

Activity

What Makes a Good Radiator?

What to use:
2 soup cans
water
thermometer
measuring cup
hot pad
pencil and paper

What to do:

Part A
1. Copy the chart below.

Water Temperature

Black Can
Cool water Hot water

Time in Minutes

30
20
10
0

1. Use one black can of cool water. Measure each can to make 100 ml of water.

2. Place each can of water in a hot water bath.

3. Observe and record the temperature every 5 minutes.

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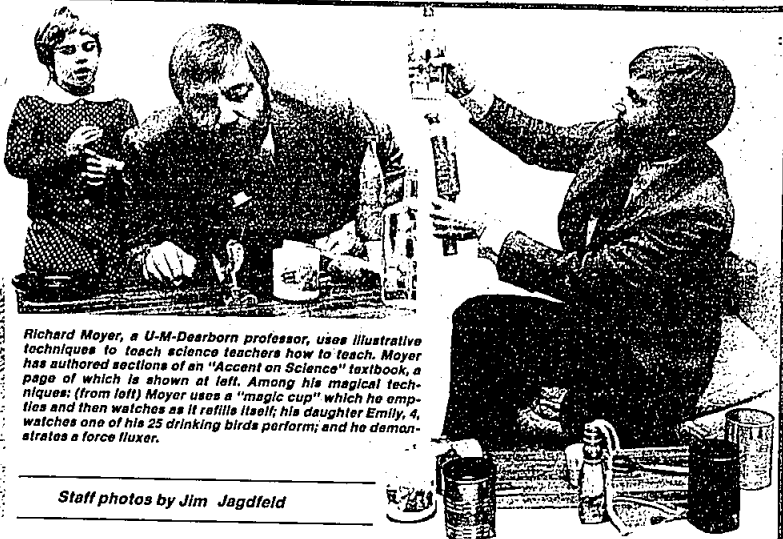
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Richard Moyer, a U-M-Dearborn professor, uses illustrative techniques to teach science teachers how to teach. Moyer has authored sections of an "Accent on Science" textbook, a page of which is shown at left. Among his magical techniques: (from left) Moyer uses a "magic cup" which he empties and then refills as it refills itself; his daughter Emily, 4, watches one of his 25 drinking birds perform; and he demonstrates a force fluxer.

Staff photos by Jim Jagdfeld

When science is magic, it's no bore

By Kathy Parrish
staff writer

Airport security officers never know what to make of Richard Moyer's black bag.

When he travels, the University of Michigan-Dearborn faculty member carries empty soup cans, balloons, string, bottles, paper, rubber bands, paper clips and corn starch.

And he usually throws in his force fluxer, which looks a little like a lethal weapon.

"I almost got arrested in O'Hare Airport," recalled Moyer, who told suspicious officers that he uses "junk stuff" to show teachers how to make science more interesting.

"Somehow they believed me."

INSTEAD OF glass beakers and Bunsen burners, the Plymouth resident does science experiments with household items such as pop bottles.

An associate professor of education, he travels around the country with his talk, "Science Dazzlers with Junk," which he will present at Metro Detroit Science Teachers Association's Nov. 12 meeting in Lakeview High School, St. Clair Shores.

A co-author of seven science books, he's now putting one together on his favorite topic.

"I just put some sciencey things together," explained Moyer, whose force fluxer, is a cardboard tube with a thread spool and a magnet attached to it.

"There's nothing forbidding about any of it. No tubes."

RECYCLING HOUSEHOLD junk for use in the classroom is something Moyer started when he was teaching middle school science 10 years ago. Once a week, he would come up with an experiment designed to get students thinking.

One favorite — which he still uses — is a red plastic bowl from a magic set. He empties water from the bowl into a soup can, and then it mysteriously refills itself.

"It's a magic trick, but it's based on a scientific principle," explained Moyer, who uses

the gimmick to talk about air pressure.

