January 28, 2020

WELCOME!

Building STEM Superheroes in K-2 Learning Spaces

Emily Jensen STEM Outreach Manager
Twin Cities PBS Ready to Learn

Michael Fields STEM Program Coordinator & Site Manager
YMCA Power Scholars

Beth Daniels STEM Content & Education Manager
Twin Cities PBS Ready to Learn

AGENDA

- Project Overview
- Outreach
- Partnerships
- Hands-On!
- Family Science Event
- Digital Games

PROJECT OVERVIEW

The contents of this document were developed under a grant from the U.S. Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government. PR/Award Number U295A150012. The U.S. Department of Education is the funding agency.

WE ALL BELONG AT HERO ELEMENTARY!

PROJECT GOAL

Improve the school readiness and academic achievement of children in grades K-2 in science and literacy.

TARGET AUDIENCES

- Latinx communities
- English Language Learners
- Children with disabilities
- Children from low-income households

PHILOSOPHY & APPROACH

CHILD CENTERED

- The best learning is fun and engaging.
- Parents, caregivers, and school and neighborhood communities play vital roles in helping children learn.

EQUITY FOCUSED

- Research-based equity strategies support all children and benefit young STEM learners from underrepresented communities.
- Materials that welcome and affirm all children boost engagement and learning for everyone.

ASSETS BASED

- All children bring assets to their learning.
- Building in supports for all children's unique strengths and challenges is essential for equity in education.

PHILOSOPHY & APPROACH

CONSTRUCTIVIST INSPIRED

- Children benefit when they build knowledge through active learning.
- Science talk and reflection help children make sense of new learning experiences.

MEDIA ENHANCED

- Technology can transform learning and help all children succeed in school and throughout their lives.
- Blending technology-based and real-world learning spaces supports young children's learning and development.

PHILOSOPHY & APPROACH

STANDARDS ALIGNED

- Connecting children's academic and enrichment experiences supports their learning.

RESEARCH DRIVEN

- Designing effective learning experiences requires a thoughtful research process and ongoing evaluation.

OPENLY SHARED

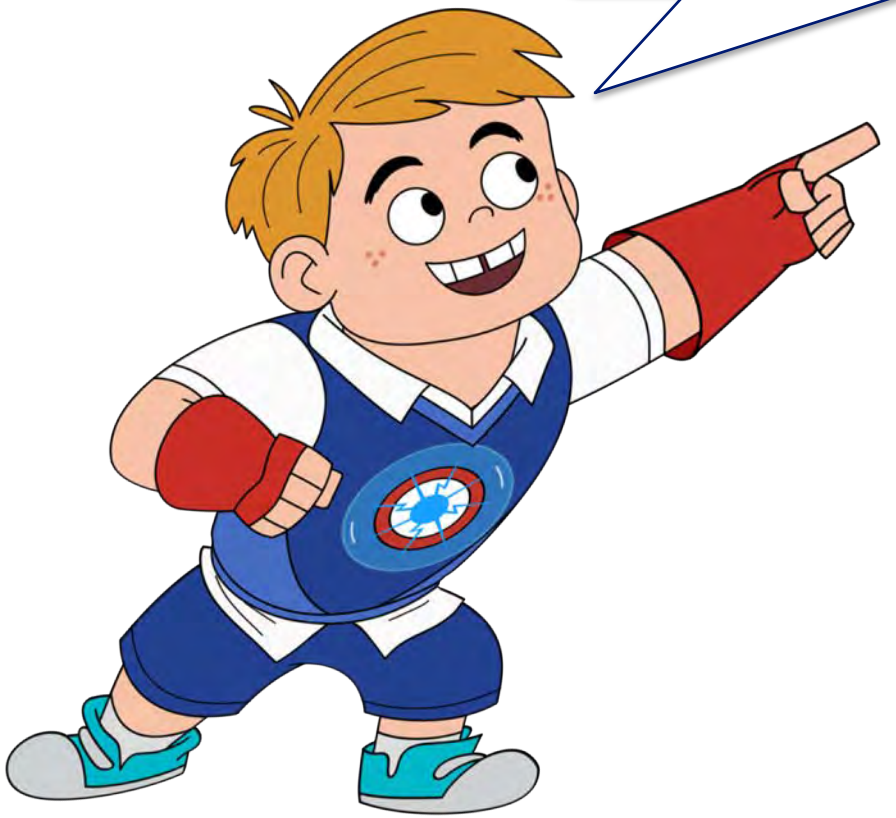
- Offering free project resources and professional learning is fundamental to the success of the *Hero Elementary* enterprise.

MEDIA PRODUCTS

26 Playlists

- 40 TV shows
- 16 digital games
- Science Power Notebook
- 8 Analog games
- 52 Hands-on Activities
- Informational e-books

PLAYLISTS



What's a playlist?

A collection of content about a topic to inspire, empower, and deepen children's science learning

PBS KIDS DISTRIBUTION

VIDEO

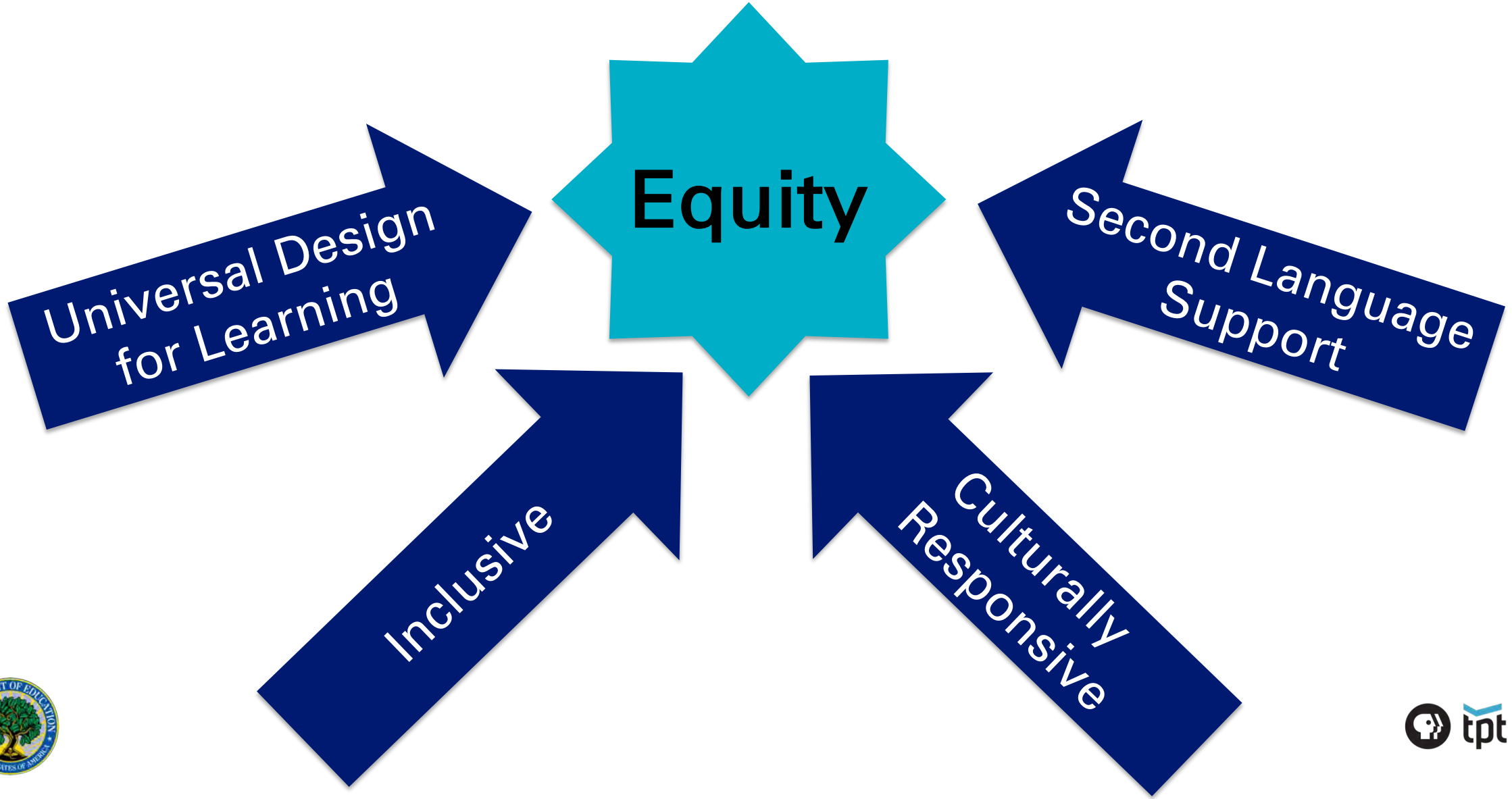
- Traditional broadcast
- 24/7 channel (including streaming)
- PBS Kids video App
- Amazon

DIGITAL

- PBS Kids website
- PBS Kids games App
- PBSLM
- PBS Parents

CURRICULUM → WHAT KIDS DO!

