

### Phase 3: Working Toward Quick Recall

**Assumptions:** Prior to working on quick recall of any number combination. Students should be able to:

- Construct meaning of numbers and operation (Phase1)
- Use counting strategies (Phase1)
- Use reasoning strategies (Phase 2)

Working Toward Quick Recall is increasing the speed in which a student selects and applies a strategy. Mastery of basic facts means that a student can give a quick response (within 3 seconds) without resorting to non-efficient means, such as counting from 1. “All children are able to master the basic facts- including children with learning disabilities. All children can construct efficient mental tools that will help them” (Van De Walle, 2007, p. 165). Students must understand number, operation, and strategies before facts can become automatic. Children who commit the facts to memory easily are able to do so because they have constructed relationships among them and between operations in general.

Memorizing facts with flashcards or through drill and practice on worksheets will not develop these relationships. The issue here is not whether facts should eventually be memorized but how this memorization is achieved: by drill, practice, and memorization, or by focusing on relationships. “When relationships are the focus, there are far fewer facts to remember... Also, if a child forgets an answer, she/he has a quick way to come up with it” (Fosnot & Dolk, 2001, p. 99).

Drill, repetitive non-problem-based activity, can be used with students once they have acquired efficient strategies. Drill is appropriate for students who have a strategy that they understand, that they like, and that they know how to use, but have not yet become facile with it. Drill with an in-place strategy focuses students’ attention on that strategy and helps to make it more automatic (Van de Walle, 2007, p. 167).

It is critical that teachers do not introduce drill too soon. Premature drill “will certainly be ineffective, waste valuable time, and for many students contribute to a strong distaste for and a faulty view of learning mathematics” (Van De Walle, 2007, pg. 166). The positive value of drill should not be completely ignored. Drill of nearly any mental activity strengthens memory and retrieval capabilities. But, premature drill introduces no new information and encourages no new connections.

Teachers should individualize practice in such a way that students are using their preferred strategy. It is imperative that teachers listen to their students and keep track of the strategies that students are using. This will also help in identifying those students who have yet to develop an

efficient strategy for one or more collection of facts. [Practice](#) can take place in the form of individualized plans, [software](#), or games.

As students move toward quick recall, they will continue to use reasoning strategies to help build relationships among operations. Many of the strategies that are efficient, especially those for multiplication, will not be developed by all students without some exposure to them. That is, we cannot simply place all of our efforts on number relationships and the meanings of the operations and assume that fact mastery will happen by magic. Class discussions based on student solutions to story problems and other number tasks and games will bring a variety of strategies into the classroom. In order for the teacher to guide students to the invention of effective strategies, he/she must have command of as many good strategies as possible, even if he/she has never used them. With this knowledge, the teacher will be able to recognize effective strategies as students develop them and may help other students benefit from these classroom discussions (Van de Walle, 2007).

Because it is unreasonable to expect every student in a class to develop and be comfortable with the same strategies, different students will bring different strategies to the task and will develop strategies at different rates. It is unlikely that the entire class will be working on the same facts and using the same strategy at the same time. By creating a large number of activities promoting different strategies and addressing different collections of facts, it is not unreasonable to direct students to activities that are most useful for them (Van de Walle, 2007).

### **Timed Tests Caution**

Consider the following: “Teachers who use timed tests believe that the tests help children learn basic facts. This makes no instructional sense. Children who perform well under time pressure display their skills. Children who have difficulty with skills, or who work more slowly, run the risk of reinforcing wrong learning under pressure. In addition, children can become fearful and negative toward their math learning” (Burns, 2000, p. 157).

Although speed may encourage students to memorize facts, it is effective only for students who are goal oriented and who can perform in pressure situations. The pressure of speed can be debilitating and provides no positive benefits. Timed tests cannot promote reasoned approaches to fact mastery, will produce few long-lasting results, reward few, punish many and should generally be avoided. If there is anything defensible about a timed test for basic facts it may be for diagnosis- to determine which combinations are mastered and which remain to be learned. Even for diagnostic purposes there is little reason for a timed test more than once every couple of months (Van de Walle, 2006, p. 95-96).