# CONTENT

Agreement Sheet  
Biography  
Abstract  
Acknowledgment  
Content  
List of Figure  
List of Table  
List of Formula  
List of Appendix  

## CHAPTER 1 INTRODUCTION

1.1. The Background of the Research  
1.2. Problem Identification  
1.3. Problem Limitation  
1.4. Problem Formulation  
1.5. Research Objective  
1.6. Research Benefit  

## CHAPTER II LITERATURE STUDY

2.1. Definition of Teaching  
2.2. Definition of Learning  
2.3. Student’s Achievement  
2.4. Character of Cooperation and Responsibility  
2.4.1. Character of Cooperation  
2.4.2. Character of Responsibility  
2.5. Problem Based Learning Model  
2.5.1. Learning Model  
2.5.2. Problem Based Learning  
2.5.3. Characteristic of Problem Based Learning Model
2.5.4. Advantages and Weaknesses of Problem Based Learning Model 18
2.5.5. Stages of Problem Based Learning Model 19
2.6. Direct Instruction Learning Model 20
2.7. Solubility and Solubility Product 21
2.7.1. The Definition of Solubility 22
2.7.2. Solubility Product ($K_{sp}$) 22
2.7.3. The Relationship between Solubility and Solubility Product ($K_{sp}$) 25
2.7.4. The Effect of a Common Ion and pH on Solubility 25
2.7.5. The Relationship of Solubility Product ($K_{sp}$) and Precipitation 28
2.8. Hypothesis 29

CHAPTER III RESEARCH METHODS
3.1. Research Location and Research Objects 30
3.2. Population and Sample 30
3.3. Research Variables and Research Instruments 30
3.3.1. The Study Variables 30
1. Independent Variable 30
2. Dependent Variable 31
3.3.2. Research Instrument 31
3.3.2.1. Test Instrument 31
3.3.2.2. Observation sheet 32
3.3.2.3. Questionnaire 34
3.4. Type and Research Design 34
3.4.1. Type of Research 34
3.4.2. Research Procedures 34
3.4.3. Research Flow Diagram 36
3.5. Technique Data Collection 37
3.5.1. Validity Item Test 37
3.5.2. Reliability Test 38
3.5.3. Index Difficulty Test
3.5.4. Index Distinguish Test
3.6. Data Analysis
3.6.1. The Normality Test
3.6.2. The homogeneity of test
3.6.3. Normalized Gain
3.6.4. Hypothesis Test
3.6.5. Calculation of Character Percentage

CHAPTER IV RESULT AND DISCUSSION
4.1. Research Result
4.1.1. Data Analysis of Research Instrument
4.1.1.1. Validity Test
4.1.1.2. Reliability Test
4.1.1.3. Index Difficulty Test
4.1.1.4. Index Distinguish Test
4.1.2. Data Description of Result
4.1.2.1. Student’s Achievement
4.1.2.2. Observation Sheet Data of Student’s Character
4.1.2.3. Questionnaire Data of Student’s Character
4.1.3. Data Analysis of Research Result
4.1.3.1. Normality Test of Data
4.1.3.2. Homogeneity Test of Data
4.1.3.3. Normalized Gain
4.1.3.4. Hypothesis Test
4.1.3.5. Instrument Analysis of Experiment and Control Class
4.1.3.6. The Relation Between Student’s Achievement and Character
4.2. Research Discussion
CHAPTER V CONCLUSION AND SUGGESTION

5.1. Conclusion 56
5.2. Suggestion 56

REFERENCE 57