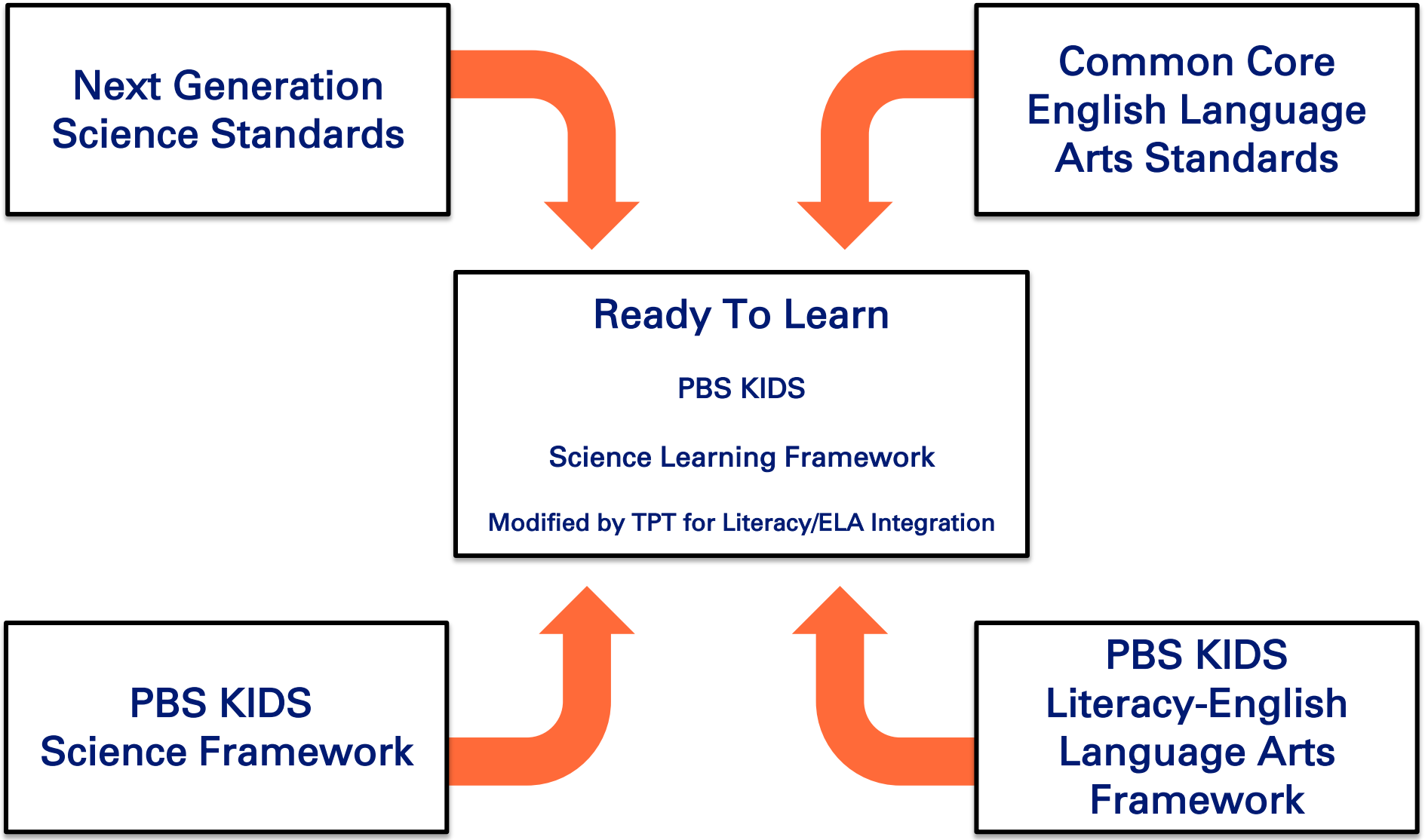
PEDAGOGY: EQUITY FOCUSED



PEDAGOGY AND SEL

- **Growth Mindset**
  - Make mistakes – that's how heroes learn!
- **Social emotional learning (SEL)**
  - Work together
  - Help the community
  - Resilience, heroes don't give up

SCIENCE-LITERACY LEARNING FRAMEWORK



SCIENCE AS LITERACY

SCIENCE & ENGINEERING PRACTICES

Utilize the skills, thinking, & language of Scientific Inquiry & Engineering Design.

- Ask questions
- Define problems
- Plan & carry out investigations
- Analyze & interpret data
- Construct explanations
- Design solutions
- Obtain information
- Communicate information

LITERACY & ENGLISH LANGUAGE ARTS

Produce & receive communication in a variety of forms.

- Speaking
- Listening
- Writing informational texts
- Reading informational texts
- Vocabulary

SUPERPOWERS OF SCIENCE

INVESTIGATE!

GET INFORMATION!

ASK QUESTIONS!

OBSERVE!

EXPLAIN!

NAME THE PROBLEM!

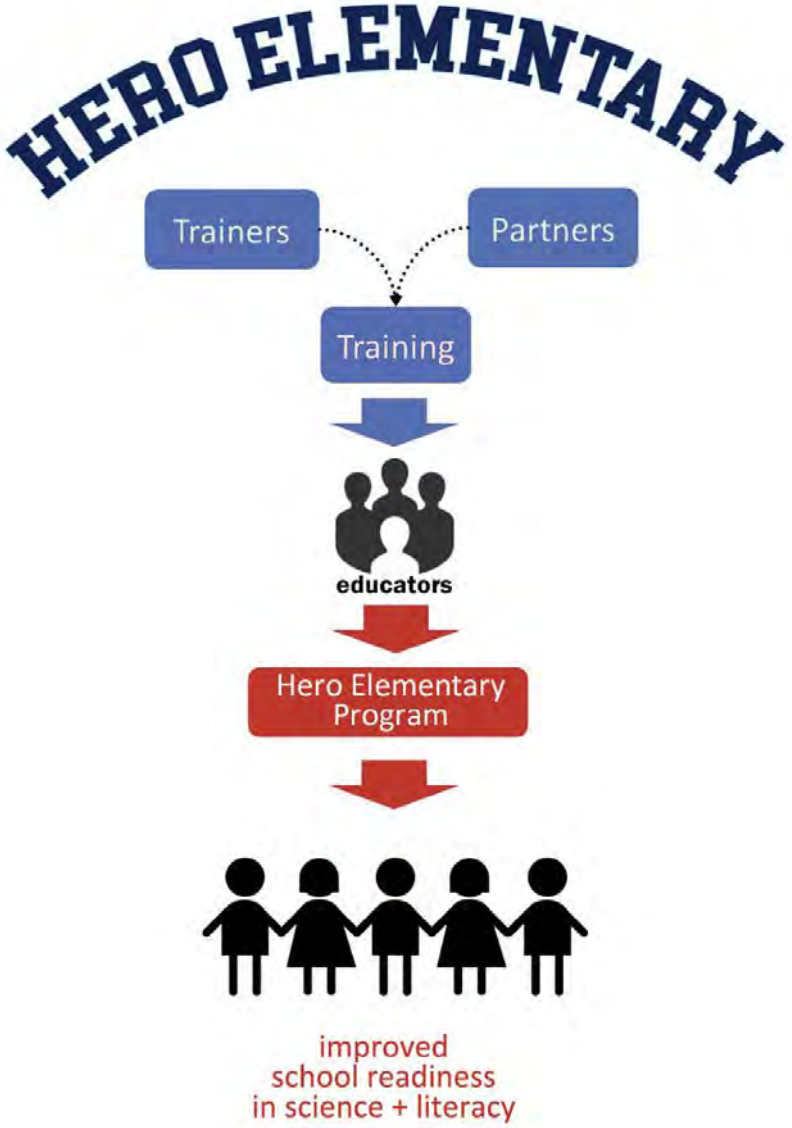
SHARE WHAT YOU KNOW!

MAKE SENSE!

FIGURE OUT A SOLUTION!

