



Ibrahim A. Halloun

# Modeling Theory in Science Education

Series: Contemporary Trends and Issues in Science Education

The book focuses as much on course content as on instruction and learning methodology, and presents practical aspects that have repeatedly demonstrated their value in fostering meaningful and equitable learning of physics and other science courses at the secondary school and college levels. The author shows how a scientific theory that is the object of a given science course can be organized around a limited set of basic models. Special tools are introduced, including modeling schemata, for students to meaningfully construct models and required conceptions, and for teachers to efficiently plan instruction and assess and regulate student learning and teaching practice. A scientific model is conceived to represent a particular pattern in the structure or behavior of physical realities and to explore and reify the pattern in specific ways. The author further shows how to engage students in modeling activities through structured learning cycles.

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