

THE CORNERSTONE CURRICULUM PROJECT

Why Johnny Can't Do Arithmetic?

by David Quine

People often ask me, "Does it really make any difference how math is taught?" Yes, it makes a world of difference. Actually a world view of difference — the Biblical world view or the secular world view. Which world view do you want to impart to your children?

The Look-Say System

In the Look-Say system for teaching reading, four colored illustrations and alphabet symbols exist side-by-side in the hope that words will be memorized. Words like dog or cat are printed upon a page with the corresponding pictures. Repeating a word over and over to oneself ... looking at the picture ... hoping to remember the word is a poor teaching system for teaching reading. Although the home school families recognize that the Look - Say System is a failed methodology for teaching reading, it remains the major teaching methodology for teaching math.

Repeat to yourself $3 \times 5 = 15$ until you can remember it is often the advice given for memorizing the math facts. In this application four colored illustrations or catchy little tunes are associated with numeric symbols in the hope that math facts will be memorized.

Even though a child can repeat math facts, does it mean that he understands what he is saying or singing? Just as the Look-Say teaching methodology does not teach a child to read, neither does it teach a child to do arithmetic. Just as to read means more than a child mindlessly parroting back words that he or she has seen, doing arithmetic means much more than repeating back a table of math facts. I should mean that our children are able to understand and use mathematics. The Look-Say approach to teaching math uses a certain technique of instruction known as drill and practice.

Drill and Practice

Drill and practice is a technique of instruction based upon the Look-Say teaching method. This technique is absolutely necessary for the memorization of math facts when the Look-Say teaching method is used. A child is taught a specific skill. This is followed by page after page of similar problems in the hope that the child will memorize the facts. The length of drill and practice may be limited to several days or spread out over very long periods of time.

It is interesting to note that this technique used by animals trainers to "teach" an animal to do tricks. What is the theory base for this teaching methodology?

The Behavioral View

The Look-Say teaching methodology is based upon a certain belief about people and how they learn. The educational psychology for the Look-Say teaching methodology is behaviorism. This system of education is based upon the thoughts and ideas of psychologists B.F. Skinner and Ivan Pavlov. In "Manipulation and the New Elite" from *How Should We Then Live?* Dr. Francis Schaeffer explains that according to the behavioral view man "has no soul, he has no mind; he neither initiates,

originates nor creates.... Man is accepted as a machine and he is treated as a machine ... Behaviorism is not something that we can simply dismiss. Its power is too great.”

This is part of what it means to look at life from a world view perspective. We must evaluate the basis of what we are doing in every area of life. Man is not an animal to be conditioned or a machine to be programmed. He is created in the image of the personal God. Using educational programs based on behaviorism, does not treat children as created in the image of God, but rather sees them as animals or calculators. This is one reason such emphasis is being placed upon ‘speed drills’ rather than word problems!

The Biblical View

The teaching of arithmetic should be based upon the view that people are a special creation of God with abilities and needs to worship, to create, and to reason. Therefore, math instruction would teach our children to reason, to understand, and to apply math facts to life - not simply parrot back information for tests! Math has been subdivided into concepts and skills. Some have even gone so far as to say that math is only a set of skills to be memorized. Is that true? Is a house simply a collection of bricks? When math is reduced to simply a set of skills to be memorized, understanding is lost and math becomes fragmented into many pieces much like a painting by Picasso.

You may be thinking, “But it is still necessary to provide drill and practice.” When a child understands something, when an idea has real meaning, the amount of drill is certainly reduced.

Actually, I believe that there is an alternative to hours and hours of meaningless repetition. I suggest that arithmetic lessons return to **use** and **application** of an idea and skill. For example, after the child has learned the multiplication tables from 1 to 5, he then uses a combination of these facts to learn the others. 8×7 is taught as a combination of 8×5 plus 8×2 , both within the 5 and under tables. The **use** and **application** of these previously learned facts to a new or different situation is far better than simply drilling the facts over and over again. Children using this approach are less likely to throw up their hands and give up when they are confronted with a new and different kind of arithmetic problem.

As Christian parents and educators, we must base our instruction upon the proper view of man. “Don’t be tossed here and there by every wave of doctrine, by the trickery of men (Ephesians 4:14)”... rather, build your family upon the Biblical world view! It does matter how math is taught.