OUTREACH

OUTREACH MODEL



OUTREACH MODEL

Outreach

- Recruitment through cold emails, conferences and networking
- Exploratory calls

Contract

- Stakeholder language
- Roles and responsibilities are clearly defined

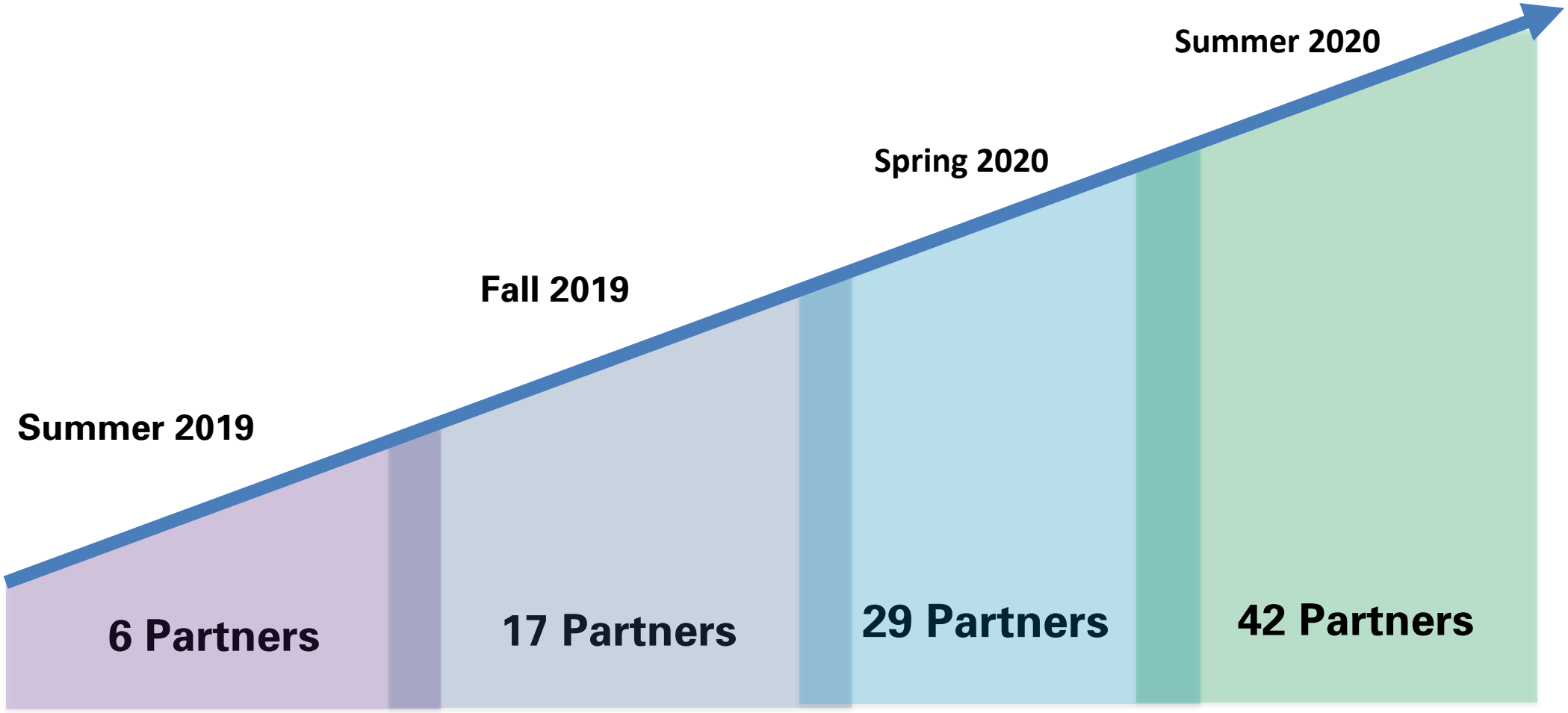
Training

- 8 hour in person Hero Elementary training
- 1 hour zoom training on Playlist Website
- Other support

Implement

- Work with Partner on implementation timeline
- Partner has access to Educator Website, webinars and other support

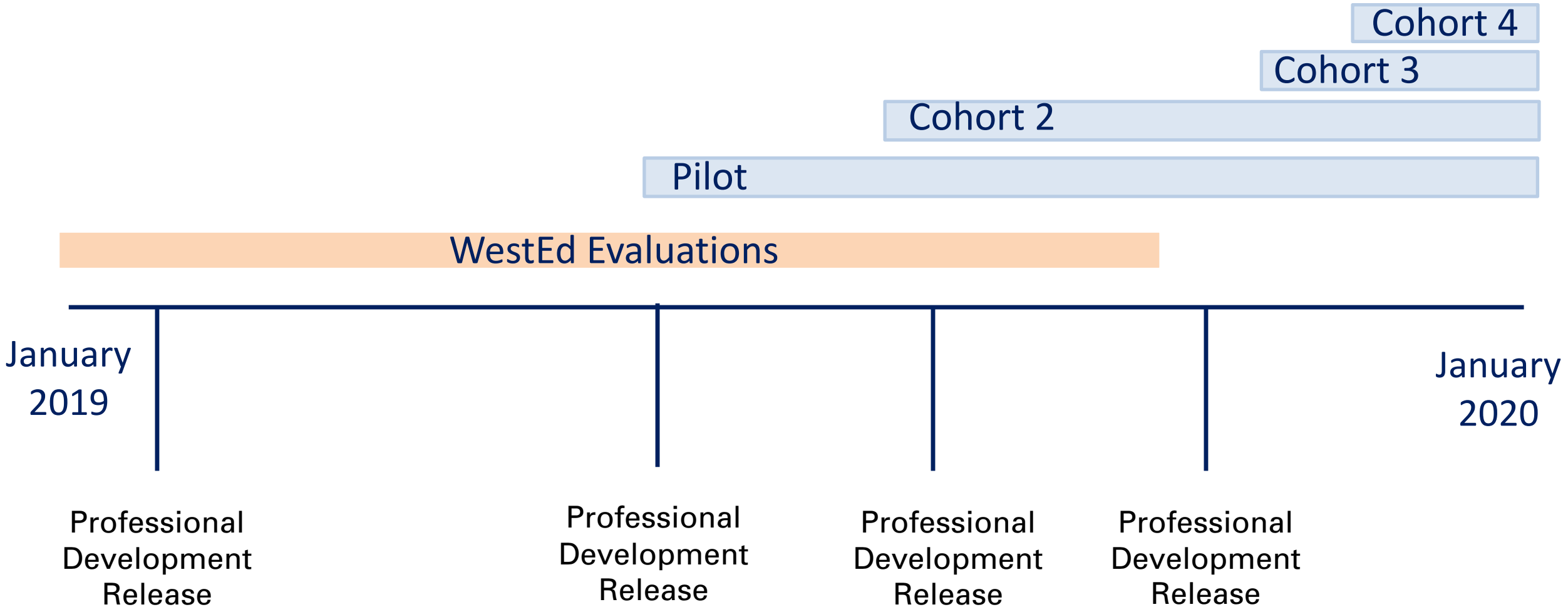
PILOT TO SCALE



PARTNER SUPPORT

- Hero Elementary Training in-person training
    - 8 Hour Training for Directors and Managers
    - 8 Hour Training Classroom Educators
    - 4 Hour Refresher Training Partners Scaling Up
- Online Hero Elementary Training
- Implementation and Playlist Website Zoom Training
- Educator Platform
- Online Playlist Website Training
- Webinars
- Newsletters

