Richard Woods, Georgia’s School Superintendent
“Educating Georgia’s Future”
gadoe.org

Fine Arts, CTAE, STEM and STEAM: Unlocking Imagination, Creativity and Ingenuity through Title IV, A

Federal Programs Conference - June 13 - 14, 2018

Georgia Department of Education
Georgia International Convention Center & Atlanta Airport Marriott
Georgia’s System of Continuous Improvement

- GaDOE Unified approach to improvement
  - Framework
  - Problem solving model

- Provides a structure to align GaDOE tools and resources
  - Creating aligned “Toolbox”

- Provides framework to support flexibility of funding streams
  - Structure to match district “Needs” to improvement actions
Fine Arts, CTAE, STEM and STEAM: Unlocking Imagination, Creativity and Ingenuity through Title IV, A: Presenters

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## Objectives

<table>
<thead>
<tr>
<th>SSPE Title</th>
<th>IV A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Well-Rounded Education Focus Area Highlights</td>
</tr>
<tr>
<td></td>
<td>• Allowability</td>
</tr>
<tr>
<td></td>
<td>• Coming Soon</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>• Fine Arts impact of student success</td>
</tr>
<tr>
<td></td>
<td>• Georgia’s Strategic Plan</td>
</tr>
<tr>
<td></td>
<td>• Georgia’s Economy</td>
</tr>
<tr>
<td></td>
<td>• CCRPI</td>
</tr>
<tr>
<td></td>
<td>• Innovations</td>
</tr>
<tr>
<td></td>
<td>• Sample Narratives</td>
</tr>
<tr>
<td>STEM/STEAM</td>
<td>• Career</td>
</tr>
<tr>
<td></td>
<td>• What STEAM looks like</td>
</tr>
<tr>
<td></td>
<td>• STEAM in action</td>
</tr>
<tr>
<td>CTAE</td>
<td>• Clusters and Pathways</td>
</tr>
<tr>
<td></td>
<td>• Focus Areas</td>
</tr>
<tr>
<td></td>
<td>• Nationwide Concerns</td>
</tr>
<tr>
<td></td>
<td>• Certified Programs</td>
</tr>
</tbody>
</table>
Intent of Student Support and Academic Enrichment

“The new law has a clear goal of ensuring our education system prepares every child to graduate from high school ready to thrive in college and careers”

The SSAE program is intended to help meet this goal by increasing the capacity of state educational agencies, local educational agencies, schools and local communities to:

June 2018
Title IV, A: Intent and Purpose

1. Provide all students with access to a well-rounded education,
2. Improve school conditions for student learning, and
3. Improve the use of technology in order to improve the academic achievement and digital literacy for all students.
Title IV, A

Well-Rounded Education

*Enriched curriculum and education experiences*

*Exploration and connection between studies and subjects, curiosities and skills*

*Promote a diverse set of learning experiences across a variety of courses*
Title IV, A
Well-Rounded Education

- ELA
  - Reading
  - Writing

- Fine Arts
  - (Dance, Media Arts, Music, Theatre, Visual Arts)

- History
- Geography

- Civics
- Government
- Economics

- Computer Science

- Health and Physical Education

- Foreign Language

- CTAE

- STEM
- STEAM
FINE ARTS
5 CREATIVE SUBJECT AREAS

MUSIC
- Orchestra
- Band
- Chorus
- Music Tech

DANCE

DRAMATIC ARTS
- Theatre
- Film

VISUAL ART
- 2D (drawing, painting, printmaking)
- Art History
- 3D (ceramics, jewelry, fashion design, sculpture)

MEDIA ARTS
- Sound Recording
- Animation/Graphics
- Film/Media Graphics
- Lighting Design
Fine Arts

“The past few decades have belonged to a certain kind of person with a certain kind of mind—computer programmers who could crank code, lawyers who could craft contracts, MBAs who could crunch numbers. But the keys to the kingdom are changing hands.

The future belongs to a very different kind of person with a very different kind of mind—creators and empathizers, pattern recognizers and meaning makers. These people—artists, inventors, designers, storytellers, caregivers, consolers, big picture thinkers—will now reap society’s richest rewards and share its greatest joys.”

