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K-5 STEM Grant Puts Robots and Coding Together

The scientists at the Desert Research Institute (DRI) are always looking for new ways to engage kids in STEM through their Science Alive Green Box program. This time, DRI teamed up with elementary schools in the Douglas County School District to create a new Green Box around robotics and coding for 2nd graders.

DRI and Douglas wanted to introduce robotics and scientific inquiry through a 4 lesson mini unit that included defining a scientist and robot, hands-on investigation with robotic components, problem solving, and engineering design. The mini unit also was designed to provide ELA, math and SEL components.

Vivian Michalik, a 2nd grade teacher at CC Meneley Elementary, was one of the pilot teachers. “The engagement level in my classroom is always elevated when doing STEM activities. These grant items had 100% engagement even during the direct

instruction portion! It was amazing to see even my lowest or most reluctant of readers asking for robot books in their book bins,” she said.

In addition to funding the design of the lesson plans, the grant also purchased Modular Robotics’ Cubelets and books for each box.

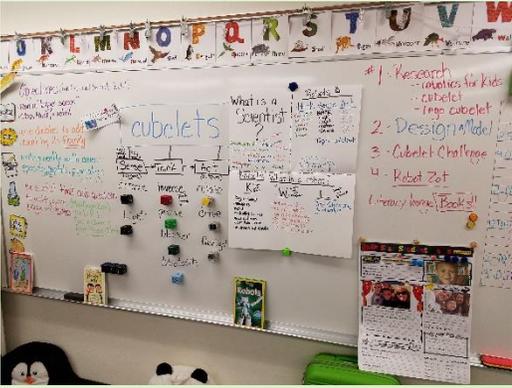
“This project really created an awesome learning environment in my classroom filled with collaboration and problem solving. Having access to materials like the Cubelets, that otherwise would be too expensive, made the lesson highly effective,” said Michalik.

Research finds that early exposure to STEM, especially for girls, makes children more likely to succeed in science and pursue STEM fields in college. OSIT awarded K-5 STEM Grants to innovative applications that increase the use of evidence-based, hands-on, experiential STEM learning in grades K-5.

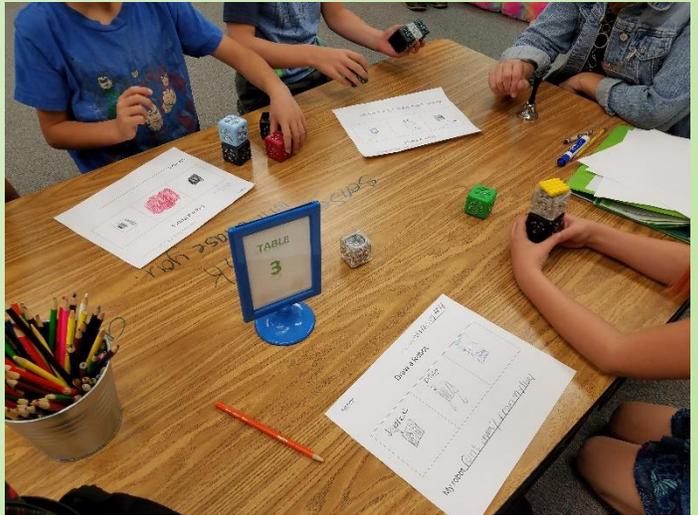
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Students first reviewed and implemented the NGSS practices as they investigated how inputs affect outcomes...



Students learned that scientists are inquisitive people that want to investigate phenomena or solve everyday problems. Students also learned the three main parts of a robot: input (sense), processing(think), and output (act).



... and third, collaborated as they problem solved with available materials, and shared their failures and successes to encourage discourse.



...second, designed three cube robots that would perform a specific task by first modeling and labeling components needed...



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