PROFESSIONAL DEVELOPMENT TIMELINE



Training Content Approach

Approach

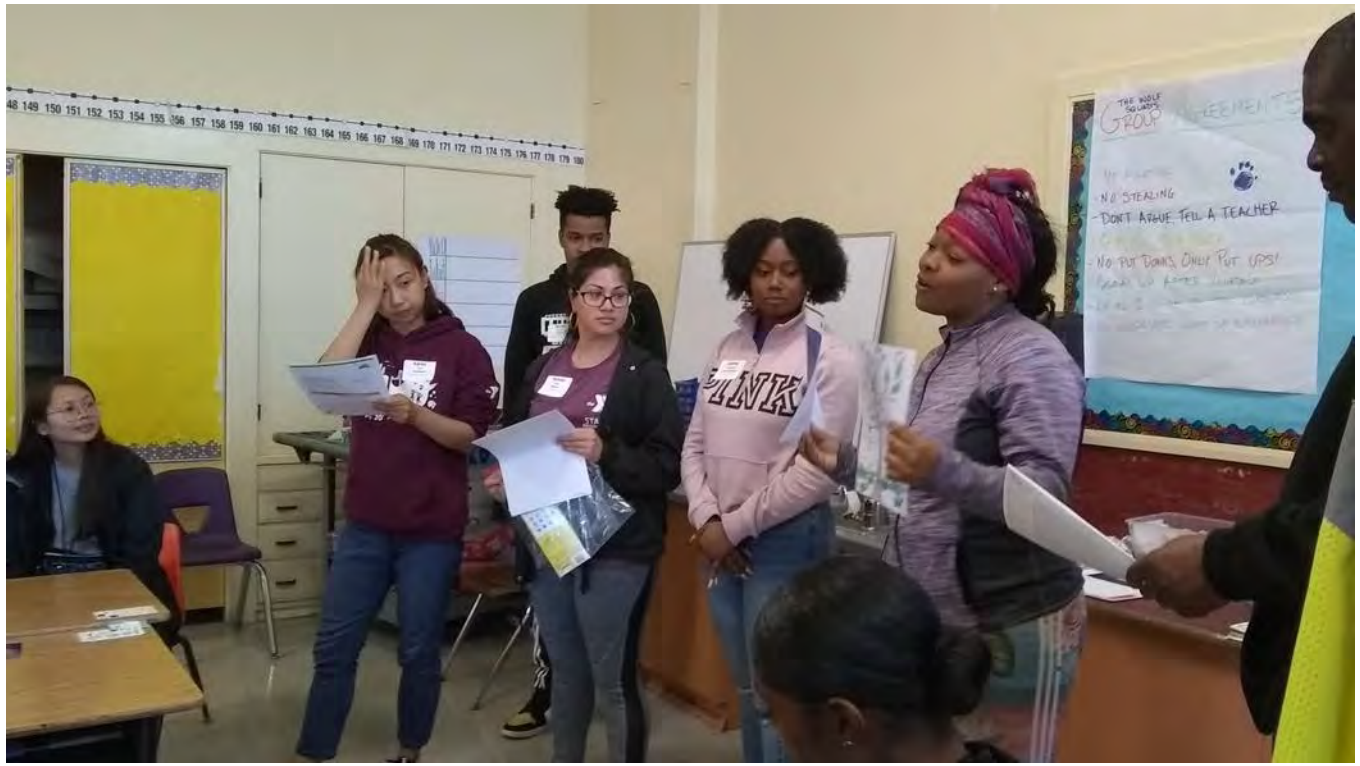
- Activation: Existing knowledge and skills
- Demonstration: Learners observe demonstration
- Application: Using newly acquired skills
- Integration: Reflect and discuss new skill

Learning Objectives

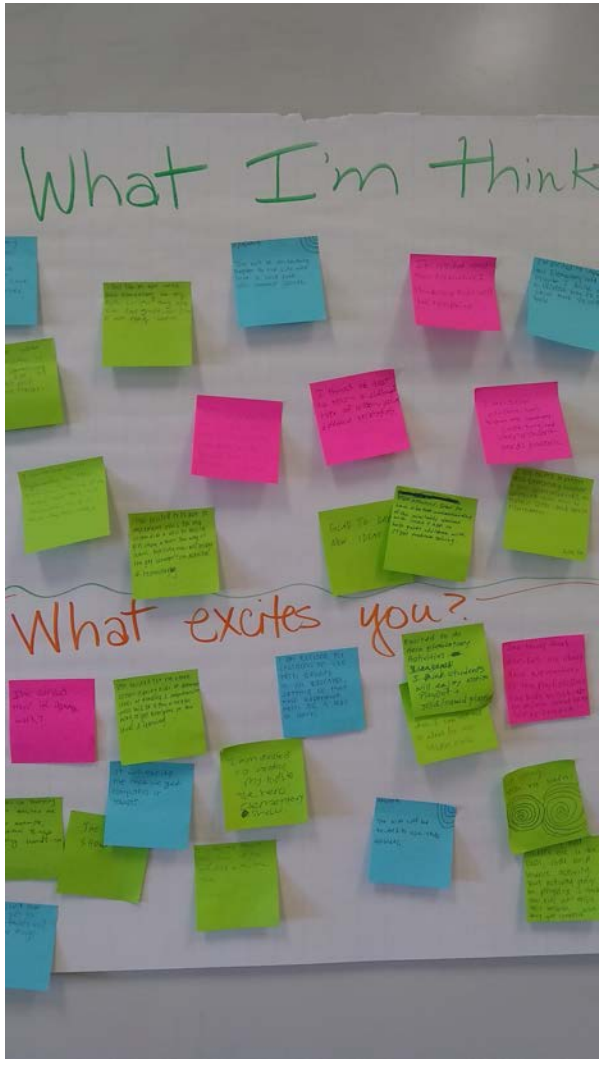
- Skills & Knowledge to effectively implement
- Equity Approach
- Program Customization
- Technology Integration

HERO ELEMENTARY TRAINING

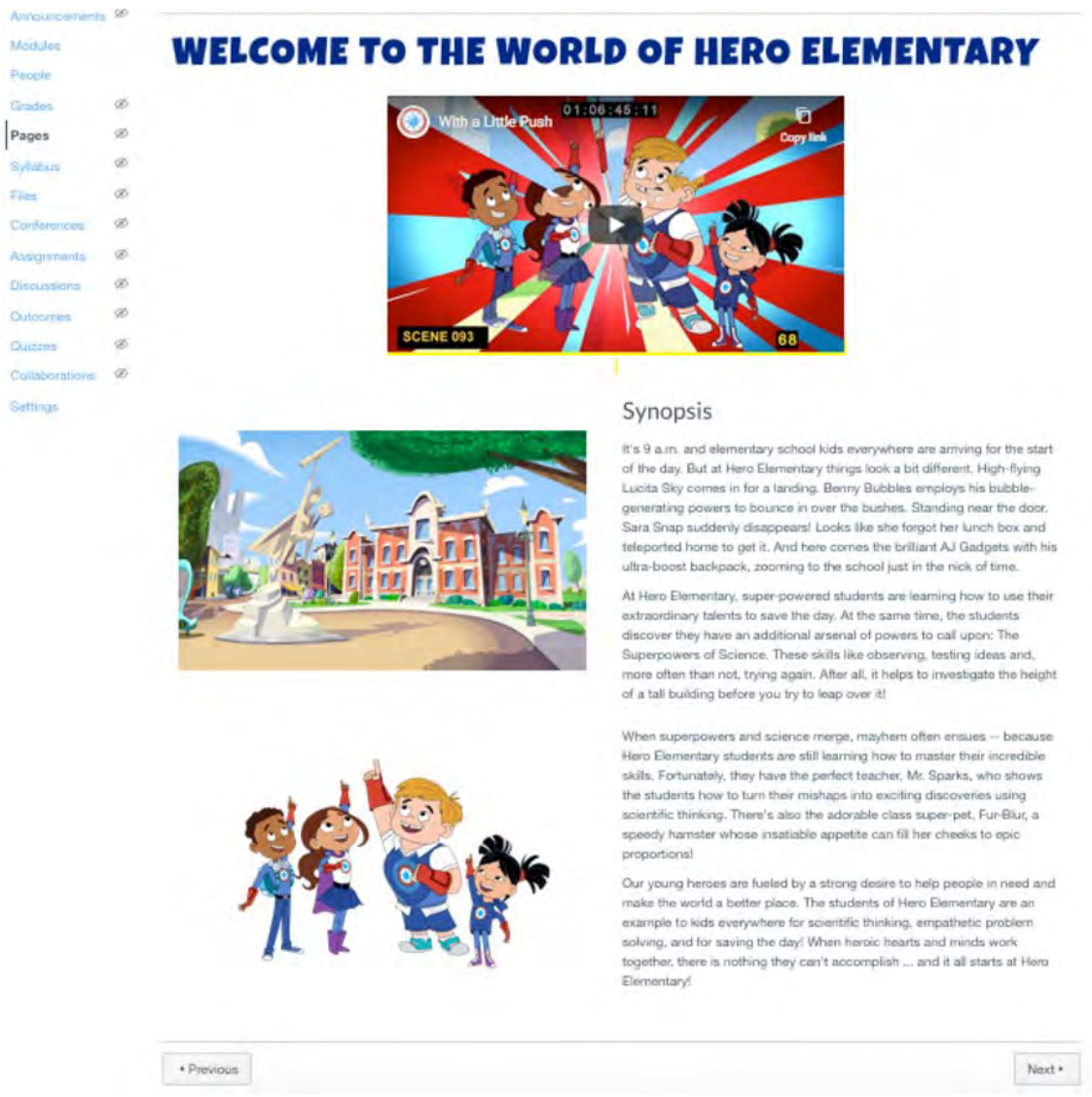
- 20 certified Hero Elementary Trainers
- 18 in person trainings, with 500 trained



