

Interpreting Math Graphics Using Question-Answer Relationships (QARs)

Mesmer, H. A. E., & Hutchins, E. J. (2002). Using QARs with charts and graphs. *The Reading Teacher*, 56, 21-27.

This targeted intervention is a 4-step instructional sequence (QAR) and a five-step problem-solving guide that helps students identify and interpret graphics in applied math problems.

Materials:

- Examples of the five common math graphics: table (grid with information in cells); chart (boxes with connecting lines or arrows); picture (figure with labels); line graph; and bar graph.
- Four index cards with titles and descriptions of each of the 4 QAR questions: (1) RIGHT THERE; (2) THINK AND SEARCH; (3) AUTHOR AND YOU; (4) ON MY OWN.
- The teacher prepares a series of data questions and correct answers which is paired with a math graphic containing information essential for finding the answer.
- Individual laminated card with the following five steps whenever solving an applied problem that includes a graphic:
 - Read the question
 - Review the graphic
 - Reread the question
 - Choose the appropriate QAR
 - Answer the question

Steps:

1. Students are taught how to recognize the characteristics of the five types of graphics. They are then directed to identify and name them.
2. The students learn how to interpret information contained in the graphics. The teacher discusses the following questions with the student(s):
“What information does this graphic present? What are strengths of this type of graphic for presenting data? What are the possible weaknesses?”

3. The student(s) read each teacher-prepared data question, studies the matching graphic, and verifies the provided answer as correct. Using the 4 index cards as a reference, the student(s) identify the type of question being asked.
4. The student(s) use the laminated card with the five problem-solving steps and the four QAR index cards to solve applied problems that include a math graphic.