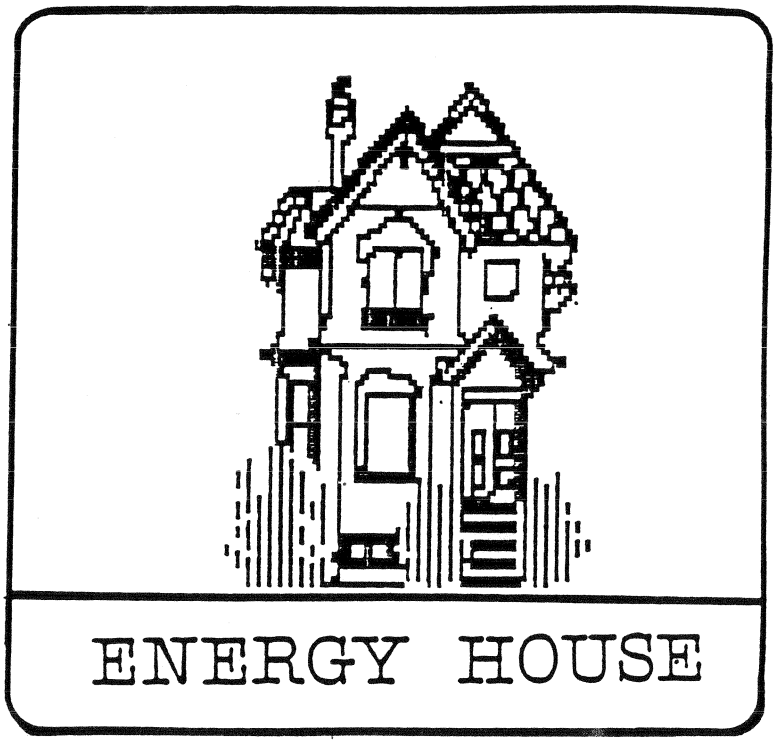
EXPLORING TECHNOLOGY



ENERGY HOUSE

NAME _____

PERIOD ____

This Learning Activity Packet
was Adapted & Written by
M. Blodgett, 1987

ENERGY HOUSE computer program is distributed by
MECC 3490 Lexington Ave. North, St. Paul, MN 55126
(612) 481-3500 Price: $49.00

RATIONALE

There are many things in our present day and age that one must know (or at least be aware of) in order to be considered a "literate person". In essense, a literate person is one who is able to function within and have some degree of control over their environment.

Within the context of ENERGY and its efficient use, a literate person should understand how their home uses energy, what "things" comsume energy in the home, and what to do about the unecessary (wasteful) use of this energy.

As energy costs continue to climb, conservation of energy becomes increasingly important. It also can be argued that conserving our national resources is the key to maintaining a high quality of life; many of our resources are running low.

The experiences gained in this module will provide the student with the opportunity to evaluate their own shelter and plan strategies for reduction of its energy consumption.

OBJECTIVES

1. The student will identify items which consume energy in their home.

2. The student will recongnize and understand efficient use of energy versus inefficient use of energy.

3. The student will understand the meaning of the term "conservation of energy.

4. The student will develop an awareness of controlling energy in the home.

ACTIVITIES

1. Read and become familiar with the ENABLING INFORMATION contained in this packet.

2. Obtain the ENERGY HOUSE floppy diskette from the Software Resource Board and begin the activity. Complete Activity Sheet #1 as you go through the program.

3. Read and become familiar with the vocabulary definitions on Activity Sheets #2a and #2b.

4. Complete the Energy Crossword Puzzle on Activity Sheet #4a using the clues from Activity Sheet #4b.

5. Using the information from both the Energy Crossword Puzzle and the Vocabulary Definitions, complete the questions on Activity Sheet #5.

6. Hand in Activity Sheets: #1, #4a, and #5 for grading.

ENABLING INFORMATION

Before you begin the Energy House program, you should know that the exercise takes place in the winter in a northern region and it is evening. You also should know that the Energy Wasters you are to find are making the house colder. Some of the problems you will find also waste energy (for example, having two lights on in a room and only using one). You are to assume that the house is correctly insulated and the furnace is working properly. The kinds of Energy Wasters you can find are similiar to problems you may notice and correct in your own home.

INSTRUCTIONS

1. Insert the floppy disk and turn on the computer. The CAPS LOCK key must be down.

2. Once the MENU appears select #2 for a description of the program.

3. Once you have become familiar with what you are to do, select #1 on the MENU and begin ENERGY HOUSE.

4. Enter you first and last name when you are asked for it. This saves the student record on the diskette for teacher evaluation.

5. Answer YES or NO depending upon whether you would like instructions or not.

6. Select seven (7) rooms and correct the "Energy Wasters" within each. Refer to the ENERGY HOUSE COMMAND LIST included with this packet OR type H for HELP. NOTE: Do this as accurately and as quickly as you can - YOU ARE BEING TIMED!

