

TABLE OF CONTENTS

MOTTO AND DEDICATION SHEET	i
APPROVAL SHEET	ii
ORIGINALITY STATEMENT SHEET	iii
PUBLICATION APPROVAL SHEET	iv
BIOGRAPHY	v
ABSTRACT	vi
PREFACE	vii
TABLE OF CONTENTS.....	ix
LIST OF FIGURES	xiii
LIST OF TABLES	xiv
LIST OF APPENDIXES	xv
CHAPTER I INTRODUCTION.....	1
1.1 Background of Problem	1
1.2 Problem Identification	3
1.3 Scope of the Problem.....	3
1.4 Problem Limitation	4
1.5 Problem Formulation	4
1.6 Research Objectives	4
1.7 Research Benefits	4
CHAPTER II LITERATURE REVIEW	6
2.1 Learning Model.....	6
2.1.1 Definition of Learning Model	6
2.1.2 Discovery Learning Model.....	6

2.1.3	Principles of Discovery Learning Model.....	7
2.1.4	Advantages and Disadvantages of Discovery Learning Model	8
2.1.5	Procedure of Discovery Learning Model.....	8
2.2	HOT Literacy	10
2.2.1	Higher-Order Thinking.....	10
2.2.2	Definition of Literacy.....	11
2.2.3	Relationship between Higher-Order Thinking and Literacy Skills .	13
2.3	Solar System Materials.....	14
2.3.1	Solar System	14
2.3.2	Eight Planets in the Solar System.....	14
2.3.3	Other Celestial Bodies	17
2.3.4	Moon and Sun	20
2.4	Relevant Research.....	22
2.5	Thinking Framework and Hypothesis	23
2.5.1	Thinkking Framework	23
CHAPTER III RESEARCH METHOD		26
3.1	Location and Time of Research	26
3.2	Research Population and Sample	26
3.2.1	Population.....	26
3.2.2	Sample.....	26
3.3	Research Design and Variables.....	26
3.3.1	Research Design	26
3.3.2	Research Variables	27
3.4	Operational Definition	27
3.5	Research Instruments	27
3.5.1	Test Item Validity	28

3.5.2	Test Reliability	29
3.5.3	Question difficulty test.....	29
3.5.4	Distinguishing Power Test.....	30
3.6	Data Collection Technique	31
3.7	Research Procedures	31
3.7.1	Implementation Stages	31
3.7.2	Final Research Stage.....	31
3.8	Data Analysis	32
3.8.1	Normality Test.....	32
3.8.2	Homogeneity Test.....	33
3.8.3	Hypothesis Test	34
3.8.4	N-Gain Analysis	35
CHAPTER IV RESULTS AND DISCUSSION		37
4.1	Data Analysis	37
4.1.1	Validity Analysis of Result Instruments	37
4.1.2	Validity Test	37
4.1.3	Test Level of Difficulty	37
4.1.4	Test Distinguishing Power.....	37
4.1.5	Reliability Test	38
4.2	Data Analysis of Research Results.....	38
4.2.1	Results of Pretest and Posttest Data Based on HOT Literacy	38
4.2.2	Normality Results of N-Gain Data	39
4.2.3	Homogeneity Results of N-Gain Data	39
4.2.4	Hypothesis Test Results.....	40
4.2.5	The N-Gain Percentage of Aspects Developed of HOT Literacy	40
4.3	Discussion.....	41

CHAPTER V CONCLUSIONS AND SUGGESTIONS.....	44
5.1 Conclusions	44
5.2 Suggestions	44
BIBLIOGRAPHY	45
APPENDIXES	50



LIST OF FIGURES

Figure 2. 1 Bloom's Taxonomy Levels of Thinking Chart	11
Figure 2. 2 Orbits of some Solar System members.....	14
Figure 2. 3 Planet in motion.....	15
Figure 2. 4 Planetary Grouping Based on Asteroid Trajectories as a Barrier	15
Figure 2. 5 Ganymede, Titan and Io satellites.....	18
Figure 2. 6 Occurrence of a Lunar Eclipse.....	21
Figure 2. 7 Solar Eclipse	21
Figure 2. 8 Thinking Framework	24
Figure 3. 1 Research Procedure.....	32
Figure 4. 1 Average Pretest and Posttest.....	39
Figure 4. 2 Developed cognitive aspects.....	41



LIST OF TABLES

Table 2. 1 Syntax of Discovery Learning Model	9
Table 2. 2 Relevant Research Studies	22
Table 3. 1 Research Design	26
Table 3. 2 Research Instruments before Validation	28
Table 3. 3 Test Item Validity Criteria	28
Table 3. 4 Problem Reliability Test Criteria	29
Table 3. 5 Criteria for Question Difficulty Level.....	30
Table 3. 6 Test Distinguishing Criteria	30
Table 3. 7 Gain Normality score criteria	35
Table 4. 1 Pretest and Posttest Data of HOT Literacy Skills	38
Table 4. 2 Normality Test Results of N-Gain Data	39
Table 4. 3 Homogeneity Test Results of N-Gain Data.....	40
Table 4. 4 Hypothesis Test Results	40
Table 4. 5 Percentage Result of Cognitive Aspect of HOT Literacy	41



LIST OF APPENDIXES

Appendix 1. Teacher Interview Sheet	50
Appendix 2. Teaching Module Experimental Class.....	52
Appendix 3. Teaching Module Control Class.....	62
Appendix 4. Assessment Instrument.....	67
Appendix 5. Learner Worksheet	80
Appendix 6. HOT Literacy Evaluation Questions before Validation	92
Appendix 7. Key Answer	100
Appendix 8. HOT Literacy Evaluation Questions after Validation	101
Appendix 9. Key Answers	108
Appendix 10. Data table of validity test, difficulty level, distinguishing power, and test reliability.....	109
Appendix 11. Pretest Data of Control and Experimental Classes.....	112
Appendix 12. Posttest Data of Control and Experimental Classes	114
Appendix 13. Normality and Homogeneity N-Gain	116
Appendix 14. N-Gain Hypothesis Test Results	117
Appendix 15. Results of N-Gain Calculation	118
Appendix 16. Percentage Results of HOT Literacy Cognitive Aspect of Control Class	119
Appendix 17. Percentage Results of HOT Literacy Cognitive Aspect of Experimental class	121
Appendix 18. Research Permit Letter	123
Appendix 19. Letter of completion of research.....	124
Appendix 20. Instrument Expert Lecturer Validation Letter	125
Appendix 21. Instrument Expert Lecturer Validation Letter	126
Appendix 22. School Validation Permit Letter	130
Appendix 23. Validation Permission Letter	131
Appendix 24. Documentation	132