

**IMPACT OF STRENGTHENING MATHEMATICS AND SCIENCE  
IN SECONDARY EDUCATION ON STUDENTS' PERFORMACE  
AND TEACHERS' EFFECTIVENESS IN BIOLOGY: A CASE  
STUDY OF KALAWA DIVISION, MAKUENI COUNTY.**

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## **ABSTRACT**

This study aims at establishing the effect/impact of SMASSE on students' performance and teachers' effectiveness in Biology in Kalawa Division, Makuani County, Kenya. The target population of this study comprises of Eight Secondary schools, Twenty six SMASSE trained teachers, eight school heads and science District SMASSE facilitators, District Quality Assurance and Standards Officers (DQASO) and the sub-county Education officers (formerly the DEO). A lesson observation schedule was used to assess the aspects of the lesson in order to verify the implementation of PDSI-ASEI approach. Seventy two questionnaires were administered to the SMASSE trained Biology teachers. The DQASO and the school heads were also interviewed in this study. A documentation profoma was used to collect data on students' performance in KCSE before and after the implementation of SMASSE approach. Data collected was analysed using descriptive statistics which included the central measures of tendencies i.e. the mean, Mode, Standard deviation and Variance. Inferences were made based on Pearson's product moment co-relation and t-test. It's my expectation that the findings of the study/investigation would help the education stakeholders in solving the students' shortcomings associated with Biology participation, achievement and appreciation. The study is also geared towards helping in improving the teachers' quality and access the relationship to students' participation and motivation to learn Biology in particular and other sciences in the wider picture. It's expected that sciences and mathematics should be viewed as practical subjects which should be used in solving human problems in the society at large.