7. When all of the "Energy Wasters" in all seven rooms have been corrected, end the program by entering the command STOP.

8. Exit the program according to the instructions.

9. Power down the computer and return the floppy diskette to the Software Resource Board.

10. Complete the Activity Sheets as outlined in the ACTIVITIES section of this packet and turn them in to the instructor for grading.

ENERGY HOUSE COMMAND LIST

Turn off/on

LIGHT(S)

STEREO

TV

TELEVISION

RADIO

FAUCET

WATER

SHOWER

STOVE

BURNER

HEATER

SPACE HEATER

Close

WINDOW(S)

CURTAINS

DOOR(S)

FIREPLACE

REFRIGERATOR

FRIDGE

Others

WRAP PIPE(S)

WRAP WATER HEATER

FIX HOLE

FIX LEAK

FIX WATERHEATER

GO DOOR

LEAVE

LEAVE ROOM

GO BACK

STOP

(H)ELP

TURN DOWN THERMOSTAT

After typing a command, press RETURN. If the command is misspelled or spacing is incorrect, the computer will respond: "I do not understand." If a person is in the room some commands are not appropriate.

Activity Sheet # 1

ENERGY HOUSE

STUDENT RECORD SHEET

Name _____

ROOM	ACTIVITY	COMPUTER RESPONSE	SCORE %

TOTAL NUMBERS OF ROOMS	FINAL TIME	FINAL EFFICIENCY RATING

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Activity Sheet # 2a

VOCABULARY DEFINITIONS

1.	chemical energy	- Type of potential energy that holds particles of matter together.
2.	conduction	- Transfer of energy (heat) by direct contact.
3.	conservation	- Careful management and protection of a resource.
4.	convection	- Transfer of heat by movement of heated air or water.
5.	earth berms	- a hill of earth surrounding part or all of a house for insulation.
6.	electrical energy	- Type of kinetic energy in which charged particles move through wires.
7.	energy	- The ability to do work.
8.	energy chain	- The transfer of energy from one form to another.
9.	energy receiver	- A person or object receiving energy.
10.	energy source	- A person or object that gives off energy.
11.	energy transfer	- The movement of energy from a source to a receiver by waves.
12.	fossil fuels	- Fuels, such as coal, oil, or natural gas, formed from remains of plants and animals.
13.	gasohol	- A mix of gasoline and plant alcohol, such as corn.
14.	geothermal	- Steam heat from the earth's interior.
15.	heat energy	- The movement of particles of a substance.
16.	insulation	- Substance that helps prevent the passage of heat.
17.	kinetic energy	- Energy of moving matter.
18.	light energy	- A form of radiant energy which produce an illumination.

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Activity Sheet #2b

19.	mechanical energy	- Energy present in an object because of its position or its motion.
20.	nuclear	- Atomic energy resulting from fission or fusion.
21.	potential energy	- Energy which is stored.
22.	radiant energy	- Type of energy which travels in waves.
23.	radiation	- Transfer of energy through space in the form of waves or radiation.
24.	rationing	- Careful distribution of resources to prevent waste or over-consumption.
25.	renewable	- Energy source that can be replenished, such as solar or wind power.
26.	solar collectors	- Glass panels that collect solar radiation.
27.	solar energy	- Radiant energy from the sun.
28.	thermogram	- A photograph which shows where energy leaks occur in a house.
29.	thermostat	- A device which controls the heating and cooling system of a house.
30.	weatherizing	- To keep out temperature changes by insulating, caulking, or weather-stripping.

ENERGY HOUSE

Activity Sheet #4b

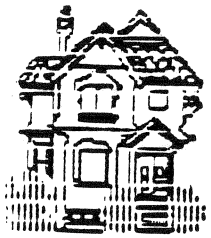
CROSSWORD CLUES

ACROSS

1. _____ is the transfer of energy from a source to a receiver by waves.
2. _____ is the most convenient form of energy.
3. Energy _____ occurs when energy moves from an energy source to an energy receiver.
4. A person or object that gives off energy. (2 words)
5. The ability to do work.
6. _____ occurs when heat is transferred by direct contact.
7. A device that controls the heating and cooling system of a building.
8. Energy of movement.
9. _____ energy is energy that holds particles of matter together.
10. _____ is one form of radiant energy.