HERO ELEMENTARY TRAINING



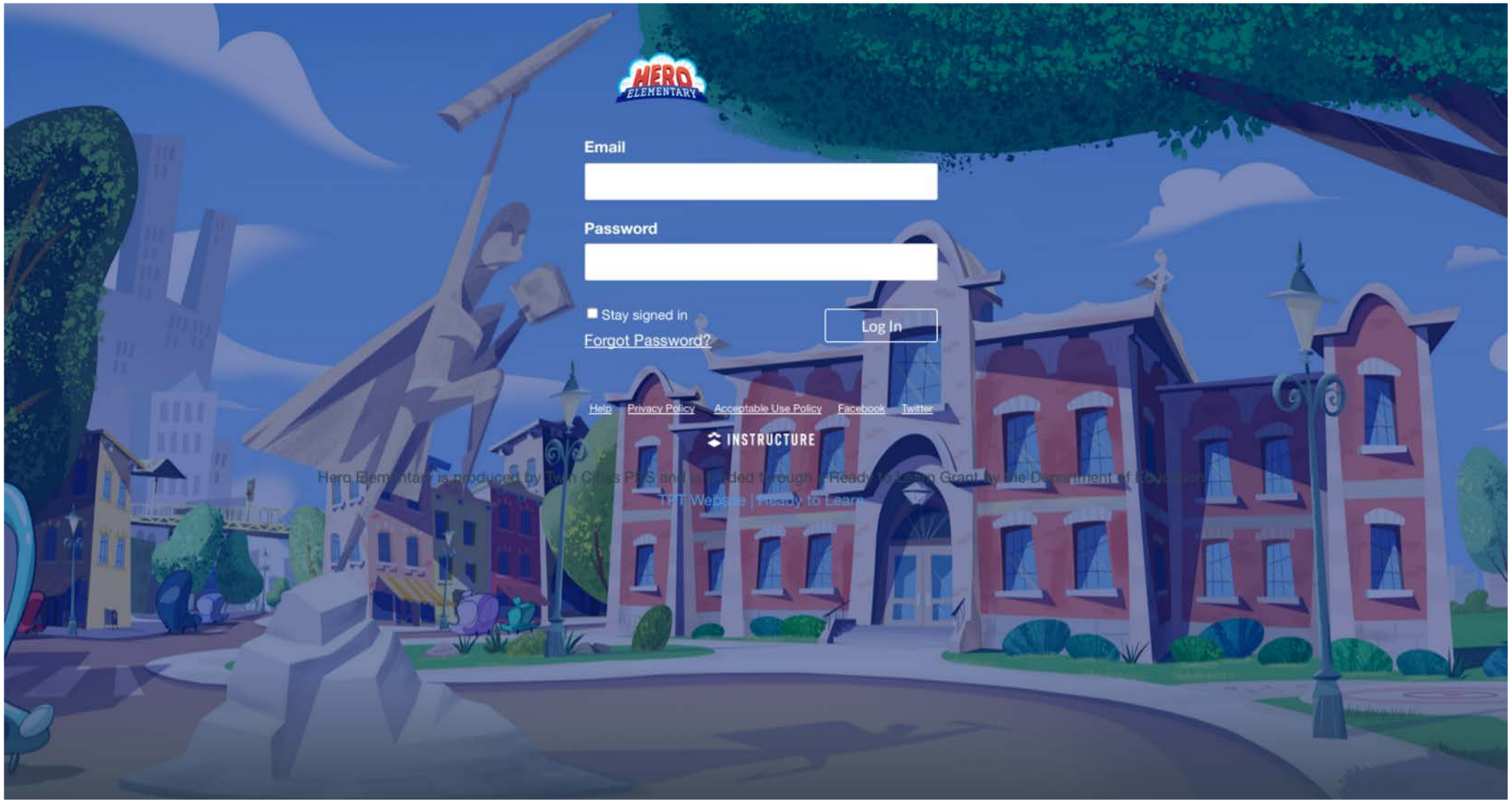
Online Training



What Educators Say About Hero Elementary

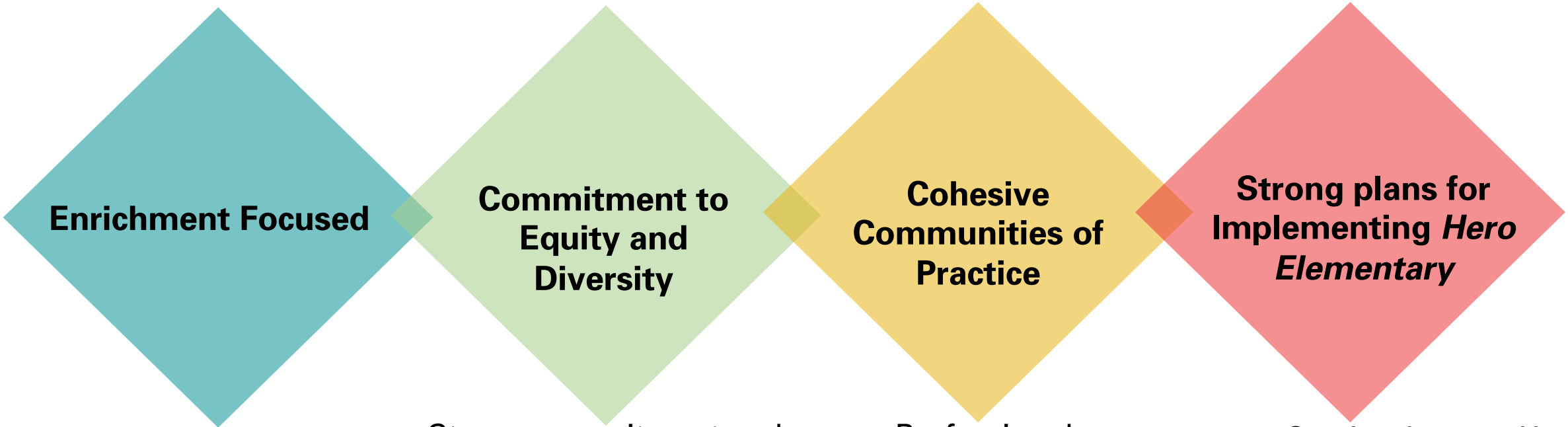
- “Teaching my staff and then seeing my students learn and use the curriculum”
- “Students being exposed to such inclusive curriculum”
- “Hero Elementary is inclusive and represents the populations they serve”
- “I appreciate the equity-focus. I am hopeful that students will identify with the characters and that it will empower them to be confident in their curiosity and education.”

