



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

Review

Reviewed Work(s): Research on Mathematical Thinking of Young Children: Six Empirical Studies (P, L) by Leslie P. Steffe

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the student who enjoys mathematics for its own sake and is always asking delving questions, this, indeed, is the book. The material is suitable for mathematics clubs extra credit problems, or even for offbeat practice in the regular classroom with such ordinary things as simplifying fractions or decimals. For example, .3.2. is defined to be: $\frac{1}{2} + \frac{1}{2 \times 2} = \frac{1}{2}$ under the heading of Fracimals. Question: Can you write 3/5 in fracimal form? (Answer: .2.5.) The writing is lighthearted, with a minimum of discourse and a maximum of examples and exercises, probing questions, and suggestions for investigation.—BRISTOL.

Research on Mathematical Thinking of Young Children: Six Empirical Studies (P, L), Leslie P. Steffe, ed. 1975, v + 202 pp., \$3.90, discounts on quantity orders. National Council of Teachers of Mathematics, 1906 Association Dr., Reston, VA 22091.

This publication of the NCTM reports on six studies dealing with the formation of basic mathematical concepts by children four to six years of age. The studies presented are by nine different researchers, with an introduction by Leslie Steffe and a summary and implication by Kenneth Lovell. This is a significant compilation of experiments on how young children develop mathematical concepts.

The experiments cover equivalence and order relations for normal and disadvantaged children, classification and seriation, functional interdependence between classification, seriation and number concepts, selected parts of Boolean algebra, and liquid conservation and measurement problems as learned by young children. The report not only summarizes the findings of the six studies but makes comparisons with other research in similar areas, pointing out the strengths and weaknesses of each study and providing suggestions for further research on these and related problems.

Elementary teachers and professional educators should carefully study this publication because these experiments are an indication of the great need for more information on how young children develop mathematical concepts. The information provided by the studies will help the practicing teacher better solve some of the problems facing children in the classroom, and it provides some initial work on which researchers can base further experimentation.—PEAK.

Statistics: A First Course 2d ed. (Tt), John E. Freund. 1976, x + 374 pp., \$11.25. Prentice-Hall, Englewood Cliffs, NJ 07632.

The objective of this text is to reach the student at an elementary level. To do this the material, the language of the book, format, notation, exercises, and illustrations have been treated more from a practical than a purely mathematical point of view. (This does not detract from the excellent mathematics in this book.)

Topics in this hardbound edition include measures of central tendency, probability, variations, normal distribution, sampling, analysis of measurements, and

paired data. Some new material includes non-parametric methods and the Poisson distribution. These topics are clearly explored in standard expository style.

The content of the exercise sets is traditional but nevertheless interesting and is placed after every third or fourth topic. Sometimes new topics are introduced within these sets. There are no summary or chapter exercises.

Special features include a bibliography on statistics for the layman; the theory of probability and statistics; special topics; and general reference works and tables. The standard statistics tables are included.

It would help this lecture-mode text if a solutions booklet were included as a supplement for the student.—SPANGLER.

Successful Experiences in Teaching Metric (P, L), Jeffrey V. Odom, ed. 1976, x + 106 pp., \$2.30. U.S. Government Printing Office, Washington, DC 20402.

This National Bureau of Standards publication reports the conference proceedings of the 100th Anniversary of the Treaty of the Meter.

The nineteen presentations report the successful experiences of the contributors in teaching metrics. The presenters include public school teachers, mathematicians from universities, elementary specialists, librarians, representatives from the National Bureau of Standards, vocational educators, a member of Congress, and people from technical institutes.

These reports include methods of instruction, library materials, metric workshop structures, metrics in physical education, teaching metrics with the aid of TV, State Department leadership in metrication, and problems of transition from customary to metric. This report will be helpful to the school system looking for help in making the transition to metrics.—PEAK.

Symmetry Discovered: Concepts and Applications in Nature and Science (LS), Joe Rosen. 1975, xi + 138 pp., \$11.95. Cambridge University Press, 32 East 57th St., New York, NY 10022.

Every grade school child knows about symmetry to some extent. However, the author takes us into a fascinating world of symmetry beyond our childhood concepts. He explains absolute and approximate symmetry, where it is and how to find it. For the more sophisticated reader he relates symmetry to group theory. Throughout the text he illustrates with careful figures, and leads us step by step through the movements that result in the symmetrical figure. The material is written around problems that he poses and proceeds to explain. Attention is given to symmetries that are linear, planar, spatial, temporal, and permutational. Others are based on color, dilation analogy, approximate symmetries in nature, as well as special symmetries in science and research. There is something in this publication for several levels of student sophistication. As the author says, "Symmetry becomes a disease."—PEAK.