

Creativity and Innovation in STEM classrooms

Creativity and Innovation in STEM classrooms will develop a comprehensive teacher professional development model to create a culture of creativity and innovation in STEM classrooms. As active members of a professional learning community, a maximum of twenty-four grades 6-12 mathematics, science, and career & technical education (CTE) teachers from multiple school divisions including high need school divisions will collaborate with each other in a week-long professional development workshop in summer 2013 and explore research-based instructional strategies and resources that facilitate the development of creativity and innovation skills through interdisciplinary STEM learning activities till summer 2014. Twelve grades 9-11 high school students will be recruited by the selected teacher participants and these students will join their teachers in this learning adventure on creativity and innovation during the summer week. In this professional model, students are co-designers of their learning environment; teachers and students will discuss and create instructional and assessment resources to integrate creativity and innovation in interdisciplinary STEM teaching. Teachers will also participate in a three-credit course on "Mentoring students and teachers as 21st Century Leaders" in fall 2013 and receive follow-up during the school year in the form of classroom visits, online learning community, and webinars on integrating reading and writing in STEM learning and on tools of inquiry in math. In enhancing the pedagogical and technological knowledge, teachers will receive training on the integration of problem-based learning strategies, and technology tools of inquiry to meet the needs of diverse learners. Teachers will receive stipends and three graduate credits for completing all activities including development and implementation of one unit of instruction per participant and presenting their digital portfolios with student artifacts in a Saturday summit in early summer 2014. Longwood will share the findings from this project with the regional instructional leaders at the Seventh Annual STEM Learning Summit and other regional professional development council meetings.

Teacher commitment

1. Five day summer workshop
2. Graduate course in fall to complete all requirements
3. Development of unit plan (Problem based learning as pedagogy) and implementation in fall or in spring
4. Participation in two after-school webinar on integrating reading and writing in STEM classrooms
5. Saturday summit in June 2014
6. STEM learning summit in January 2014

Incentives

1. Stipends \$300 after completion of summer workshop in 2013; \$150 after completing all course requirements in December 2013 (payment by February 2014); and \$300 after participation in webinar and June summit 2014 (payment by August 2014)
2. Graduate credits – 3 (at no cost to participants or school divisions)
3. Camera for documenting instructional practices

Preference: At least a science and CTE teacher to enroll from the same school division

Dates: July 22 – 26, 2013

Location: TBD (for one third of the teaches, travel, boarding and lodging will be provided if they have to drive more than 100 miles to workshop location)