

**ZMATH 2002e.03776**

**Watson, Jane M.; Moritz, Jonathan B.**

**Development of reasoning associated with pictographs: representing, interpreting, and predicting.**

Educ. Stud. Math. 48, No. 1, 47-81 (2001).

A developmental model involving four response levels is proposed concerning how students arrange pictures to represent data in a pictograph, how they interpret these pictographs, and how they make predictions based on these pictographs. The model is exemplified by responses from three related interview-based studies. In Study 1, examples of each response level are provided from 48 preparator- to tenth-grade students. Students from higher grades were more likely to respond at higher levels. In Study 2, 22 students were interviewed longitudinally after a three-year interval; many improved in response level over time, although a few responded at lower levels. In Study 3, 20 thirdgrade students were interviewed and then prompted with conflicting responses of other students on video; many improved their initial responses to higher levels after exposure to the conflicting prompts. Associations among levels of representing, interpreting, and predicting were explored. Educational implications are discussed concerning reasonable expectations of students and suggestions to develop these skills in students at different grades.

*Classification:* C30

doi:10.1023/A:1015594414565