EDUCATOR WEBSITE



PARTNERSHIP

SUCCESSFUL PARTNERSHIP CRITERIA



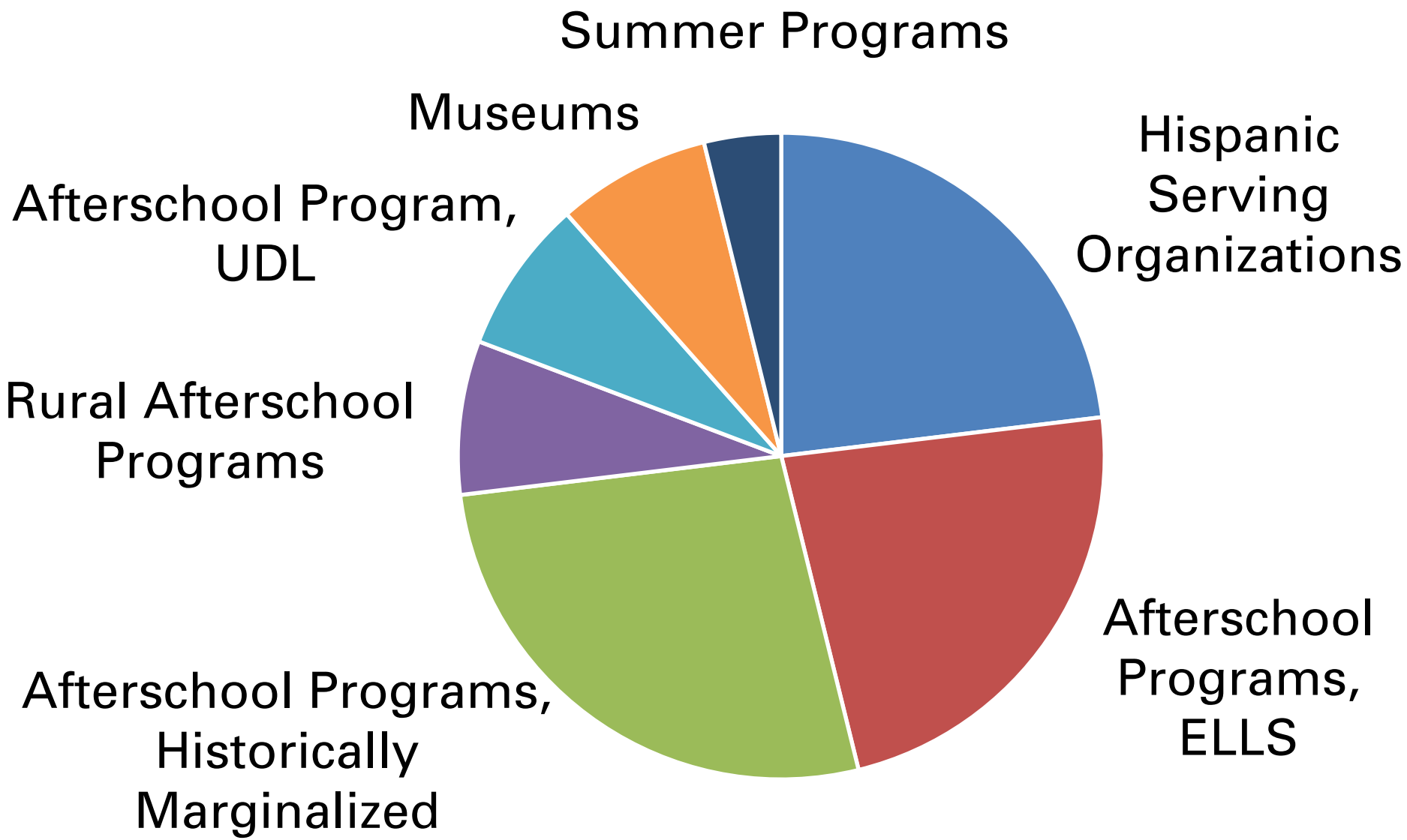
- Track record of providing quality programming in their community.
- Strong Program Director/manager relationship.
- Productive child/educator ratio.

- Strong commitment and approach to equity.
- Curriculum, pedagogy, and challenge is responsive to individual differences and social political context of learning.
- Experience working with our targeted populations.

- Professional development is valued by organization.
- Offers family programming and opportunities for parents/guardians to be involved.

- Can implement *Hero Elementary* collection or resources to fidelity.
- Can handle the technology lift.

PARTNER PROFILES



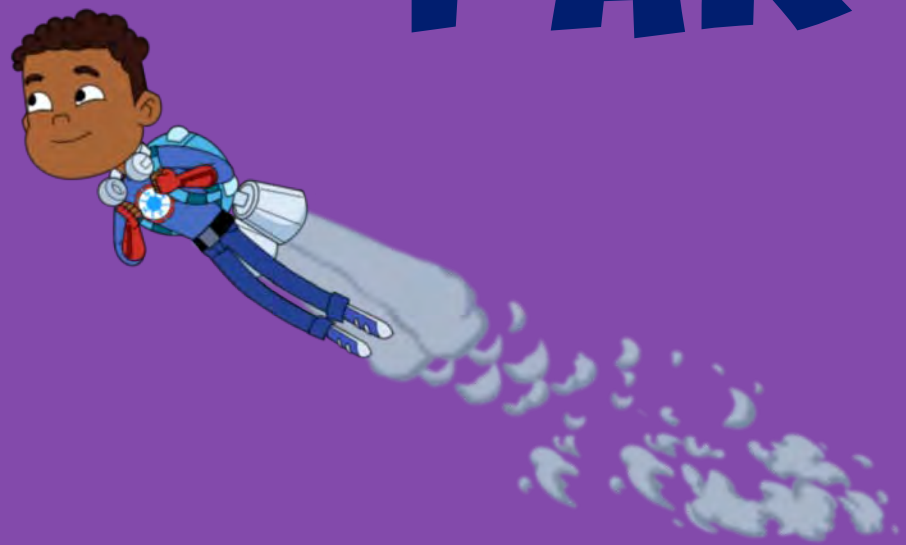
3 STRATEGIES FOR SUCCESSFUL PARTNERSHIPS

1. **Be Clear on the Why**
   - Clear on value you both bring to table
   - Nature of relationship

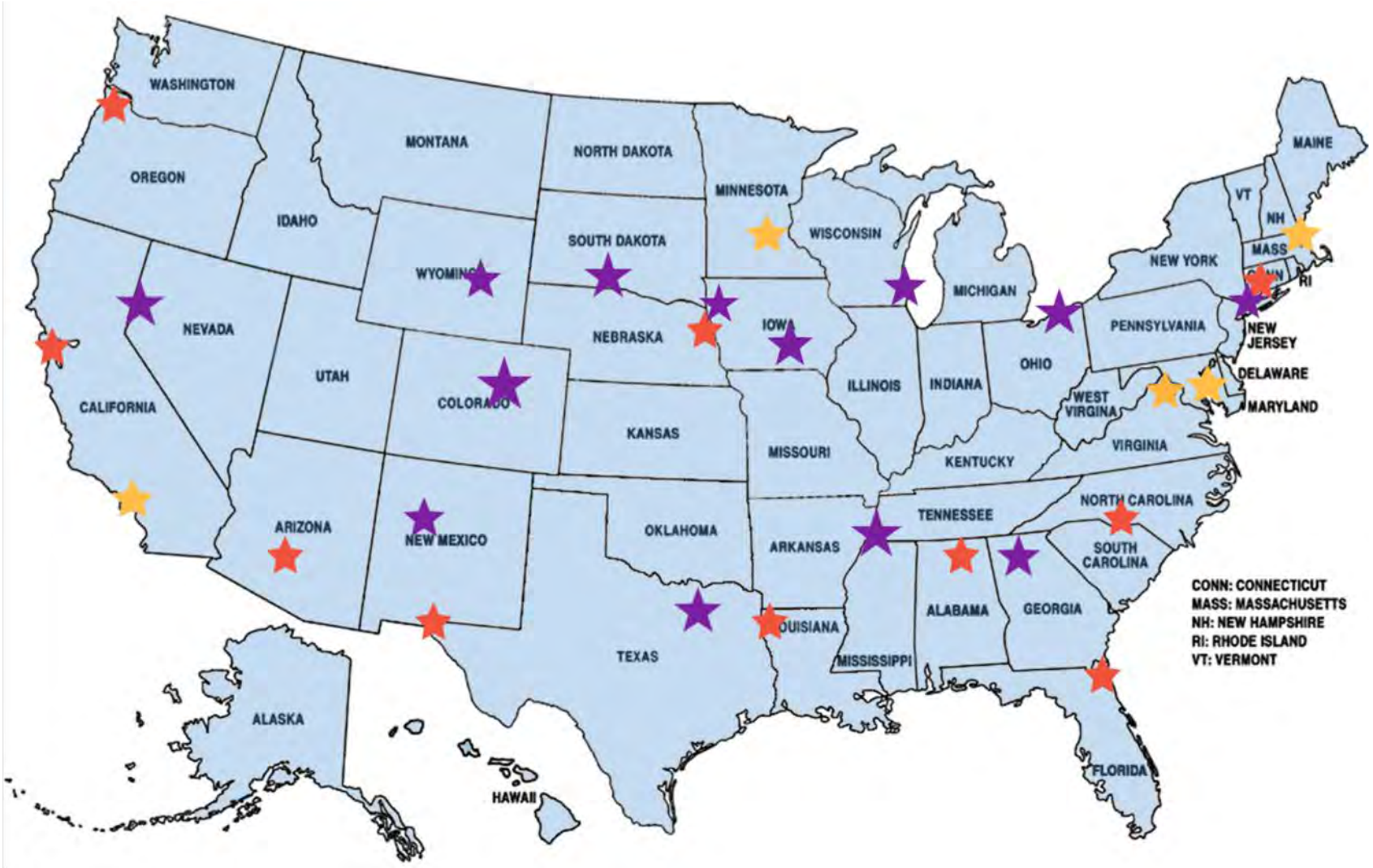
2. **Long term shared purpose**
   - Metrics and accountability
   - Mutually beneficial relationship

