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Computer Science Pilot Program and Grant Funding

Arizona Department of Education
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Introductions

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Program Vision: ADE

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❖ Vision Statement

- ➢ Arizona's K-12 students will develop a foundation of computer science knowledge and learn new approaches to problem solving and critical thinking. Students will become innovative, collaborative creators and ethical, responsible users of computing technology to ensure they have the knowledge and skills to productively participate in a global society.

❖ Origin

- ➢ The Governor's Office set aside funding to support the implementation of Arizona's new Computer Science Standards and to provide more courses in computer science across the state.

Program Vision: ADE

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Provide a clear pathway for elementary, middle school, and high school teachers to **obtain both the education and certification** needed to effectively teach the Arizona Computer Science Standards.

For **PreK-8** CS Educators	For **6-12** CS Educators
9 semester hours* to include the following: • 3 semester hours of teaching and learning programming for educators; **- AND-** • 6 semester hours of a computer science elective which may include, but is not limited to, physical computing or mobile computing.	**12 semester hours* to include the following:** • 3 semester hours of teaching and learning programming for educators; **- AND-** • 9 semester hours of a computer science elective which may include, but is not limited to, computer programming, cybersecurity, algorithms & data structures, operating systems, artificial intelligence, machine learning, database development & management, computer networks, and data mining & analytics.

Big Questions

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1. How can districts leverage state funding to support computer science efforts in your district?

2. What supports are available to train teachers without adding “another thing” to teachers’ workloads?

3. How can new computer science instructional models help support better instructional practices across all content areas?

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ADE: Computer Science Professional Development Grant (Grades 9-12)

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https://www.azed.gov/standards-practices/k-12standards/compsci_prof-dev-program

The application is now open! Click for instructions

A.R.S. § 15-249.12 established the Computer Science Professional Development Program Fund consisting of monies appropriated by the state legislature, in addition to grants, gift, devices, and donations from any public or private sources. Monies in the fund are continuously appropriated and are exempt from the provisions relating to lapsing of appropriations. Participation in the Computer Science Professional Development Program is limited to the following:

Public Schools that offer instruction in grades 9 through 12 ***AND*** *Public Schools that do not currently provide high school computer science instruction. The grant application shall prioritize awards to eligible public schools that have at least sixty percent of students enrolled who are eligible for free and reduced-price lunches under the National School Lunch and Child Nutrition Acts and are Rural schools as defined in section 15-249.13.**

$25K per School Site

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Introducing Micro-Credentials

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A digital form of micro-certification earned by demonstrating competency in a specific skill via classroom practice.

Key Components:

1. Description of the skill
2. Requirements for proving competency
3. Performance rubric for each requirement

Micro-Credentials are less like...	Micro-Credentials are more like...
✗ A College Course... not time based, does not require scope and sequence	✓ A Driver's License... learn by practice and support, earn by demonstration
✗ A PD Workshop... no seat-time, no sub or travel requirement/expense	✓ The Pole Vault... a bar is set, objective is to get clear of the bar using available tools. Train to clear the bar. Practice makes perfect
✗ A Test or Traditional Assessment... not measured by passing an exam	✓ A Single-Skill Version of Familiar Education Certification... allows practitioners to distinguish themselves as accomplished

Survival Skill:
Building a Fire

Which model do you want if you had to survive a night in the woods?

Traditional Learning	Learning by Doing
Reading material + Class + Written Exam / Reflection	Building Knowledge + Tools (kindling, matches) + Build 10 Actual Fires (with a coach)

Teaching “Survival” Skill:

Planning Instruction to Recover Learning

Which model will be most effective at meaningfully changing practice?

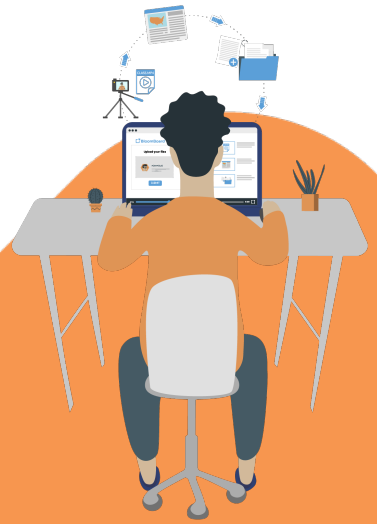
Traditional Professional Learning	Learning by Doing
Reading material + Workshop + Written Exam / Reflection	Foundational Knowledge + Tools (templates, exemplars) + Actual Classroom Practice (with embedded coaching)

What is a Micro-Credential?

