

TABLE OF CONTENT

VALIDITY SHEET	ii
PREFACE	vii
TABLE OF CONTENT	ix
LIST OF FIGURE	xii
LIST OF TABLE	xiii
APPENDIX	xiv
CHAPTER I INTRODUCTION	1
1.1 Background	1
1.2 Identification of Problem.....	5
1.3 The Problem of Formulations.....	6
1.4 Problem Limitations	6
1.5 Research Objectives	6
1.6 Benefit of Research	7
CHAPTER II LITERATURE REVIEW	8
2.1 Theoretical Framework	8
2.1.1 Learning Model.....	8
2.1.2 Problem-Based Learning Model	9
2.1.2.1 <i>Definition of Problem-Based Learning (PBL)</i>	9
2.1.2.2. <i>Characteristics Problem-Based Learning</i>	10
2.1.2.3 <i>Purpose Problem-Based Learning Model</i>	12
2.1.2.4 <i>Syntax of Problem-Based Learning Model</i>	13
2.1.2.5 <i>Advantages and Disadvantages of Problem-Based Learning</i>	14
2.1.2.6 <i>Theory that Supports the Problem-Based Learning Model</i>	14
2.1.3 Problem Solving Ability	15
2.1.3.1 <i>Definition of problem-solving ability</i>	15
2.1.3.2 <i>Characteristics of Problem-Solving Ability</i>	15
2.1.3.3 <i>Indicator of Problem-Solving Ability</i>	15
2.2 Environmental Pollution Material	17
2.3 Relevant Research	21

2.4 Conceptual Framework	23
2.5 Operational Definition.....	24
2.6 Research Hypothesis	25
CHAPTER III RESEARCH METHODS	26
3.1 Location and Time of Research.....	26
3.2 Population and Research Sample	26
3.3 Research Variables	26
3.4 Type and Research Design	26
3.5 Research Instrument.....	27
3.6 Data Collection Technique	29
3.7 Research Procedure	29
3.8 Validity Test	32
3.8.2.1 <i>Validity Item</i>	32
3.8.2.2 <i>Reliability Test</i>	33
3.8.2.2 <i>Difficulty Level</i>	34
3.8.2.3 <i>Different Power</i>	34
3.9 Analisys Data Technique.....	35
3.9.1 Hypothesis Test	35
3.9.2 N-Gain Analisys	36
CHAPTER IV RESULT AND DISCUSSION	37
4.1 Research Results.....	37
4.1.1 The Description Data of Pretest Problem Solving Ability Experiment and Class Control.....	37
4.1.2 The Deskripsi Data of Posttest Problem Solving Ability Experiment and Class Control.....	38
4.1.3. Data of Student's Problem-Solving Ability.....	40
4.1.3.1 <i>Problem-Solving Ability Experiment Class per Indicator</i>	41
4.1.3.2 <i>Problem-Solving Ability Control Class per Indicator</i>	41
4.1.4 Data Analysis.....	42
4.2 Discussion	46
CHAPTER V CONCLUSION AND SUGGESTIONS	54
5.1 Conclusion.....	54
5.2 Suggestion	54

REFERENCES.....	55
APPENDIX.....	59



LIST OF FIGURE

Figure 2. 1 The result obtained from the PBL model.....	13
Figure 2. 2 Water Pollution	18
Figure 2. 3 Air Pollution by Industry	18
Figure 2. 4 Soil pollution by Gargabe	20
Figure 2. 5 Vulcanic Pollution	20
Figure 3. 1 Research Scheme	31
Figure 4. 1 Interval Pretest Experiment and Control Class.....	38
Figure 4. 2 Interval Post-test Experiment Class.....	39
Figure 4. 3 Interval Pre-test Control Class	39
Figure 4. 4 Student's Problem-Solving Ability bar Diagram	40
Figure 4. 5 Problem-Solving Ability per Indikator Experiment Class.....	41
Figure 4. 6 Problem-Solving Ability per Indikator Control Class	42
Figure 4. 7 N-gain Problem Solving Ability Experiment and Control Class.....	46

LIST OF TABLE

Table 2. 1 Syntax for Problem-Based Learning	13
Table 2. 2 Indicators of Problem-Solving Ability	16
Table 2. 3 Relevant Research	21
Table 3. 1 Research Pretest-Posttest Control Group Design.....	27
Table 3. 2 The Grid of Problem Solving Ability Test.....	27
Table 3. 3 The Scoring Guidelines Problem Solving Ability Test.....	28
Table 3. 4 Description of Criteria Problem-Solving Ability	29
Table 3. 5 Correlation validation.....	33
Table 3. 6 Coefficient Validity	33
Table 3. 7 Classification Reliability Item	34
Table 3. 8 Indeks Level Difficulty	34
Table 3. 9 Classification Distinguishing	34
Table 3. 10 Recapitulation of Problem-Solving Ability Test Results.....	35
Table 3. 11 N-gain Score.....	36
Table 4. 1 Frequency Distribution of Pretest Data	37
Table 4. 2 Frequency Distribution of Posttest Data	39
Table 4. 3 Data Problem-Solving Ability	40
Table 4. 4 Normality Test Data	42
Table 4. 5 Homogeneity Test Data.....	43
Table 4. 6 Hypothesis Pretest Data.....	44
Table 4. 7 Hypothesis Data Posttest	44
Table 4. 8 N-Gain Score Test Results	45
Table 4. 9 N-gain Problem Solving Ability per Indicator	45

APPENDIX

Appendix 1 Syllabus	59
Appendix 2 Lesson Plan 1	61
Appendix 3 Lesson Plan 2	73
Appendix 4 Lesson Plan 3	83
Appendix 5 Worksheet 1.....	95
Appendix 6 Worksheet 2.....	98
Appendix 7 Worksheet 3.....	101
Appendix 8 Problem Solving Ability Instrument	104
Appendix 9 Problem Solving Ability Question	123
Appendix 10 The Scoring Grid Problem Solving Ability.....	131
Appendix 11 Instrument Validation by Lecturer	132
Appendix 12 Instrument Validation Test by Teacher.....	134
Appendix 13 Instrument Validation Sheet by SPSS	135
Appendix 14 Table Reliability Test	139
Appendix 15 Table of Level of Difficulty	140
Appendix 16 Differentiating Power.....	141
Appendix 17 Name List of Class Experiment and Class Control.....	142
Appendix 19 Tabulation of Experimental Pretest Answers	143
Appendix 20 Tabulation of Control Pretest Answers	145
Appendix 21 Tabulation of Experimental Posttest Answers	147
Appendix 22 Tabulation of Control Posttest Answers.....	149
Appendix 23 Distribution of Experimental Class	151
Appendix 24 Distribution of Control class	153
Appendix 25 Test of Normality	155
Appendix 26 Test of Homogeneity of Variance	156
Appendix 27 Hypothesis Test	157
Appendix 28 Letter of Research Permit.....	158
Appendix 29 Letter of Research Permit Reply	159
Appendix 30 Documentation Research.....	160