

# SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication  
Volume 130, No. 7, August 16, 1986

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Subscription Department  
231 West Center Street, Marion, Ohio 43305

Subscription rate: 1 yr., \$29.50; 2 yrs., \$50.00.  
(Foreign postage \$5.00 additional per year.) Change of  
address: Four to six weeks' notice is required. Please  
state exactly how magazine is to be addressed.  
Include zip code. For new subscriptions only call  
(1) 800-247-2160. Printed in U.S.A. Second class  
postage paid at Washington, D.C., and additional  
mailing offices. Title registered as trademark U.S. and  
Canadian Patent Offices. Published every Saturday by  
SCIENCE SERVICE, Inc., 1719 N St., N.W.,  
Washington, D.C. 20036. (202-785-2255)  
ISSN 0036-8423

## Letters

### Questioning the question

"If 130 schoolchildren are going on a picnic, and 50 can ride in each school bus, how many buses are needed to carry them all?"

Research consultant Tej Pandey's math question ("Math teachers question role of tests," SN:7/19/86,p.38), wherein three of the four multiple choices reflected accurate mathematics, is simply an invalid question by any rational criteria. It obviously had never been subjected to validation testing — and as a Californian, I find it discouraging that this question was given to "300,000 sixth graders." This is not a math question; it is some kind of elitist "head game" wherein we try to guess what the teacher wants.

Equally discouraging is the knowledge that hundreds of education professionals sat still for/participated in the discussion of the meaning and implications of the fact that only 39 percent of the students chose Pandey's "correct" answer although 94 percent did the computations correctly.

What is needed for good math instruction is very small school districts where parents and teachers can work together without the domi-

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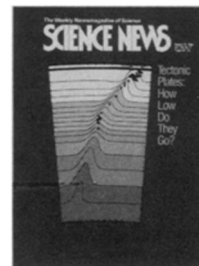
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- 106 Plunging Plates Cause a Stir

Cover: How deep into the mantle do the earth's tectonic plates descend when they slide beneath one another at subduction zones? Seismologists, using waves generated by earthquakes (shown as black dots) to visualize the descending plates, think they go well into the lower mantle, passing through what many scientists had assumed was an impenetrable boundary. (In this cross section, marked as A-A' on the map of the northwest Pacific on p. 107, the lower mantle begins about halfway down.) This finding is punching holes in a long-standing theory about the flow patterns of material in the mantle. (Illustration adapted from cross section developed by Kenneth C. Creager and Thomas H. Jordan/*JOURNAL OF GEOPHYSICAL RESEARCH*)



### Departments

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nation of massive staffs of experts or grand-standing politicians.

*James R. Murrow  
Northridge, Calif.*

**It really takes 2 $\frac{3}{5}$  buses** to transport the children to the picnic. It's in the wording of the question. The problem is not to find three-fifths of a bus but how the remaining 20 seats may be used. How are the supplies (hot dogs, sodas, mustard, etc.) going to get to the picnic site? Why not in the unused two-thirds of the bus?

A question should be constructed with the *one* correct answer in mind: "If 130 schoolchildren are going to a picnic, and 50 can ride in the school bus, how many trips will the bus have to make to carry them all to the picnic site?" One correct answer: 3 trips.

We'll worry about the hot dogs later — but they better be there, or you'll have more problems than bus space.

*Jay C. Wood  
Instructor, Technical Department  
Oxnard College  
Oxnard, Calif.*

**I'm so glad** you brought up the question of multiple choice tests. It's interesting to know that ours is the only country that uses such

tests, and they are one more reason why our educational system is not doing its job. I believe multiple choice tests were devised because they are easy to correct. The object is to make things easy for the educator; to hell with the student.

I don't think testing is in any way the problem, and I think it is a very necessary element in education. But in teaching mathematics, the teacher can make clear that there are two parts to the subject — the portion that one must learn in order to solve stated problems, and the portion that is involved with stating the problems in a mathematical manner so that they can be solved. Physics is taught as theoretical physics as well as applied physics. Engineering is the application of mathematics, chemistry and physics all at once. So in teaching mathematics, problems such as the one involving your buses should be given to children at the same time the children are learning to divide. I believe the whole purpose of education is to help people understand and fit into the world they live in, so whatever subject we teach them should be addressed to mastery of the mechanisms needed to utilize the subject to that end.

*William E. Young  
Asbury Park, N.J.*