Usually, though, Moyer stays away from magic and relies on items that can be found at home. The idea is to provide teachers with inexpensive equipment and also to make science real to kids.

"IT GETS them talking about real life things," said Moyer, whose junk gets him into topics like why trees are round and why cities

are built in the wister.

In his ninth year on the Dearborn campus, he teaches methods of teaching science to elementary and secondary teachers and environmental education.

One of his main goals is to get teachers — who, he says, usually lack science backgrounds — excited about the subject. And to pass that enthusiasm on to youngsters.

"There's a crisis going on in science education," said Moyer, a member of the state Superintendent's Study Committee for Mathematics and Science. The committee is making recommendations for improving science education in Michigan.

"You go into a first grade room and do science — the kids love it. But by junior high, they're turned off. They don't see it as relevant, and they see it as hard. But it doesn't have to be."

MOYER SAID that in U.S. high schools, only half the students take chemistry and only 9 percent physics.

He thinks one problem is the stereotype people have of scientists as Caucasian males who wear lab coats and use glassware. "And they're evil looking. You wouldn't want your daughter to bring one home after church," said the professor with a smile.

The science series he co-authored for Charles Merrill Publishing Co. attempts to do away with some of those stereotypes. "Accent on Science" deals with real life situations which young readers could use the experiments.

In his college classes, Moyer works at helping teachers handle science with ease. "I try to get them not to be afraid to try these things."

Some of the experiments are classics which he has reworked to be more interesting to students. He has added his "Star Wars"-like force fluxer to the traditional Cartesian diver experiment to give it a little more punch. ("I used to have one with a light bulb on the end — it was sexier," he said.)

Most of the experiments are "marvelously discrepant" experiments which fool kids because they don't do what they're expected to.

A favorite experiment consists simply of two soup cans — one black and one silver — which keep water hot for different lengths of time.

"We need to apply teaching to real life stuff and not just deal with the cliché."

He believes youths need some science education to eventually vote on issues like nuclear waste and energy — which are all related to physics. And they're not getting that background.

"If you're a romantic like me and believe in democracy, that's terrible."

INSIDE ANGLES

Know someone doing something notable? Let us know. Write: Inside Angles, Farmington Observer, 23352 Farmington Road, Farmington 48024.

THE NORTH FARMINGTON HIGH SCHOOL Booster Club Day held Nov. 2 and sponsored by Great Scott Supermarket on Orchard Lake Road, helped raise \$4,170 for the school's athletic, academic, theatrical and music programs. The proceeds represented a percentage of the store's Nov. 2 sales. The Booster Club, comprised of parents of North Farmington students, have allocated \$1,000 for school landscaping. As customers left the store, a free grocery item was placed in with their purchases as a way of saying "Thank you for supporting Great Scott's Booster Day from North Farmington High School."

COULD YOU HELP someone if he or she were having a heart attack? Come to the mended heart meeting Nov. 29 at 7:30 p.m. in the Michigan Heart Association Building, lower level, 16310 West 12 Mile Road, Southfield. A class will be given on C.P.R. All are welcome. For more information, call 557-9500.

THE FARMINGTON AREA JAYCEES have Entertainment Passbooks '84 for sale during the Christmas shopping season. Priced at \$19.95, they make excellent Christmas gifts. If you would like to order one call, 477-JCCS.

FARMINGTON GOODFELLOWS need your help. With more families and senior citizens to serve and the natural attrition of the Goodfellow ranks, more volunteers are needed in every phase of the program. Call 474-3440 and say: "I want to help the Goodfellows keep their promise: No Child or Senior Citizen Without a Christmas."

EDWIN PICKENS, a student at Farmington High School, has been awarded a first-place prize by Lawrence Institute of Technology for his outstanding score on the Junior Engineering Technical Society's (JETS) National Engineering Aptitude Search Test. David Hubbs, professor of mechanical engineering at LIT presented a plaque and a \$75 Savings Bond to Edwin. Jerry Allison, assistant principal at Farmington High was also on hand to offer congratulations.