3. **Strategic Plan**
   - What are the goals and how do we get there

HERO ELEMENTARY PARTNERS



PARTNER MAP


WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
ARIZONA
COLORADO
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
MAINE
VT
NH
MASS
RI
NEW JERSEY
DELAWARE
MARYLAND
ALASKA
HAWAII
CONN: CONNECTICUT
MASS: MASSACHUSETTS
NH: NEW HAMPSHIRE
RI: RHODE ISLAND
VT: VERMONT

PILOT COHORT SUMMER IMPLEMENTATION

Organization	Implementation	Children enrolled	Playlist Completed
Child First Authority	July 2019	27	3
The Children's Museum at La Habra	June 2019	89	1
Boys and Girls Club of Northern Alabama	July 2019	165	1
Heavenly Hope – Hands4Hope	June 2019	31	3
SPPS Freedom School	June 2019	280	7
YMCA of Metropolitan DC	June 2019	25	2
Total children reached		**617**	

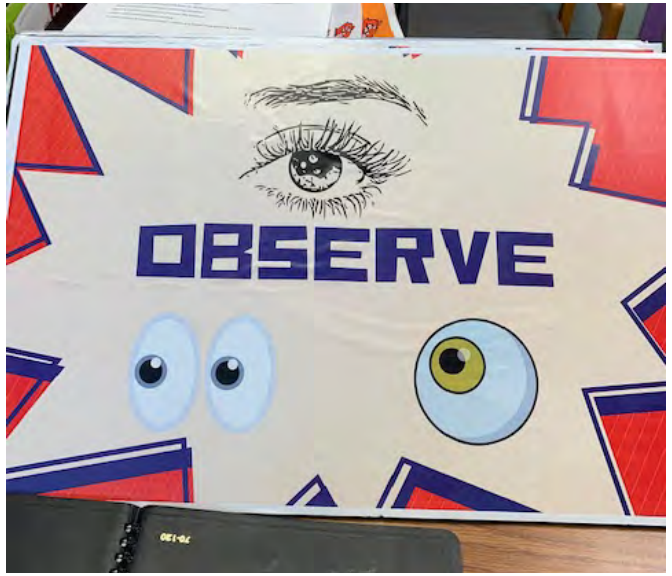
Children's Museum of La Habra

- Parents have limited economic ability to provide their children with necessary educational resources and La Habra strives to fill that gap with its outreach and commitment to education
- 60% Latino, 80% FRL, 37% English Language Learners

Children's Museum of La Habra

"With the help of the *Hero Elementary* playlists', super powers of science episodes and engaging activities, the students were instantly little scientists ready to learn all they could about science! Students experienced first-hand how everyone can be a scientist AND that science is all around us! These enthusiastic little scientists were sad to see the program end but because of*Hero Elementary*, we are now equipped with the tools to continue exploring science on their own!"

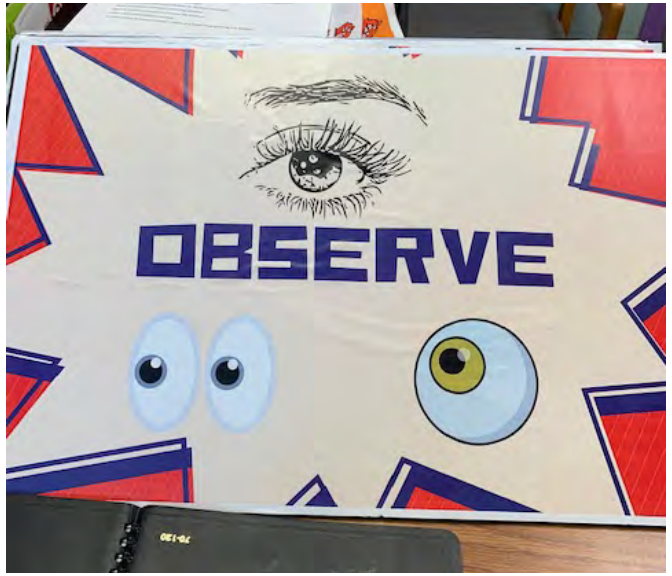
- Maria Tinajero-Dowdle; Assistant Director at the Children's Museum at La Habra



Children's Museum of La Habra

"With the help of the *Hero Elementary* playlists', super powers of science episodes and engaging activities, the students were instantly little scientists ready to learn all they could about science! Students experienced first-hand how everyone can be a scientist AND that science is all around us! These enthusiastic little scientists were sad to see the program end but because of*Hero Elementary*, we are now equipped with the tools to continue exploring science on their own!"

- Maria Tinajero-Dowdle; Assistant Director at the Children's Museum at La Habra



YMCA DC

- **Favorite Playlists: Pushes and Pulls, Wobble or Balance, especially Hero Hideaway Properties of a bridge**
- **”It’s fun being a hero!”**

YMCA DC SUCCESSES

- **The theme "Hero" has a universal appeal. There is an instant buy-in from parents for their children to be involved! Managing programs always run smoother when you have the support of parents.**
- **The Hero Elementary Program always sparks curiosity within the children. This means there is always the possibility of having a learning environment!**

YMCA DC SUCCESSES

- **Often the age group that "Hero" is designed for benefits from the themes being taught such as teamwork, problem solving and the Superpowers of Science. (Investigating, observing, analyzing, Explaining, Predicting, test predictions, communicate information)**

YMCA DC LESSONS LEARNED

- Try not to cram too much of the playlist into a session or two. There is variety in every playlist. Therefore, Let the learning that happens with each playlist take the time needed so that it ensures that children are absorbing the information.
- The digital Learning Platform needs a wife platform to operate on. Be proactive with schools and sites to make sure a system is available to get the program up and running.
- Technology will at some point fail you. I.E (playlist may be down, wifi may be fickle.)

COHORT 2

Organization	Organization Type
Hacienda CDC	Hispanic, ELLs, Low income
Boys and Girls Club of Northern Alabama*	Low Income, Historically Marginalized
Heavenly Hope-Hands4Hope*	Low income, Historically marginalized
SmartGirls HQ	Low income, Historically marginalized
Project Vida	Hispanic, ELLs, Low income
ICAN	Hispanic, ELLs, low income
Hope Haven	Students with Disabilities
San Francisco Beacon	Hispanic, ELLs, low income
YMCA of San Francisco	Low income, historically marginalized
Volunteers of Louisiana	Rural, Low income
Civic Nebraska	Low income, ELLs, historically marginalized

PROJECT VIDA

- Emphasizes literacy and school readiness
- Serves Chamizal neighborhood, 2 blocks north of U.S. Mexico Border
- 8 classes per month for 10 months
- 100% Latino

HOPE HAVEN

- Serve children with Autism Spectrum Disorder, Prader Willi, and Down Syndrome
- Social/emotional, speech/language, and sensory/motor learning
- Implementing several classes 2-4 classes a week
- 95% FRL

Cohort 3

Organization	Organization Type
Boys and Girls Club of Central Wyoming	Low-income, rural
Boys and Girls Club of Rosebud Reservation	Low-income, Historically marginalized
Beyond the Bell Iowa	Low-income, Latinx population
Neighborhood House of Milwaukee	ELL's, Low-income
Oakridge 21st Century	ELL's, Low-income
Boys and Girls Club of Western Nevada	Low-income, Historically marginalized
Girls Inc of Greater Atlanta	Low-income, Historically marginalized
Project Transformation North Texas	ELL's, Low-income, Latinx
Boys and Girls Club of Central New Mexico	Low-income, Latinx, ELL, Historically marginalized
Girls Inc of Tennessee Valley	Low-income, Historically marginalized
East Cleveland Neighborhood Center	Low-income, Historically marginalized

Boys and Girls Club Rosebud Reservation

- "At the Boys and Girls Club of Rosebud, we truly believe our youth are sacred. That is why, in everything we do, we seek to empower our youth to live out their dreams."
- 2nd poorest county in the country
- 98% Native American

Boys and Girls Club Wyoming

- Focuses on academic success, healthy lifestyles, good character and citizenship
Serves rural communities in Wyoming
- Cowboy ethics
- 85% FRL

HANDS-ON!

