

Abstract Submitted
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Improving scientific thinking using Modeling JOHN CLEMENT,
North Harris College — It is possible to improve student overall scientific thinking using Modeling or other PER based pedagogy. Significant gain can be achieved even in a summer school two year college course, but better gain should be achievable in a regular semester course. The gain was measured using the non multiple choice Lawson Classroom Tests of Scientific Thinking. While gain is observed, higher gain should be possible. PER based materials need to be modified so as to optimize gain in thinking skills. Modeling stresses the proportional reasoning aspect of thinking, so it shows gain on that test. But more significantly it also shows gain in other areas of reasoning, notably combinatorial and probabilistic reasoning which are not used in the curriculum. This may be due to improved executive functioning.

References: Really Raising Standards by Shayer & Adey, Science Teaching and the Development of Thinking by Anton Lawson.

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