

A STEM Education Activity in Physics on “Designing and Making Khom Loy (Small Thai Traditional Hot-Air Balloons)”

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This study aimed to develop STEM Education activities in Physics on designing and making Khom Loy (small Thai traditional hot-air balloons.) The local in the north of Thailand use Khom Loy to cerebrate important events such as Loy Krathong Day. The samples of this study were 35 students from 2 groups from high-school level and undergraduate level. The research instruments were 1.) a test of the abilities to integrate knowledge in Physics and Mathematics to explain the movement of balloons, and 2) 2 sets of questionnaire on attitudes towards Physics and on learner satisfaction. The results of the activities were 7 steps as follows: 1) informing the tasks of the activities and informing students how to evaluate the learning outcomes 2) letting students make Khom Loy based on their own experience 3) training students on the motion of Khom Loy based on Physics and Mathematics 4) analyzing factors related to designing the Khom Loy and writing a diagram reflecting the relationships among the factors 5) analyzing the designs of Khom Loy in possible ways and choosing the best to make it 6) designing Khom Loy in papers, and 7) making actual Khom Loy based on the design in papers and test the performance of Khom Loy. The results of using the STEM activities revealed that the abilities to integrate knowledge in Physics and Mathematics after using STEM education activity were significantly higher than before applying STEM activity at .05. In addition, the satisfaction of STEM activity was at high level.

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