DOWN

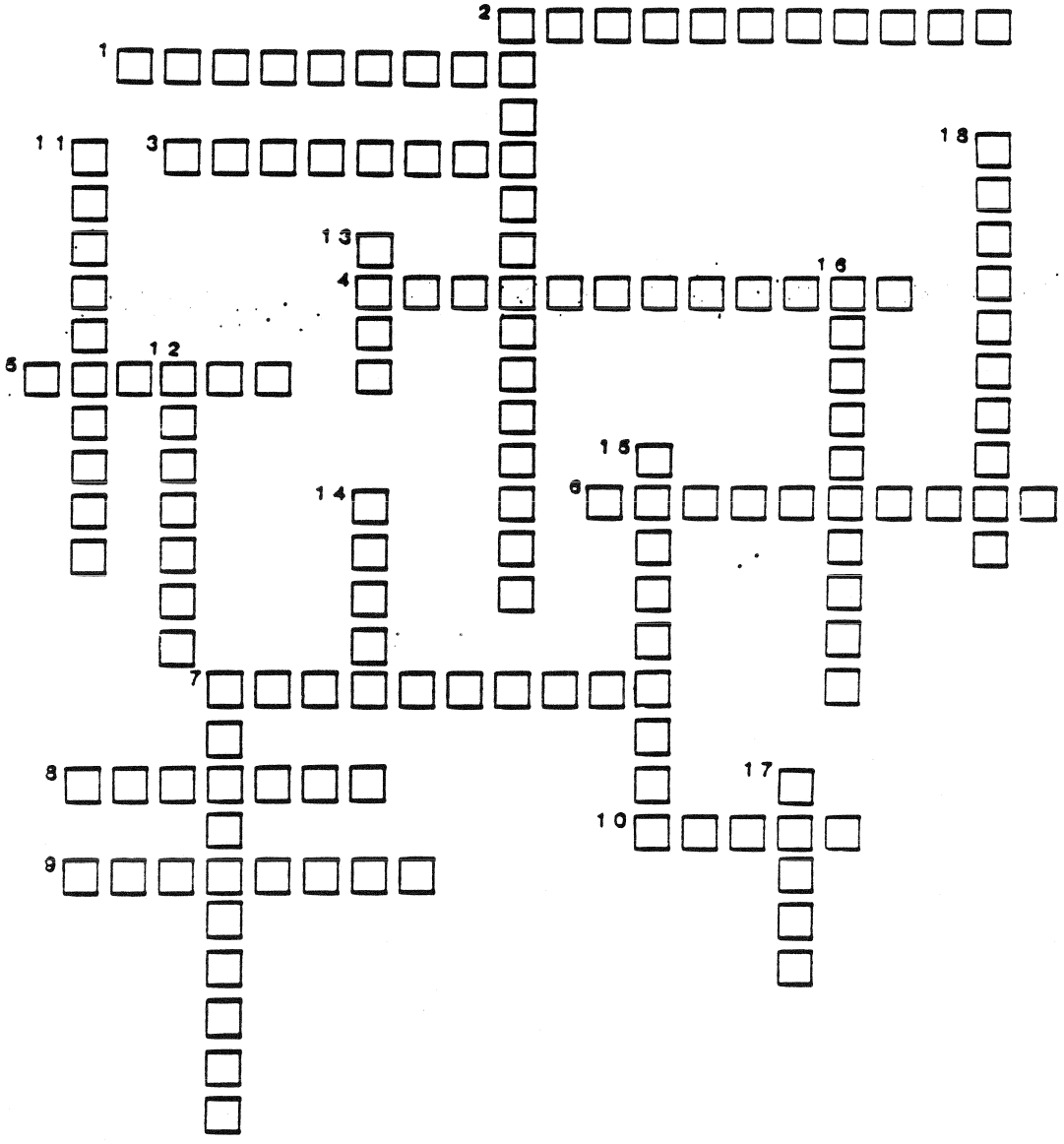
2. An object which obtains or receives energy. (2 words)
7. A heat picture.
11. _____ energy is the form of energy we see most often.
12. Type of energy which travels in waves.
13. A form of Kinetic energy that can cause ice to melt and water to boil.
14. Radiant energy from the sun.
15. Energy which is stored.
16. _____ is the transfer of heat by the movement of heated water or air.
17. An energy _____ is the transfer of energy from one form to another.
18. A substance which helps prevent the loss of heat.



ENERGY HOUSE

Activity Sheet #4a

ENERGY CROSSWORD PUZZLE



ACTIVITY SHEET #5

ENERGY QUESTIONS:

Using information from this Packet, Answer the Following Questions by Circling the Correct Word:

1. What form of energy is illustrated by the wind?

(Potential or Kinetic)

2. It is very bright in your bedroom and you decide to pull down the shade over the window. Light energy is now converted to what type of energy?

(Chemical, Light, Heat)

3. What part of a house loses the greatest amount of heat?

(Windows, Doors, Walls, Roof)

4. What is the biggest user of energy in a house?

(Oven, Lights, Heating System, Toaster)

5. It is easiest to convert sun light into what form of energy?

(Electric, Light, Heat)

6. Windows on the _____ side of a house do not help warm a house?

(North, South, East, West)