

Math Response Cards

Christle, C. A. & Schuster, J. W. (2003). The effects of using response cards on student participation, academic achievement, and on-task behavior during whole-class, math instruction. *Journal of Behavioral Education, 12*, 147-165.

Target/Goal: Increase students overall performance and responding/participation in math related activities, and/or decreasing problematic behaviors during whole-class or group math activities.

Summary: Phase I of the intervention requires taking baseline of student responding for an individual, a group of individuals, or the entire class depending on the intended use of the intervention. This should be done with the aid of a school psychologist or other professional. The teacher will instruct math time normally, with hand-raising or other techniques used while the professional records the baseline data. During this time period, the person implementing the intervention also needs to prepare and gather materials.

Necessary materials include:

- Dry erase markers
- Erasers
- Sheet protectors/Mini boards on which to write responses

Preparing own instruction cards can be helpful as well, but not necessary. For example, the instructor could draw a pie chart to illustrate a fraction question having the pie chart on the front of the card and the response on the back.

In phase II, the instructor begins using response cards during classroom math activities, rather than requiring students to raise their hand to answer questions. The instructor asks the math question, then instructs the students to write their responses on the cards. After giving them ample time to answer, the instructor tells them to raise the cards: "Cards up." The instructor also asks them to hold up the cards long enough to check all the responses. Then the instructor says, "That's correct. The answer is ____." Include praise to the students for responding to the question. Record data of student responding/participation during this time. Data can also be recorded regarding behavior if necessary.

In phase III, data is graphed and student performance on homework and tests may be analyzed. Data on behavior can be included. Data collected depends on the specified use of the intervention.

Possible Modifications: Technique can be used for general classroom instruction or in smaller groups. Can also use it to open up discussions for why students chose the answers written on their cards, allowing students to think through their answers as well as learn from the other students. This again, can be done with the entire class or in small groups. This intervention has potential to help the entire class as well as individual students.

This technique is not relative to math. It can be implemented for other subjects as well, such as science and social studies.

Progress Monitoring: Data can be recorded on participation and/or behavior depending on the intention of the implementer. Data can also be recorded on homework and test performance of math activities.

Treatment Integrity:

For each of the following questions, please answer “yes” or “no.”

1. Does each student have the necessary materials?
2. Has baseline data been taken accurately with several data points?
3. Are the students given ample time to respond to the questions?
4. Is positive reinforcement given for responding that is not relative to having the correct answer?

Supported By:

Armendariz, F., & Umbreit, J. (1999). Using active responding to reduce disruptive behavior in a general education classroom. *Journal of Positive Behavior Interventions, 1*, 152-158.

Cavanaugh, R. A., & Heward, W. L. (1996). Effects of response cards during lesson closure on the academic performance of secondary students in an earth science course. *Journal of Applied Behavior Analysis, 29*, 403-406.

Gardner, R. I., Heward, W. L., & Grossi, T. A. (1994). Effects of response cards on student participation and academic achievement: A systematic replication with inner-city students during whole-class science instruction. *Journal of Applied Behavior Analysis, 27*, 63-71.

Heward, W. L., Gardner, R. I., Cavanaugh, R. A., Courson, F. H., Grossi, T. A., & Barbetta, P. M. (1996). Everyone participates in this class: Using response cards to increase active student responses. *Teaching Exceptional Children, 28*, 4-11.

Narayan, J. S., Heward, W. L., Gardner, R. I., Courson, F. H., & Omness, C. K. (1990). Using response cards to increase student participation in an elementary classroom. *Journal of Applied Behavior Analysis, 23*, 483-490.