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CONSUMER SCIENCE: A VIEWPOINT

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Introduction

As a member of the Iowa Academy of Science and a former Iowa teacher, I know that science teachers in Iowa are constantly striving to make their classes more interesting and meaningful to students. I would like to share with you some ideas generated by a group of twenty-three secondary school science teachers at Fitchburg State College in a summer workshop dealing with consumer science education.

Consumer Science

The goal of consumer science education is to teach basic scientific skills and knowledge useful to consumers. The understandings, attitudes and skills taught are necessary for making intelligent decisions in the market place. Three major components of a consumer science education are: (1) application of basic scientific knowledge in making decisions about services, products and materials frequently purchased; (2) research via surveys, questionnaires and personal interviews to better understand consumer attitudes and marketing methods; and (3) involvement in laboratory activities enabling students to make analyses of products, so they can make valid decisions concerning the price and quality of products consumed.

According to a 1970 United States Department of Agriculture report (5), the average consumer spends money in the following way (Table 1).

Table 1

Average Consumer Spending

Housing	31%
Food	21%
Transportation	17%
Clothing	12%
Medical	5%
Education	2%
Miscellaneous	<u>12%</u>
Total	100%

Based upon these figures, it seems reasonable to focus consumer education on the five categories that absorb the largest percentage of the average consumer's income.

From the study of Table 1, topics in Table 2 were developed by workshop participants, as the basis for a topical outline in a consumer science course. This outline is in no way meant to be definitive, and you can undoubtedly think of other organizational patterns.

Table 2

Consumer Science Topics

I. Housing

- | | |
|---------------------------------------------------------------------|----------------------------------|
| a. House paints | f. Lawn and garden fungicides |
| b. Furniture | g. Household insecticides |
| c. Home heating (including insulation, windows, siding and roofing) | h. Fire extinguishers |
| d. Septic tanks and waste disposal | i. Carpeting and floor coverings |
| e. Lawn and garden fertilizer | j. Floor wax |
| | k. Dishwashing liquids |
| | l. Light bulbs |

II. Food

- | | |
|----------------------|-------------------------------------|
| a. Breakfast cereals | f. Lunch meats |
| b. Eggs | g. Food additives |
| c. Sardines | h. Soups (home-made vs. commercial) |
| d. Margarine | i. Pet food |
| e. Hamburger | j. Cola and chips |

III. Transportation

- | | |
|-------------------------|------------------------------------------------------|
| a. Automobile purchase | d. Automobile tires |
| b. Automobile repairs | e. Automobile maintenance (including wax and polish) |
| c. Catalytic converters | |

IV. Clothing

- | | |
|----------------------------|----------------------------|
| a. Clothing in general | c. Stain and spot removers |
| b. Flame retardant fabrics | |

V. Medical

- | | |
|------------------------------------------------|------------------------------------------|
| a. Hypertension | d. Nonprescription drugs (aspirin, etc.) |
| b. Vitamins | e. Cosmetics |
| c. Prescription drugs (generic vs. brand name) | |

It is not the purpose of this paper to point out all of the basic scientific principles involved in teaching each of the outlined topics. It is apparent, however, that many of us who have taught science will need to do some serious research to up-date our own education in order to discuss catalytic converters and how they work, or what the various man-made fabrics are made of, or the chemistry of paints and waxes and other substances. This realization turned out to be the greatest challenge to the participants in the consumer science education workshop.

During the laboratory portion of the workshop, the following activities were pursued. Light bulbs were tested for brightness by using a photo cell. Eggs were candled and graded. Home-made soups were made and eaten, as were seven different kinds of cola and potato chips. The normal technique used for foods was to remove brand names from the various items, allow

participants to taste and record preferences, then inform the class of brand names and prices. It was amazing to find that in almost 90% of the studies, the least expensive items were considered equally good, although frequently the participants expressed, in writing, that they never use the "cheap stuff" at home.

Quality determinations should be made however, before final consumer decisions are formulated. In one case, twelve experimental plots were established on a lawn and treated with different fertilizers for comparative purposes. In other instances, stain removers were used on various fabrics and carpeting. Interviews with local pharmacists were quite revealing about the cost and value of the various medicines and drugs used. Various types of insulation were used to determine heat holding capacity. You would be amazed at the amount of botany (wood structure) and physics (construction) involved in the study of furniture. It turns out that there is also a great deal of basic psychology involved in marketing consumer products. In fact, consumer science is one of the most inter-and intra-disciplinary studies I can think of. A great deal of basic math is involved in determining the price per unit volume of the different products marketed. The number of variables that need to be controlled by the consumer, when making a purchase, is amazing.

Discussion

You may feel that you just don't have time in a school year to include consumer science in your course. I would reply, "What good is science if it is not made useful in the minds of average citizens?" Some teachers will readily teach this type of course to "unmotivated" students but not to "college bound" students. This seems to be a case of misplaced values. Quality consumer science education provides the opportunity to teach the applications to, and the implications of, science in the daily lives of everyone. Of the twenty-three science teachers in the Fitchburg workshop, twenty-one have introduced some consumer science into their classrooms. I invite you to join them in this adventure. The following references will be useful and some of the curriculum materials in ISIS and other modern science curricula are readily adapted to consumer science education.

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