The purpose of this research was to study scientific concepts of the student in conservation of mechanical energy both before and after learning through Predict-Observe-Explain (POE) approach. The target group was 34 grade 10 students, Strisuksa School, The Office of Secondary Education District Area 27, Roi-Et, those studied in the second semester, academic of year 2014. The students’ scientific concepts in conservation of energy had been studied by using pre-test and the results were used as guiding to develop the conservation of mechanical energy lesson plans. The post-test was done soon after the POE finished. The evaluation tool consisting scientific concept test, multiple choices combined with short explanation their answer. The collected data were analyzed by interpreting into groups of scientific concepts and then comparing between pre-test and post-test. The findings revealed that student’s scientific concepts in prior thinking could be interpreted into various categories and the majority of them were diverged from commonly scientific concepts, but the post-test performed that student scientific concepts generally converging to the scientific concepts. It could be concluded that the POE approach supporting the students to gain their understanding in conservation of energy.

Table 1: The table showed that pre-test and post-test score about conceptual understanding in conservation of mechanical energy was significantly higher than pre-test score (t=12.333, df=33, p<0.05).

**Case Study**

The student contained lower level of understanding in conservation of mechanical energy, their prior concept had been used for designing the POE lesson. The post-test performed the student understanding in conservation of mechanical energy was higher than the pre-test significantly.

**References**