when somebody mentions energy use? Quite likely you think of lights, automobiles, heaters, or other appliances in and around the home. Have you ever considered the amount of energy that goes into manufacturing, transporting, selling, and **disposing** of the thousands of products that surround us?

Consider something as simple as a pencil. Where did the wood, metal, eraser, graphite ("lead"), and paint come from? What were the **raw materials**, how were they obtained and turned into the material used in the pencil? At what steps was energy used? What about energy and materials used in shipping the raw materials and final product? What about energy and materials used in the stores where the pencil is sold? Is energy used to sharpen the pencil? What happens to the stub after the pencil is used?

Table 17-A shows the distribution of commercial energy use in the United States in 1984.

17-A COMMERCIAL ENERGY USE IN THE UNITED STATES, 1984

Industrial Uses (37%)

heating and steam production	24%
electric drive	8%
raw material, feedstocks, etc.....	5%

Transportation Uses (25%*)

Private cars, etc.	16%
Commercial and public	9%

Residential (22%)

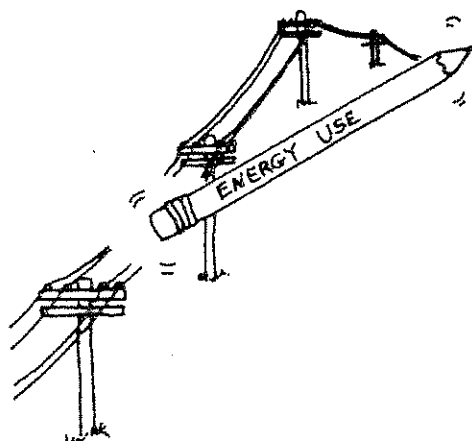
space heating	11%
water heating	3%
air conditioning	2%
lighting	2%
refrigeration	2%
other	2%

Commercial (16%)

space heating.....	6%
air conditioning.....	3%
lighting.....	3%
other	4%

*Actually, transportation amounts to closer to 50% of the energy used if the energy used to make the vehicles, refine fuels, build roads, produce parts, etc., is considered.

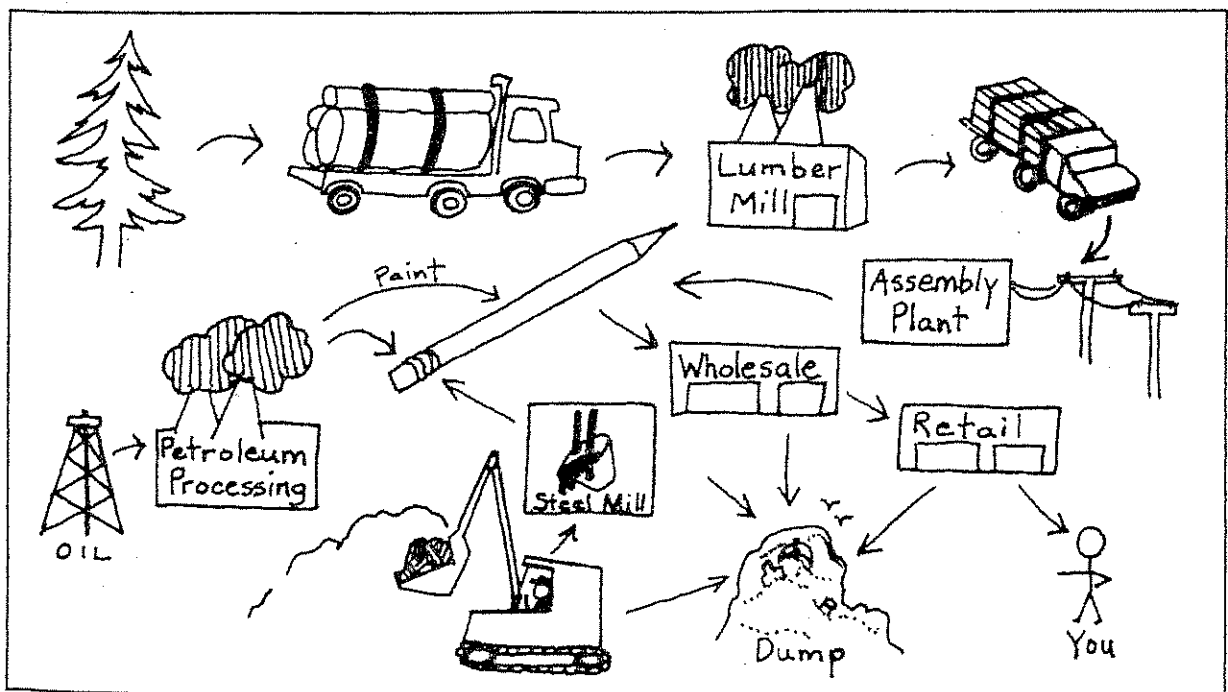
Examination of Table 17-A shows that most energy used in the United States is used to make, transport, and sell the thousands of products we buy. If we didn't purchase them, would the manufacturers make them? What if we were to purchase less, waste less, recycle more, and reuse more? Would both energy and material resources be saved?



17.2 Hidden Energy Uses: Instructions

1. As a team, think and talk about the energy and materials that have gone into your object. Consider at least the following:
 - a. Where did the raw materials come from and how were they obtained?
 - b. How was energy used in obtaining the raw materials?
 - c. How were the materials processed or refined?
 - d. How was the object manufactured?
 - e. How was the object transported?
 - f. What energy was used in selling or marketing the object?
 - g. Was energy used by the consumer in obtaining the object and using it?
 - h. Is energy used to dispose of the object?
2. Sketch your object at the center of your paper. Don't worry about making your sketch a work of art. Simple drawings are fine. Draw a diagram or "map" showing the path of the materials used in this object, from **raw materials** in nature to the **manufacturing** to the **marketing** to **use** to **disposal**.
3. In red, underline or circle each point on your map where energy is used.
4. As you do this activity, write down any questions you have. These might be such things as how something is made, where it comes from, or any other things that come up as you consider your object and its energy history.

An example of a simple energy and materials map (yours will have more detail):



Name _____ Class _____ Date _____

17.3 Hidden Energy Uses: Questions

1. In what ways is packaging an important use of energy and materials?

2. Discuss the idea that we, the consumers, control the manufacturing and commercial sectors of the economy.

3. How is the energy used in making a product paid for?

4. What is the difference between a "need" and a "want"?

5. List several things that you truly NEED.

6. List several things that most people in our society WANT.

7. When we throw something "away," has it truly gone away or is it just put somewhere else? Discuss this.

8. What happens to the energy stored in something that is "thrown away"?

9. What are some ways that you can help reduce the energy used in the manufacture of goods such as those used in this activity?