GORDON SHARPE, a student at North Farmington High School, was also awarded a first-place prize by Lawrence Institute of Technology for his outstanding score on the Junior Engineering Technical Society's (JETS) National Engineering Aptitude Search Test. Richard Maslowski, chairman of LIT's electrical engineering department,

presented a plaque along with a \$75 Savings Bond to Gordon. Also on hand to offer congratulations was Clayton Graham, principal of North Farmington High School.

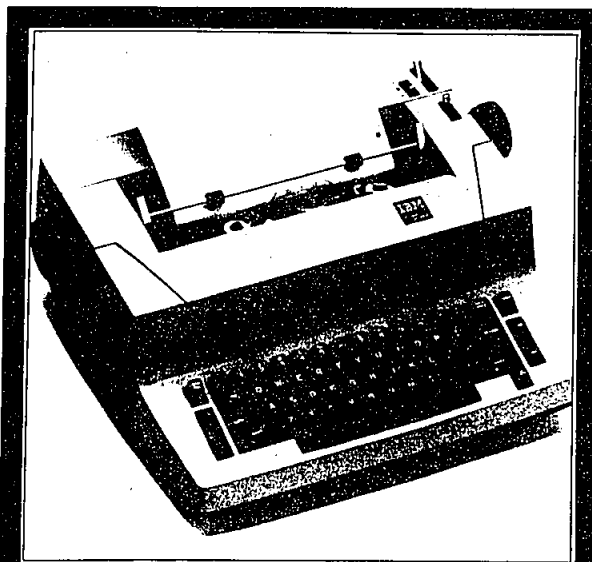
HOME ECONOMISTS talk turkey from now through Dec. 24 even on Thanksgiving Day and Christmas Eve. For any question at all concerning turkey, from how much to purchase to a last-minute in-the-oven crisis, the professionals on the Butterball Turkey Talk-Line will give the answer by calling toll free, 800-523-4848. They will even offer stuffing recipes, or recipes for side dishes.

TOMORROW NIGHT West Bloomfield Lanes will be filled with residents who live in Rolling Oaks Subdivision who are invited as guests of the manager. The invitation comes with the hope that interest will be sparked to get a bowling league started. The residents who want to see the bowling alley filled think it will be a good way to meet their neighbors.

DARCIE GOULETTE, daughter of Dennis and Nancy Goulette of Farmington Hills, and a 1983 graduate of Harrison High School, auditioned and was accepted in the Central Michigan University marching band. Darcie has completed her first season as a "Marching Chip."

WANT TO HELP a child at the Children's Hospital adopt a cuddly, stuffed teddy bear for the holidays? You can by entering one of your teddy bears in "The Most Loved Teddy 'Round Town" contest being held at Loyola Lorion Children's Apparel. Beginning Monday, Nov. 28, bears will be accepted at the store located in the Bloomfield Plaza, Telegraph at Maple Road. Judging by local celebrities for the oldest, largest, smallest, raggediest and best-dressed teddy will be Dec. 8 from 4-6 p.m. For every bear entered in the contest, a brand new bear will be given to a child at the Children's Hospital of Michigan. Help a child adopt a bear, enter your teddy bear in "The Most Loved Teddy 'Round Town" contest.

FARMINGTON HIGH TRACK CLUB is sponsoring a one mile fun run and a five mile road race on Saturday, Dec. 3, at 10 a.m. Both races will start and finish at Farmington High. Ribbons will be awarded to all one mile finishers, and trophies and medals will be awarded to the top finishers in each category in the five mile race. T-shirts will be given to all. Advance registration is \$5 until Nov. 21 and includes a special T-shirt. Refreshments will be provided to all participants. Proceeds will go to the Alpine Flying Eagles Ski Team — a Farmington Schools organization helping the handicapped through sports.



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