Daniel Pink, A Whole New Mind
The Arts Allow Children:

- To make good judgements in the absence of rules
- To celebrate multiple perspectives
- To see unanticipated possibilities in work as it unfolds
- To learn that small differences have large effects
The Arts Increase Achievement

• Students who take four years of fine arts courses in high school (only 18 percent) score an average of 100 points higher on the SAT’s than students who took only a half year or less.

• Student engagement and school community engagement increases as the number of arts courses increases at a school.
Visual Arts

Arts Education Research Highlight: Visual Arts has a positive impact on overall student learning.

A 1996 study by Howard Gardner involved 96 1st graders in eight classrooms. Four classes were arts enriched and four were controls which received only the standard arts curriculum. After seven months, 77 percent of the arts-enriched classes scored at grade level, compared to 55 percent of the control group. The reading scores of the experimental classes, which averaged below the control groups at the beginning, caught up. (Jensen, pg. 59)
Music

Arts Education Research Highlight: **Music** has a direct positive effect on students’ ability in math.

Second graders who received piano instruction plus practice with a math video game along with math instruction, scored 15 to 41 percent higher on a test of ratios and fractions than second graders who received extra English lessons plus the math video game, and students who received no special lessons in addition to traditional math.

Shaw and Rauscher, 1997
Fine Arts In Georgia

Eight state ESSA plans — District of Columbia, Georgia, Kentucky, Louisiana, Maryland, Massachusetts, Michigan and Minnesota — incorporate a well-rounded education, which includes the arts and music, as part of their current or future accountability systems.
Georgia has the opportunity to expand the definition of readiness to include a more holistic approach to public education – one that provides fine arts opportunities, ensures safe and healthy learning environments, prioritizes relevant coursework, and allows stakeholders to become fully engaged. Education is about life. A high-quality education should provide learning opportunities, tools, and knowledge necessary for students to experience a high quality of life as they become adults. A strong foundation of the fundamentals in the early grades, coupled with a system that identifies and cultivates the strengths and passions of students in the later grades, is key to ensuring that every child graduates ready to live.
Fine Arts and the GA Economy

- The creative industries in Georgia represent a combined $37 billion in revenue, including 200,000 employed with $12.1 billion in earnings, and $62.5 billion in total economic impact. The creative industries represent 5 percent of all employment and 4 percent of all business revenue in the state.

- The Creative Industries are surpassing Agriculture as the CASH CROP of Georgia.
The New Creative Economy

**CREATIVE INDUSTRIES**

- Establishments: 13,500
- Jobs: 140,000
- Wages: $10.5 billion
- Self-Employed: 60,000
- Earnings: $1.6 billion
- Revenue: $37 billion

**Economic Impact:** $62.5 billion

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**MUSIC**

- Direct and Indirect Jobs: 26,000
- Direct and Indirect Wages: $1.1 billion
- Total Revenues to State and Local Governments: $314 million

**Economic Impact:** $3.6 billion

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**FILM AND TELEVISION**

- Combined Productions: 245
- Direct Spend of Productions: $2.0 billion
- Direct Jobs: 25,700
- Direct and Indirect Jobs: 85,300
- Direct and Indirect Wages: $4.2 billion

**Economic Impact:** $7 billion

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**DIGITAL ENTERTAINMENT**

- Direct Jobs: 3,100
- Direct Wages: $200 million
- Direct and Indirect Jobs: 12,000
- Total Labor Impact: $425 million
- Gross Revenue: $278 million

**Total Output/Economic Impact:** $550 million

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Sources:
1. EMSI 2016
3. Economic Census and Nonemployer Statistics 2012
4. ACPSA Issue Brief #6: The Impact of New Demand for Arts and Culture
5. Estimated Economic Impact of the Music Industry on Georgia’s Metropolitan Areas and the State, 2014

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Source: Georgia Entertainment Industry Profile FY16

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Source: Economic Contributions of the Georgia Video Game Industry in 2015
New CCRPI Design

Redesigned CCRPI

- **Content Mastery**
  - Are students achieving at the level necessary to be prepared for the next grade, college, or career?
    - English Language Arts achievement
    - Mathematics achievement
    - Science achievement
    - Social studies achievement