A digital form of micro-certification earned by demonstrating competency in a specific skill via *a portfolio of artifacts* from *classroom practice*

Key Components:

- ✓ Description of the skill
- ✓ Requirements for proving competency (artifacts)
- ✓ Performance rubric for each requirement



Learn by Doing:
The BloomBoard Experience

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LEARNING

DOING

1

EXPLORE

Orienting: Getting Ready to Learn

2

ENGAGE

Building Knowledge: Fill Knowledge Gaps

3

EXERCISE

Building Your Portfolio: Practicing & Receiving Feedback

4

EVIDENCE

Submit Your Portfolio

5

EXTEND

Support Others in Their Learning

1-on-1 and Cohort-Based Coaching

How Does BloomBoard Support Educators?

BloomBoard Program Advisor (personalized 1:1 guide)

BloomBoard Academy

(1st Time Participants Only)

- Intro to Coach
- Orientation
- Initial BloomBoard Learning Community Sessions

GOAL: Submit first Micro-credential

1-on-1 Strategic Micro-endorsement Planning w/ Coach

(To personalize path forward)

Experienced Participants

MC Learning Communities

3-weeks - synchronous meetings

MC Specific Workshops

MC overview, Artifact Working Session, Sharing Artifacts with peers, MC Submission

Extending Strategic 1-1 w/ Coach

Examples include "Applying Assessor Feedback" and "Starting Your Next MC"

Self-Service

Support site, how-to video clips, support articles, PLC recordings

Core Support: Required

Flex Support: Optional, based on individual need

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What Does the Future of Career Advancement Look Like?

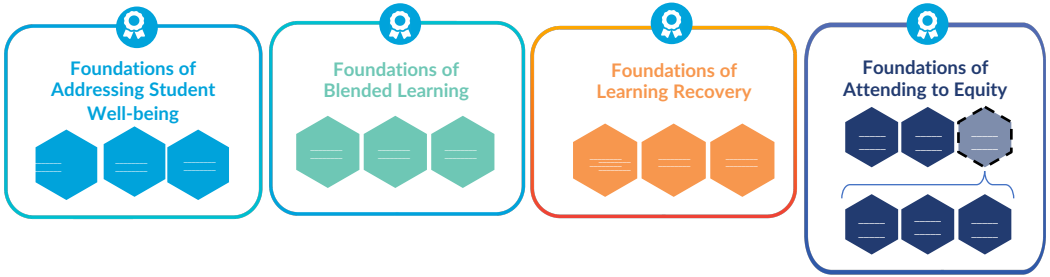
- Growth will be **linked to accredited degree or other salary credit**
- **Advancement will be MUCH cheaper ($5K-8K vs. $15K-$50K)**
- **Licensure requirements** will be automatically satisfied
- Content will be **directly aligned to district strategic plans**
- **Portfolio-based learning** will be the norm (6x learning / retention)

ABC School District Teacher/Administrator Salary Schedule			
	RANGE		
	01	02	03
Step	BA	BA+15	MA
01	35,028	36,068	37,109
02	36,068	37,109	38,149
03	37,109	38,149	39,293
04	38,149	39,293	40,230
05	39,293	40,230	41,271

~20%-40% of all educators are currently "maxed out" on their salary schedules before a degree-bearing lane change…

Competency-Based Graduate Degree Pathway

Master Teacher Foundations Endorsements (12 MCs)



Personalized Micro-Endorsements (18 MCs)

2021

DATE

SIGNATURE

Chandler's Experience

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ADE: Computer Science 6-12 Endorsement

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REQUIRED for PreK-8 & 6-12 CS Educator Endorsement:

1. **Application:** Submission of a completed Application for Certification and the appropriate fee (see Application for Certification).
2. **AZDPS IVP Fingerprint Clearance Card:** A photocopy of your valid Arizona Department of Public Safety Identity Verified Prints (IVP) fingerprint clearance card.
3. **Prerequisite Certificate:** (A valid Arizona Standard Professional Certificate)
4. **Computer Science Coursework/Training:** 3 semester hours* in foundations for teaching computer science which addresses the following topics:
   - Introduction to computer science;
   - Inclusive recruitment, retention, and pedagogical strategies in computing education;
   - Computational thinking;
   - Instructional planning based on the Arizona state standards for computer science or comparable computer science standards.

In addition to the REQUIRED items, IN-STATE educators need:

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Grades 6-12 Computer Science Endorsement