

## Building Better Training Methods

### 1. Preparing Teachers for 21st Century Students

Many elementary teachers are unfamiliar with the STEM content they are charged to teach. This often results in teaching practices that rigidly follow textbooks or predetermined lectures.

### 2. Best Practices in STEM

Inquiry-based practices are successful and engaging ways to build understanding. This shifts responsibility off textbooks and towards learners utilizing prior knowledge, developing research questions, creating procedures, and drawing their own conclusions.

### 3. Relevant Training Options

Current teacher training options in STEM areas are too expensive for most schools, do not cover each of the content areas using a common framework, and rarely provide guidance for K-2 classrooms.

## Making Badges Meaningful

### 1. Learn

Instructors give lessons to teachers on how to teach topics to their students

### 2. Teach

Teachers then use what they've learned to teach their students. Teachers provide evidence of their work using pictures, videos, and student samples.

### 3. Reflect

The community of teachers then comment on each others' work, providing constructive criticism and learning from each other.

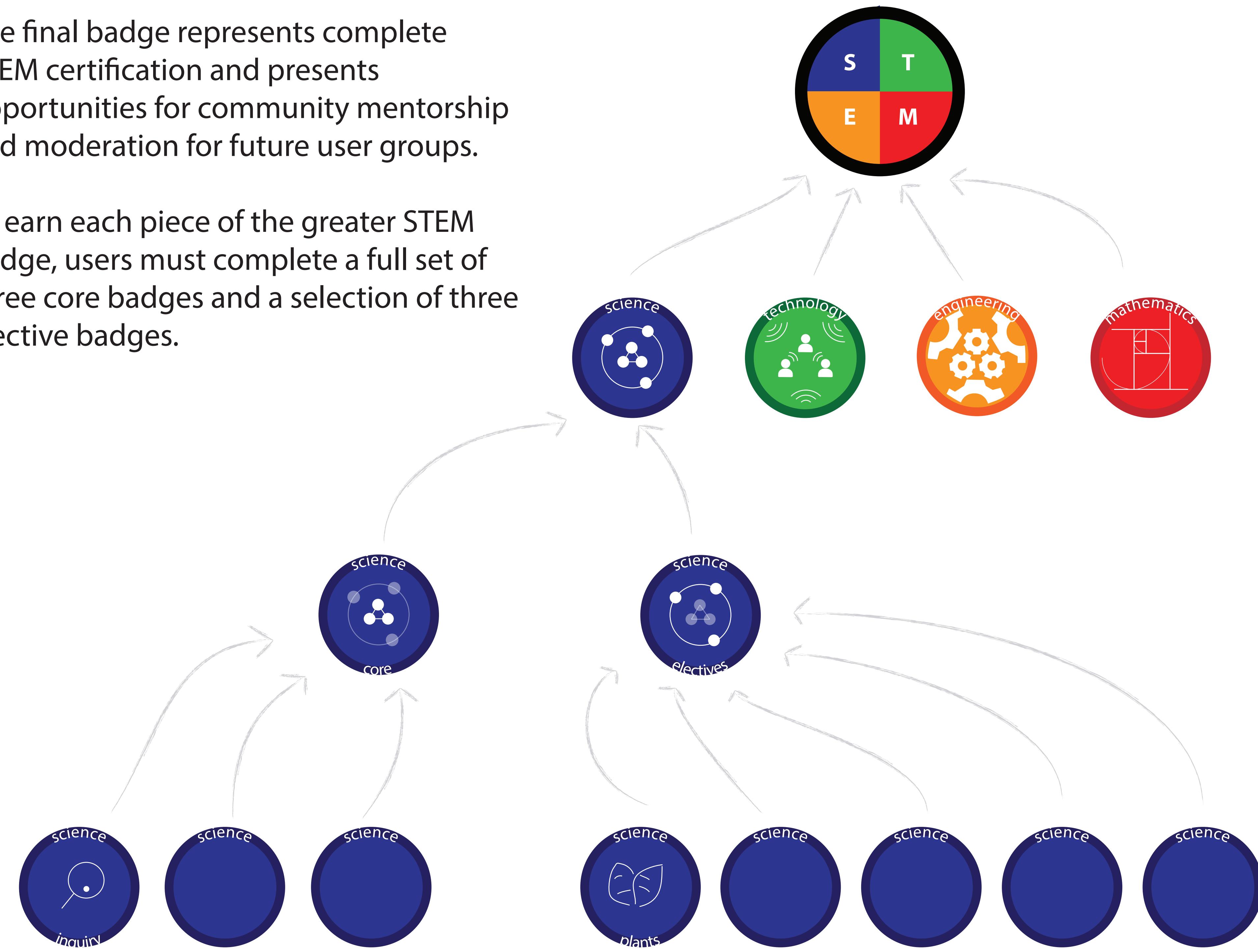
# Badges for Lifelong Learning Elementary STEM Mastery for Teachers

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## Badge Skill Tree

The final badge represents complete STEM certification and presents opportunities for community mentorship and moderation for future user groups.

To earn each piece of the greater STEM badge, users must complete a full set of three core badges and a selection of three elective badges.



Core badges focus on methodology that all teachers must be familiar with.

Electives represent specific areas of classroom content that teaching techniques must be applied to.

#### Science Core

- Inquiry and Process
- Journaling for Elementary Students / Integrating Science with Language Arts
- Matter & Energy

#### Science Elective

- Earth Science
- Plants
- Animals
- Ecosystems
- Weather
- Stars
- Solar System
- Earth, Moon, and Sun

#### Technology Core

- Basic Productivity
- Social Media
- Digital Photography

#### Technology Elective

- Multimedia Editing
- Student blogging and publishing
- Integrating Tech with Science
- Integrating Tech with Engineering
- Integrating Tech with Math
- Programming with Scratch
- 2D and 3D Modeling
- Integrating Technology with Language Arts

#### Engineering Core

- Engineering Process
- Drafting
- Building simple structures

#### Engineering Elective

- Building and Experimenting with Construction Toys
- Programming with Scratch
- 2D and 3D Modeling
- Classroom Design
- Competitions
- Integrating Engineering with Language Arts

#### Mathematics Core

- Managing Math Classrooms as Learning Communities
- Number Sense
- Math Discourse

#### Mathematics Elective

- Geometry
- Problem Solving
- Fractions and Decimals
- Integrating Math with Language Arts
- Integrating Math with Programming
- Mental Math
- Graph

## 2012 Digital Media & Learning Competition

In 2007, the MacArthur Foundation launched the DML Competition to support projects focused on innovative uses of digital media for learning, creation, and social engagement. In 2012, the Badges for Lifelong Learning Competition was initiated in collaboration with the Mozilla Foundation.

### Teacher Mastery and Feedback Badge Competition Structure

Mission: create a badging system that "recognizes, rewards, and offers peer feedback to teachers regarding master of capacities and skills."

#### Stage 1: Content Proposal

Proposal of content and core competencies for teacher mastery.

#### Stage 2: Design Proposal

Proposal of system design and online infrastructure for content proposals.

#### Stage 3: Final Badge System Proposals

Judges paired Stage 1 and Stage 2 participants into teams which competed in the Finals on 2/29/2012 at the California Academy of Sciences in San Francisco, CA.

Result: Poinciana STEM Elementary Teacher Certification selected as 1 of 16 finalists.

Result: Our Badge System Design project selected as 1 of 16 finalists.

## Mozilla Open Badge Infrastructure

The Mozilla OBI provides a framework for motivating and recognizing informal interest-driven learning.

