## PREFACE

The author says the great praise and gratitude to God Almighty, for all the graces and blessings that provide health and wisdom to the author that this study can be completed properly in accordance with the planned time. This proposal entitled "The effects of Problem based learning model (PBL) assisted animation to increase student's learning outcomes on topic heat and temperature at grade X-science in SMA N 1 Berastagi A.Y.2015/2016. This thesis was prepared to obtain a Bachelor's degree of Physics Education, Faculty of Mathematics and Natural Science in State University of Medan..

On this occasion the author likes to thank Mr Dr.Rahmatsyah, M.Si as Thesis Advisor who has provided guidance and suggestions to the author since the beginning of the study until the completion of this thesis. Thanks also to Prof.Dr.Mara Bangun Harahap, MS, Alkhafi Maas Siregar, MS, Dr. Sondang R. Manurung, M.Pd who have provided many advices and suggestions in completing this thesis. Thanks also to Dr. Derlina, M.Si., as the Academic Supervisor. Thanks also for all Mr. and Mrs. lecturers and staff employees of Physics Department, Faculty of Mathematics and Natural Science in State University of Medan.State University of Medan who have encourage the writer during the studying process. Sincere appreciation was also presented to Principal of SMA N 1 Berastagi, Alberto colia M.Pd, Physics teacher Dra.sarinah and all teachers there, who had helped the author during the implementation of this research. Especially, author also would say thanks to my great lovely father J.nababan, my great lovely mother H.siburian, my great sisters siska nababan, fitri nababan, jenni nababan, dedek nababan, and jimmy nababan, my great lovely grand mother, and all my family. And thanks also for my great family, students of SMA N 1 Berastagi, and

Bilingual physic education, my great lovely friends that always besides me

rohani,rini,novianti,debora,silfiana,novita,sarah,reni,jerry,yudhistira,aldo,harmin,d inda, asma ,dian , cihur BKU , my PPL team in SMA N 1 Berastagi who gives motivations and advices to the author. The author has endeavored as much as possible in completing this thesis, but the author is aware there are many mistakes either in terms of content or grammar, then the author welcome for any suggestions and constructive criticism from readers for this thesis perfectly. The author hopes the contents of this paper would be useful in enriching the repertoire of knowledge.

> Medan, May 2016 Author,

Dwira Nababan