

Research Clip

Teaching Mathematical Problem Solving to Primary School Children

Supplied by the National Council of Teachers of Mathematics

Teachers can improve the problem solving abilities of primary school children by providing sustained practice with problems that can be solved in a variety of ways and encouraging children to share their ideas rather than working for correct answers alone.

- Jennifer has exactly four different coins, with four different values: \$.01, \$.02, \$.04 and \$.08. How many different amounts can she make using one or more of her coins?
- Natalie has baked less than two dozen cookies. When she tried to divide them equally among 2, 3 or 4 of her friends, one cookie was always left over. How many cookies did she bake?

Problems such as these involve little reading and few procedural steps. They are solvable by informal means, such as counting, rather than by the use of abstract mathematics. They can be dramatized and are of interest to children. With regular exposure to such problems, primary school children can be guided to formulate and share their ideas without fear

of being incorrect. As a consequence, they become more confident and proficient problem solvers, freer to take risks and tackle unfamiliar tasks. Classroom teachers make their greatest contribution when they provide a learning environment in which problem solving is viewed as an indispensable component of mathematics study and where it is understood that working for correct answers alone is not the most effective means of advancing young children's problem solving skills.

References

- Bruni, J.V. "Problem Solving for the Primary Grades." *Arithmetic Teacher* 29 (February 1982): 10-15.
- LeBlanc, J.F. "You Can Teach Problem Solving." *Arithmetic Teacher* 25 (November 1977): 16-20.
- LeBlanc, J.F., L. Proudfit and I.J. Putt. "Teaching Problem Solving in the Elementary School." In *Problem Solving in School Mathematics*, 1980 Yearbook of the National Council of Teachers of Mathematics. Reston, Virginia: The Council, 1980.
- Spencer, P.J., and F.K. Lester. "Second Graders Can Be Problem Solvers." *Arithmetic Teacher* 29 (September 1981): 15-17.
- Suydam, M.N. "Update on Research on Problem Solving: Implications for Classroom Teaching." *Arithmetic Teacher* 29 (February 1982): 56-59.