Tiny Techies

GRADE LEVELS:
PreK-2

EDUCATIONAL SETTING:
In school and/or out of school

Award Provides:
Training:
· one-day (eight hour) in-person initial workshop
· three 60-90 minute virtual follow-up sessions

Educator stipend:
· $120 for initial training
· $60 for three follow-up sessions (must attend all three)
· $50 for participants who travel more than 60 miles to attend training.

Materials:
Hands-on, unplugged activities, for up to 30 youth.

Professional credit options:
· 1 teacher relicensure credit
· 1 Continuing Education Unit (CEU)
· 10 DHS Clock Hours
· 1 hr of grad credit (optional, cost not included in Scale-Up)

Additional Cost(s) to Awardee in 2023-2024:
- Optional grad credit

Approximate Sustainability Cost After Award Period:
<$100/classroom

2023-2024 STEM Scale-Up Program Summary:

There are so many opportunities for kids to experiment and play with technology, but preparing students to be creators instead of consumers doesn't only happen in front of a screen! Tiny Techies was developed by NewBoCo for PreK-2nd graders to learn key computer science skills without being placed in front of a computer. Students build computational thinking and problem-solving skills, are creative, and practice working together. In an increasingly technology-driven world, these are all skills that will help them as they grow and prepare for jobs that don't yet exist. The educator professional development trains teachers on the what and why, with plenty of time to explore the how through hands-on activities.

We're exceptionally passionate about Tiny Techies because of its unique, unplugged approach to teaching the fundamentals of computer science. This program is designed so that computer science doesn't need to be taught as an extra subject in a teacher's already busy schedule. We suggest ideas for how computer science concepts connect cross-curricularly, and all of the lessons are tied to CSTA and Iowa Core Curriculum standards.

Tiny Techies can help schools fulfill Iowa HS 2629 requirements. The bill requires elementary schools to incorporate the computer science standards in at least one grade in grades 1–6 starting July 1, 2023. The earlier we can expose students to technology and computational thinking, the better prepared they will be to enjoy exploring these mandatory subjects in later grades.

Implementation time average: 6 hours of contact time with youth.

MATERIALS:
Large group kit (30 youth)
Hello Ruby books, printed student materials and sequencing cards, tangrams, LED set, 9V battery, playdough, snap circuits, AA batteries.
Small group kit (4-8 youth)
Cubetto mats, Cubetto base set, and Learning Beautiful pixel boards, binary tree, and playbook

TRAINING:
- one-day (eight hour) in-person initial workshop
- three 60-90 minute virtual follow-up sessions

Requirements to Implement the Program:

1.) Educators must attend a one-day (eight hour) in-person workshop. The workshop date is TBD, but will fall within July 24-August 11, 2023.
2.) Educator(s) must participate in the STEM Council Scale-Up Educator Survey.

Website:
https://newbo.co/education/educators/tiny-techies-for-educators/

Videos:
https://vimeo.com/655444559

https://vimeo.com/655444559

Social Media:
https://twitter.com/NewBoCo

Information Webinar
Jan. 23, 2023
4:00 PM

Registration Link:
https://newboco.zoom.us/meeting/register/tZModeutqzkuG9LUxy5WJQqRb6Jsn6lILHy1

Iowa Standards Alignment:

- Sequencing is a foundational reading skill for students to correctly write narratives with appropriately sequenced events (Literacy W.1.3) In Computer Science, sequencing requires students to 'develop programs with sequences to express ideas or address a problem' (CSTA 1AAP-10).
- Decomposition is the ability to recognize that everything is built out of smaller things. The Iowa Core includes students being able to, 'analyze, compare, create, and compose shapes (Math K.G.B).' Students connect this mathematical skill to computational thinking by using tangram pieces to determine how small shapes compose a bigger picture (CSTA 1A-AP-11).
- Pattern Recognition - A standard of Mathematical Practice is to 'Look for and Make Use of Structure.' Pattern recognition in computational thinking is the ability to recognize things that are repeating (CSTA 1A-AP-10).

Professional Development:
Duration: One day (eight hours) + 3 virtual follow-up sessions.
Date(s): TBD, but will fall between July 24, 2023 - August 11, 2023
Location: TBD, multiple options throughout the state
*Educators must attend the initial workshop to receive Tiny Techies materials and $120 initial-session stipend for educators.

Virtual Follow-Up Sessions
Duration: 60-90 minutes
Date(s): TBD, multiple dates available at three intervals throughout the school year.
Location: Virtual
***Educators must attend all three virtual workshops to qualify for the $60 follow-up session stipend for educators.**

Tiny Techies curriculum was designed for all PreK-2nd grade educators (both in-school and out-of-school). The requirements for teachers do not include prior computer science knowledge, but instead a passion for teaching ALL students, the ability to use an inquiry-based approach, and comfort with being a lead learner versus the expert in the classroom. The training program enhances educators' content knowledge and pedagogical skills by integrating key concepts cross-curricularly. The training helps guide participants' experience with the activities and encourages teachers to plan when they will make these connections throughout the year to tie into their existing curriculum and local context.

Photos:



STEM Scale-Up Program Application Link: www.IowaSTEM.org/Scale-Up-Application