- **Progress**
  - How much growth are students demonstrating relative to academically-similar students?
    - English Language Arts growth
    - Mathematics growth
    - Progress towards English language proficiency (EL students)

- **Closing Gaps**
  - Are all students and all student subgroups making improvements in achievement rates?
    - Meeting achievement improvement targets

- **Readiness**
  - Are students participating in activities preparing them for and demonstrating readiness for the next level, college, or career?
    - Elementary: Literacy, student attendance, beyond the core
    - Middle: Literacy, student attendance, beyond the core
    - High: Literacy, student attendance, accelerated enrollment, pathway completion, college and career readiness

- **Graduation Rate**
  - Are students graduating from high school with a regular diploma in four or five years? (High school only)
    - 4-year adjusted cohort graduation rate
    - 5-year adjusted cohort graduation rate

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2018 CCRPI based on ESSA Plan submitted to USED for review.
Spotlight on Innovation

- **Staff positions** to ensure a well rounded education in fine arts
- **Arts Integration PD** for all academic and arts instructors
- **Subject Specific PD for Fine Arts teachers** (includes money for conferences, training, and membership dues to arts education organizations that provide training)
- **Arts Integration kits and curricula**
- **Instruments** for music program
- **Equipment and Art Supplies for Visual Art** including kilns/venting systems, slab rollers, paper cutters, printing presses, computers carts for graphics
- **Technology** equipment for media arts, film, and theatre
- **Advanced Placement Test Fees in fine arts subjects and teacher training**, to include International Baccalaureate® and the Cambridge International Examinations®
Sample Description Narratives

- technology equipment (specific identification) requested to support the music and visual art and intended to provide students with 1:1 access during general music classes, all visual art courses, and individual and small group access for students in those classes.
- equipment (specific identification) to display/present student work manage software logistics, and allow instructors to create content for classroom use. These materials will support the personalized learning and competency based education structures for students in the Arts.
- staff position requested in the visual art portion of this grant is intended to provide students with access to a Whole Child Education in visual art courses. This staffing will support the personalized learning and competency based GSE education structures for students in the Arts and give access to a Whole Child Education.
Sample Description Narratives

- Equipment...(specific identification)
- Instruments...(specific identification)
- Art supplies... (specific identification)

...requested in the music and visual art portion of this grant is intended to provide students with access to a Whole Child Education in music and visual art courses and with equipment to display, present, perform, create and compose creative works. This equipment will support the personalized learning and competency based GSE education structures for students in the Arts and give access to a Whole Child Education.
STEM/STEAM
STEM/STEAM

• STEM education is an economic imperative for Georgia in response to business/industry in the state

• In Georgia between 2014 and 2016 STEM jobs have grown 16%
  • Non-STEM jobs have grown 9%

• Median Earnings in STEM Jobs=$35/hr
• Median Earnings in non-STEM Jobs=$17.75/hr
STEM/STEAM Careers

It’s not only about STE(A)M Jobs. It’s about the STE(A)M in a job.

Empowering students with skills that will enable them to solve tomorrow’s challenges regardless of the field they are working in.
Characteristics of STEM/STEAM Schools

- Project-Based Learning
- Integrated math, science, CTAE, and, for STEAM, fine arts
- Strong business/post-secondary/community partnerships
- Investigative research as part of the curriculum
Characteristics of STEM/STEAM Schools

Cowan Road Elementary School in Griffin-Spalding County Schools

<table>
<thead>
<tr>
<th>Year</th>
<th>Science</th>
<th>Math</th>
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<tr>
<td>2012</td>
<td>73</td>
<td>77</td>
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<td>2013</td>
<td>80</td>
<td>83</td>
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<tr>
<td>2014</td>
<td>86</td>
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The only way to beat the robots is to back arts education in schools

If you’re doing a job involving creativity it’s less likely to be replaced by software: robots are hopeless on that front

ROHAN SILVA | 6 days ago | 0 comments

Soul-less vision: could violin-playing robots end up taking over in orchestras? AFP/Getty Images
“We cannot live well if we are not active contributors, if we are not creating. It is fun to create! It is healthy to create! This is what young people need to learn and experience. This is why motivation declines. Humans thrive to participate in life, in some way.”