Curriculum → Playlists

Physical Science	Forces and Motion
	Light and Sound
	Matter
Earth and Space Science	Earth's Systems
	Earth and Human Activity
	Earth's Place in the Universe
Life Science	Organisms
	Heredity
	Ecosystems

PLAYLIST: CHANGING MOTION

FORCES & MOTION

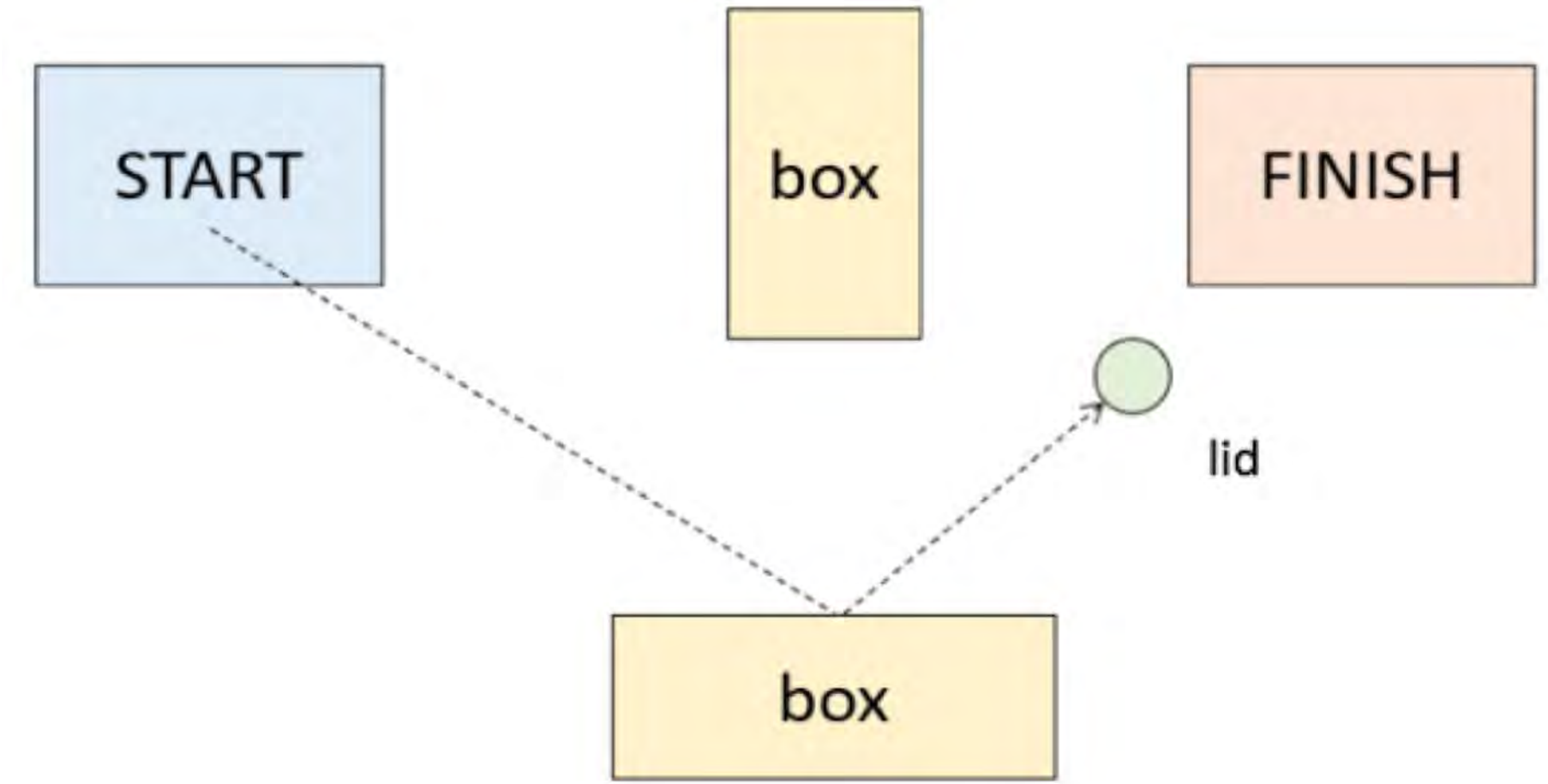
PLAYLIST	SCIENCE BIG IDEAS
Pushes & Pulls	* A push (or pull) can make an object move. * A push (or pull) can make an object stop moving. * A push (or pull) can make an object move fast or slowly.
Make Things Move	* Pushes and pulls have different strengths. * Pushes and pulls have different directions.
Bump & Bounce	* When objects bump into each other, they change direction.
Changing Motion	*** The *direction* of a push makes a thing move in the same direction.** *** The *strength* of a push makes a thing move fast or slowly.** *** When a moving object bumps something, it can change direction.**
Wobble or Balance	* The shape of a structure affects how stable it is. A tower with a wide base will stay up. But a tall, narrow tower will fall down. * An object that is still and not moving is balanced. Things such as symmetry, weight, size, and shape can affect balance. * An object has pushes and pulls affecting it all the time. These pushes and pulls make the object fall down or stay up.

PLAYLIST: CHANGING MOTION

Science Questions

- How can you make something change direction with a push?
- What happens when you push something with a strong push?
- What happens when you push something with a weak push?

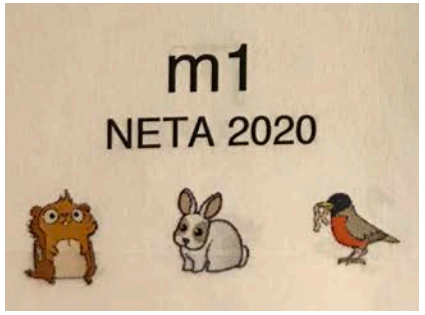
Activity: Push, Slide, Bounce



Science Power Notebook

How to log in

1. Turn on device and open Chrome.
2. Go to https://rtl-dev.tpt.org
3. Scan your QR code **OR** use the name & animals



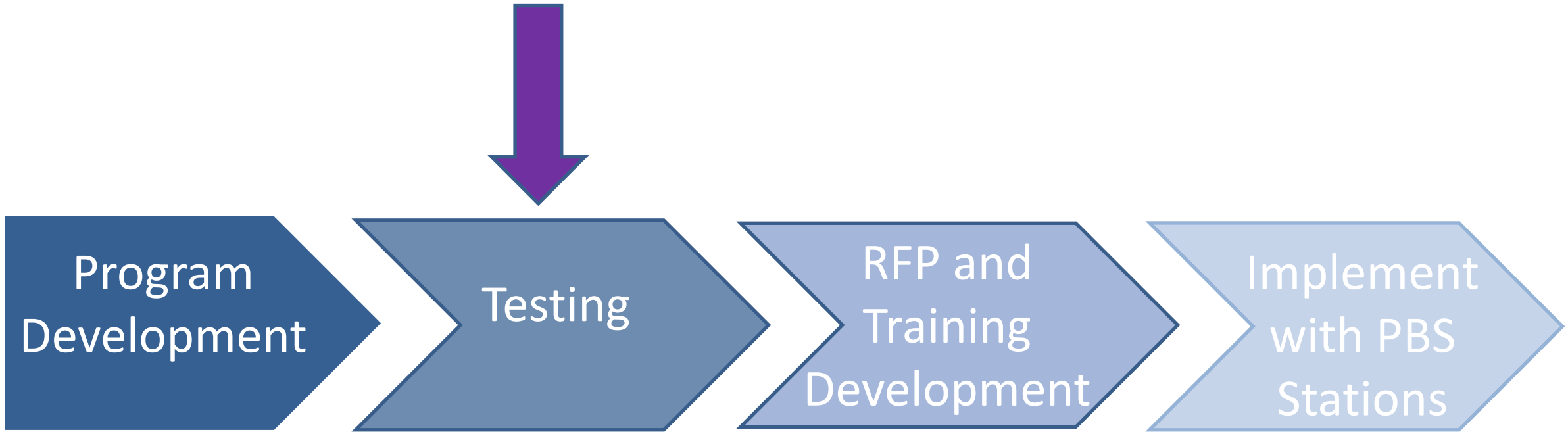
4. Click:

Family Science Event

STATION 1: OPERATION INVESTIGATION

STATION 2: BECOME A SUPERHERO

Family Science Event Timeline



November 2019

December- February 2020

March- April 2020

Summer 2020

DIGITAL GAMES

So many games!

Push! Pull!! Puzzles!!!
CityTown Meltdown!
Toad Road
Treehouse Trouble
CityTown Sounds
Super Shadow Detectives
Critter Collectors
Crash of the Collisions
Operation Investigation

In development:

- Seasons
- Plants and Animals Needs
- Taking Care of the Earth

CLASH OF THE COLLISIONS

Let's Reflect!

- What is exciting to you?
- What else do you want to know?

THANK YOU!