

Stratograms

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Special Services Department



A Self-Monitoring Strategy in Math for Subtraction

This strategy is used to help students learn to use a self-monitoring technique to help them answer subtraction math problems. It also uses a mnemonic device that helps the students remember how to solve those subtraction problems once the self-monitoring procedure is slowly faded out.

The objective of this strategy is to get students to write the correct answers to multi-digit subtraction problems. These problems may or may not require regrouping, and the students use the 4B's mnemonic strategy to correctly answer these problems. This strategy will help students remember how to complete sequential steps when completing subtraction problems.

The following steps will teach a student the self-monitoring technique:

- Start in the 1s column.
- Determine which numeral in each column is bigger.
- Regroup if the bottom number is bigger.
- Check the basic facts (subtraction).



The student begins the first problem by looking at the first step in the list of directions which is listed at the top of the page. This direction prompts the student to select the 1s column as the correct starting place. Once this column has been identified, the student places a check mark on the line next to the word *Begin* above the 1s column. The student then locates the next step at the top of the page which prompts the student to decide which number in the 1s column is larger. Once they have identified which number is larger, they place a check mark on the line next to the word *Bigger* above the 1s column. Next, the student refers to the third step at the top of the page. This step involves the student determining if they need to borrow. Once they have made that determination, they place a check mark next to the word *Borrow* above the 1s column. The student then refers to the last step at the top of the page. This step prompts the student to do the subtraction of those numbers in the 1s column. Once they have completed the subtraction in column 1, a check mark is placed next to the words *Basic Facts* above the 1s column. When all the steps have been completed and checked off for column 1, the student moves to the 10s and then the 100s columns. Each column is completed and checked off in sequential order.

The mnemonic strategy "4B's" will help the students remember these 4 steps in the checklist. The "B's" help the students remember key words in each of the four steps. The B's are *Begin*, *Bigger*, *Borrow*, and *Basic Facts*.

A worksheet has been included to show how a student who is learning the self-monitoring procedure for subtraction problems would use this strategy. After the students have become skilled in solving arithmetic problems on worksheets that have the self-monitoring strategy, the teacher should encourage the students to fade out the written list of steps and rely more on the mnemonic device. The goal should be to lessen the dependence on the written checklist as soon as possible.

After the students have become successful in solving arithmetic problems on worksheets that have the self-monitoring strategy, the teacher should encourage them to fade out the written list of steps and rely more on the mnemonic device. This can be done by first removing the list of steps from the top of the worksheets and then later removing the checklist above each individual problem. The goal should be to lessen the dependence on the written checklist as soon as possible. If a student encounters difficulties in making the transition, they can have a small notecard with the list of steps needed to complete the problems, or a chart can be posted on the wall.

Subtraction Worksheet Using a Self-Monitoring Strategy

Name _____ Date _____

SUBTRACT: Remember the B's:

Begin? In the 1s column.

Bigger? Which number is bigger?

Borrow? If bottom number is bigger I must borrow.

Basic Facts? Remember them. Use Touch Math if needed.

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 876 \\ - 398 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 623 \\ - 15 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 56 \\ - 35 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 927 \\ - \quad 8 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 46 \\ - 15 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 836 \\ - 237 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 559 \\ - 229 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 408 \\ - \quad 53 \\ \hline \end{array}$$

_ Begin
 ___ Bigger
 ___ Borrow
 ___ Basic Facts

$$\begin{array}{r} 631 \\ - 441 \\ \hline \end{array}$$

References

Frank, Alan R., & Brown, Dianne. (1992, Winter). Self-Monitoring Strategies in Arithmetic. *Teaching Exceptional Children*, 24 (2), 52-53.