- Guy A. Boyd

https://pdfs.semanticscholar.org/fc55/acbc51ab77479a91f9ee576a6d0015b97d6b.pdf
“We need to invest in arts education, along with science and tech education, because it produces well-rounded students; because it produces more humane people; because it protects our cultural heritage and enables students to understand some of the great creations that have shaped the growth of civilisation; because the arts play a big role in our economies.”

-David Rothkopf
"The secret is that improv not only teaches people to deal with the unexpected but also how to turn that around and make it work for them." -Improv Instructor
STEM and STEAM in action
Design Thinking or Engineering Design Processes

June 2018
Locally Driven Project Based Learning

Field Studies Lab

Apple Orchard Research

Sustainable Energy

June 2018
River Water Quality

Erosion

Sustainable Agriculture

Film
Interdisciplinary Daily Instruction
Coral Reefs and Hyperbolic Equations

The one-dimensional wave equation: The two-dimensional and three-dimensional wave equations also fall into the category of hyperbolic PDE. This type of second-order hyperbolic partial differential equation may be transformed to a hyperbolic system of first-order differential equations.
MODELING SEASONS
Math & Science Interdisciplinary Lesson

S6E2c: Analyze and interpret data to relate the tilt of the Earth to the distribution of sunlight throughout the year and its effect on seasons.

MGSE6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
STEM Georgia Teachers Academy

JUNE 13- MILLEDGEVILLE
JUNE 15- VALDOSTA
Georgia STEM Forum

OCTOBER 21-23, 2018
ATHENS, GEORGIA: CLASSIC CENTER

Designed to support K-12 efforts to include STEM and STEAM education in the school curriculum.
STEM Georgia Online: http://stemgeorgia.org

Enables users to find STEM resources, materials, links to STEM schools, grants, competitions, lesson plans, and more.

Follow us on Twitter: http://twitter.com/stemgeorgia

@stemgeorgia enables users to receive tweets about STEM updates, grants, scholarships, workshops, information, articles, resources, and more.
Join our STEM/ STEAM Georgia Listserv

To join our listserv to receive email notices and updates from the GADOE STEM/STEAM program, please send an email with no message to the email address listed below.

join-STEM-
Georgia@list.doe.k12.ga.us
CTAE

Partners Educating Georgia's Future Workforce

CAREER TECHNICAL AND AGRICULTURE EDUCATION
Clusters and Pathways

- Career Clusters are broad categories of occupational areas.
- Career Pathways are specific occupations and career specialties organized around three (3) specific courses.
Career Clusters

Agriculture, Food & Natural Resources
Architecture & Construction
Arts, Audio/Video Technology & Communications
Business Management & Administration
Education and Training
Energy Systems
Finance
Government & Public Administration
Health Science
Career Clusters

- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics
CTAE STEM Focus Areas

- Architecture
- Agriculture
- Biotechnology
- Cyber Security
- Computer Science
- Energy
- Engineering
- Food Science & Nutrition
- Forensics
- Health Care Science
- Information Technology
CTAE Nationwide Concerns

Data from Change the Equation : Females in CTE
Georgia High School Certified Programs

- 45% Females in Computer Science
- 55% Females in Engineering
Title IV, A - Allowability

The SSASE program provides LEAs the flexibility to tailor investments based on the needs of their unique student populations for a variety of activities with the intent and purpose of improving student outcomes and/or addressing the opportunity gaps identified through the needs assessment.

• Initial and continued consultation with stakeholders
• Select evidence-based activities, interventions and practices
• Reasonable and necessary
• Assurances
  • Prioritization of distribution of funds
  • Required Spending Percentages
  • Supplement Not Supplant
  • Equitable Services
  • Annual Reporting
Resources - Federal Programs Handbook

7/12/2018
Title IV, A - Resources

• Coming Soon
  • WR/SH/ET and Budget Resource Guides
  • Budget Training
    • FY19 Title IV, A Budget Checklist
    • Budget Summary Worksheet

• SSAE Title IV, A Community - Collaboration forums
  • Registration via JotForm
Questions
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