

## CHAPTER I INTRODUCTION

### 1.1. Background of the Study

The word “concept” in physics is very common and that can be said that physics is the subject that is full of concepts of the physical world. The mastery of physics concepts is essential for the students to deepen their understanding of physics.

Based on the competency standard of the thermodynamics topic: “*Menerapkan konsep termodinamika dalam mesin kalor* (Applying the concepts of thermodynamics in heat engines)” and the basic competency: “*Menganalisis perubahan keadaan gas ideal dengan menerapkan hukum termodinamika* (Analyzing changes of states of ideal gas by applying the laws of thermodynamics)” (Badan Standar Nasional Pendidikan, n.d.), here is to be implemented the concept teaching model in the first section of the thermodynamics topic, system and process, as an alternative to the conventional approach that is usually used in the excellent classes of XI IPA of SMA Negeri 1 Berastagi.

“Concept teaching models have been developed primarily to teach key concepts that serve as foundations for student higher-level thinking” (Arends, 2009: 320). In this case of physics subject, it can be concluded that it is essential to the students to understand the basic concepts first then to move to the mathematical expression of physics principle. With the implementation of concept teaching model in physics lessons, it is expected that students can have a proper understanding of the physics lessons concepts, so that they would not think that physics as another formula related subject.

Beside to be an alternative to the conventional teaching model, there is also a chance to improve the students' learning achievement using the concept teaching model, esp. in the excellent classes. Here is to be seen difference in learning achievement between students taught using the concept teaching model and the conventional teaching model.

Therefore this research is entitled, “The Difference in Learning Achievement Between Students Taught Using Concept Teaching Model and Conventional Teaching Model in Physics on the Subtopic of System and Process in the Excellent Classes of XI IPA of SMA Negeri 1 Berastagi”

### **1.2. Problem Identification**

Based on the background of the study above, here is identified the problems of the study:

1. It is necessary to teach the students the physics concepts first then to move to the mathematical expression of the physics principles.
2. There is a tendency in students in the conventional teaching model to focus more to the mathematical expression of the physics principles.

### **1.3. Scope of the Study**

1. The research is held in SMA Negeri 1 Berastagi in the excellent classes of XI IPA in the academic year of 2011/2012.
2. The physics learning material is about system and process, the first subtopic from the thermodynamics chapter.
3. The teaching model that is going to be implemented is the concept teaching model in the experimental group and the conventional teaching model in the control group.
4. The learning achievement to be assessed here is the learning achievement in the C1, C2, C3, C4, C5, and C6 of the bloom cognitive area.

### **1.4. Problem Formulation**

Based on the background of the study above, in this research the problems can be formulated:

1. How is the learning achievement of the students taught using the concept teaching model in physics on the subtopic of system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012?

2. How is the learning achievement of the students taught using conventional teaching model in physics on the subtopic of system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012?
3. How is the difference in learning achievement between students taught using the concept teaching model and the conventional teaching model in physics on the subtopic of system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012?

### **1.5. Research Purposes**

Based on the problem formulation, here can be defined the purposes of the research are:

1. To see the learning achievement of the students taught using the concept teaching model in physics on the subtopic on system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012.
2. To see the learning achievement of the students taught using conventional teaching model in physics on the subtopic of system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012.
3. To see the difference in learning achievement between students taught using the concept teaching model and conventional teaching model in physics on the subtopic of system and process in the excellent classes of XI IPA of SMA Negeri 1 Berastagi in the academic year of 2011/ 2012.

### **1.6. Benefits of the Research**

Some of the benefits that can be taken from the research are:

1. To give the researcher (the writer) picture of how to use the concept teaching model in the later teaching carrier.
2. To give information and consideration to other researchers who want to hold research in the same area.

3. To give an input to the teachers of the school where the research was held about the implementation of concept teaching model, especially in physics lessons.

### **1.7. Operational Definition**

The conventional teaching model: it is the teaching model that is usually used in physics lessons in the excellent classes of XI IPA of SMA Negeri 1 Berastagi. Based on an early observation that was done in August, 2011 in SMA Negeri 1 Berastagi, it was done by lecturing, discussion, and doing exercises along the instructional period.

