

## Time Delay for Multiplication Facts

Wilson, M. A. & Robinson, G. L. (1997). The use of count-by and constant time delay methods of teaching basic multiplication facts using parent volunteer tutors. *Mathematics Education Research Journal* 9.2, 174-190.

**This targeted intervention helps students build fluency with basic multiplication facts by using a constant time-delay learning procedure.**

### Materials:

- Flash cards with basic multiplication facts

### Steps:

1. The teacher chooses five multiplication facts with its reverse (i.e.,  $4 \times 3$  and  $3 \times 4$ ), totaling 10 flash cards for each session, based on the student's needs.
2. The teacher uses the 10 flash cards twice during the session.
3. The first time the teacher goes through the flash cards with the student, a zero-second delay is used. Zero-second delay consists of the teacher giving the answer immediately after the student reads the fact aloud.
4. The second time the teacher goes through the flash cards with the student, a four second delay for 3<sup>rd</sup> and 4<sup>th</sup> grade students and a three second delay for 5<sup>th</sup> grade and above is used once the student reads the fact aloud.
5. If the student does not respond or responds incorrectly after the time delay in step 4, the teacher states the answer. The student is encouraged to "wait" for the teacher's help if the correct answer is not known in order to ensure that the student doesn't use random guesses.
6. Mastery of the facts are reached with 100% correct responses are given on three consecutive sessions for both combinations (i.e.,  $4 \times 3$  and  $3 \times 4$ ).