

# TABLE OF CONTENTS

PREFACE . . . . .	vii
INTRODUCTION . . . . .	1
CHAPTER ONE . . . . .	6
<b>SCIENTIFIC INQUIRY</b>	
<i>Teaching Science as Inquiry</i>	
<i>The Context of Generation</i>	
<i>The Context of Testing</i>	
<i>Science Education and Testing</i>	
CHAPTER TWO . . . . .	44
<b>EXPLANATION</b>	
<i>The Ambiguity of "Explanation"</i>	
<i>The Deductive-Nomological Model of Explanation</i>	
<i>The Statistical-Probabilistic Model of Explanation</i>	
<i>Scientific Understanding</i>	
<i>Explanation and Science Education</i>	
<i>Functional Explanations in Biology</i>	
<i>Function in Biological Education</i>	
CHAPTER THREE . . . . .	75
<b>DEFINITION</b>	
<i>Definition as an Explicit Statement of Sameness of Meaning</i>	
<i>Types of Definitions</i>	
<i>Analytic Sense and Extensional Definitions</i>	
<i>Definitions, Meaning Change, and Scientific Objectivity</i>	
<i>Definition and Science Education</i>	
<i>Operational Definitions</i>	
<i>Operationism and Science Education</i>	

CHAPTER FOUR . . . . .	103
<b>OBSERVATION</b>	
<i>The Concept of Observation</i>	
<i>The Influence of Theory on What Is Observed</i>	
<i>The Uses of Observation in Science</i>	
<i>Observation and Scientific Objectivity</i>	
<i>The Choice of an Observational Language</i>	
<i>Observation and Science Education</i>	
<i>Participant Observation</i>	
<i>The Educational Value of Participant Observation</i>	
CHAPTER FIVE . . . . .	132
<b>THE GOALS OF SCIENCE EDUCATION</b>	
<i>Four Aspects of the Goal of Science Education</i>	
<i>Critical Evaluation of Some Goals of Science Education</i>	
<i>Testing the Goals of Science Education</i>	
<i>Science Education Broadly Conceived</i>	
NOTES . . . . .	161
BIBLIOGRAPHY . . . . .	168
INDEX . . . . .	173