

## **ABSTRACT**

**Komalasari. 2023. *THE INFLUENCE OF THE 5E LEARNING CYCLE MODEL ASSISTED BY PROBLEM SOLVING-BASED STUDENT WORKSHEETS ON STUDENT LEARNING OUTCOMES IN THE MATERIAL OF THERMODYNAMICS***

*Based on the results of observations at SMAN 1 Singaparna, it is known that in the learning process students are less enthusiastic, resulting in students being less active in learning. Students who are less active tend to have difficulty understanding physics lessons so that it has an impact on low student learning outcomes. One effort to overcome these problems is by applying a learning model and the existence of supporting teaching materials in the form of model-based worksheets. Therefore, researchers conducted research with the aim of knowing the effect of the 5E learning cycle model assisted by problem solving-based worksheets on student learning outcomes in thermodynamics material. The learning outcomes studied are on the learning outcomes of knowledge, attitudes, namely cooperation, responsiveness, and self-confidence, and the skills of students. This study uses a quasi-experimental method and the research design used in this study is the post-test only design. The population in this study were all class XI MIPA SMA Negeri 1 Singaparna. The sampling technique used cluster random sampling with the sampling results namely class XI MIPA 3 as the experimental class and class XI MIPA 6 as the control class. Based on the results of hypothesis testing with the  $t$  test and the Mann-Whitney test on student learning outcomes it shows that  $H_0$  is rejected, so it can be concluded that the 5E learning cycle model assisted by problem solving-based worksheets has an effect on student learning outcomes in thermodynamics material.*

*Keywords: Learning outcomes, Learning Cycle 5E, problem solving based worksheets, Thermodynamics*