



You CAN Do the Rubik's® Cube! and 21st Century Community Learning Centers (21st CCLC)

Federal

Grant	Description
21st Century Community Learning Centers (Title IV, Part B) CFDA Number: 84.287 Program Type: Formula Amount: \$1,131,166,000 http://www.ed.gov/programs/21stcclc/index.html	This program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools. The program helps students meet state and local student standards in core academic subjects, such as reading and math; offers students a broad array of enrichment activities that can complement their regular academic programs; and offers literacy and other educational services to the families of participating children. Awards are made to SEAs. Local education agencies (LEAs) and nonprofit organization may apply to states for subgrants including faith-based organizations. This program has been funded yearly.

Funding Purpose:

Each eligible entity that receives an award from the state may use the funds to carry out a broad array of before- and after-school activities (including those held during summer recess periods) to advance student achievement. Examples of activities are: remedial education activities and academic enrichment, mathematics and science education activities, arts and music education activities, entrepreneurial education programs, tutoring services, telecommunications and technology education programs, expanded library services, drug and violence prevention, and many more.

21st Century Community Learning Centers Requirements and Rubik's Cube Key Elements:

Below are the 21st Century Community Learning Centers (21st CCLC) requirements followed by the key elements of the You CAN Do the Rubik's Cube! program that relate to these requirements. The purpose of this funding is to provide opportunities to establish or expand activities in community learning centers that:

21st CCLC Requirement: Provide opportunities for academic enrichment, including providing tutorial services to help students, particularly students who attend low-performing schools, to meet State and local student academic achievement standards in core academic subjects, such as reading and mathematics.

The You Can Do the Rubik's Cube! program provides opportunities for students in Grades 5-12 for academic enrichment, especially in the area of core academic mathematics. The fun and motivating activities and lessons align with challenging state academic standards.

- All lesson plans, homework sheets, answer keys, and group and individual activities are aligned to Common Core State Standards, as well as NCTM Mathematics Standards, state frameworks, anchors, and 21st Century skills.
- Selected geometric standards specifically focus on...
 - Analyzing properties and determining attributes of two- and three-dimensional objects.
 - Visualizing three-dimensional objects and spaces from different perspectives (including rotations, transformations, and reflections) and analyzing their cross sections.
 - Using geometric models to gain insights into and answering questions in other areas of mathematics.
 - Plotting points, drawing lines on coordinate graphs, and exploring ratios and scales.
- Selected algebra standards specifically focus on...
 - Understanding patterns, relations, and functions; analyzing change in various contexts.
 - Representing and analyzing mathematical situations and structures using algebraic symbols.
 - Gaining a better understanding of concepts such as permutation groups.
 - Using group theory to find strategic maneuvers of the cube.
- Selected 21st Century standards specifically focus on...
 - Encouraging learning and innovation skills for critical thinking and problem solving by
 - exercising sound reasoning in understanding;
 - identifying and asking significant questions that clarify various points of view and lead to better solutions;
 - understanding the interconnections among systems; and
 - framing, analyzing, and synthesizing information in order to solve problems and answer questions.
 - Fostering memorization, sequencing, perseverance, and following directions skills.
 - Promoting life and career skills for initiative and self-direction including monitoring one's own understanding and learning needs.



21st CCLC Requirement: Offer students a broad array of additional services, programs, and activities, such as youth development activities, drug and violence prevention programs, counseling programs, art, music, and recreation programs, technology education programs, and character education programs, that are designed to reinforce and complement the regular academic program of participating students.

Teachers who use the program as a supplement to the regular curriculum are impressed with the program's ability to provide motivating and deep-learning mathematical experiences. In addition to in-class experiences, teachers report the forming of math and Rubik's Cube clubs.

In before/after school and summer programs, the You CAN Do the Rubik's Cube! program also has been a success. Summer counselors were amazed by the kids' willingness and ability to learn to solve the Rubik's Cube and were delighted by the many benefits of the program. Fun and motivating lessons encourage students to explore, hypothesize, test, and make/share conclusions; and in turn, help students internalize basic mathematical concepts and increase their academic achievement. Girls and boys equally enjoy the learning experience.

The program builds student confidence and character:

- The title of the program itself, You CAN Do the Rubik's Cube!, inspires confidence even before the students begin!
- Students in Grades 5-12 have demonstrated success in solving the cube's mystery; in turn, leading to an incredible feeling of pride and confidence essential to improving achievement and closing the achievement gap.
- Lessons that incorporate the Rubik's Cube include the flexibility to suit a variety of student needs, removing student frustration frequently found in non-flexible programs – making the program appropriate for all students.
- The program encourages teamwork and students collaborate with other students to solve problems, teach each other, and share their results.
- Certificates of achievement provide additional sources of pride and confirmation of student success

21st CCLC Requirement: Offer families of students served by community learning centers opportunities for literacy and related educational development.

Solving the Rubik's Cube instills a sense of accomplishment and pride in students who many times have not been successful in school. Most parents have seen the Rubik's Cube in their lifetime and maybe have even tried to solve it themselves at one time. Students enjoy demonstrating their skills to their parents and enjoy teaching their parents what they have learned. In addition, one summer camp counselor reported that the You CAN Do the Rubik's Cube! program was demonstrated by students at a Family Visiting Day. Following the class, the parents wanted to learn how to it too.

Learn more at

www.YouCanDoTheCube.com