



# Peg + Cat: Early Learning of Math Through Media

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## Project Goals

- Deepen the field's understanding of how to advance early learning in mathematics.
- Produce *Peg + Cat*, an animated broadcast series, and web and mobile games that kids love and that get kids excited about math.
- Help children develop math content knowledge, skills, and problem-solving/reasoning abilities.
- Help children develop a positive and persistent attitude toward learning mathematics.
- Increase preschool teachers' knowledge of math content and pedagogy, as well as their confidence.
- Increase parents' interest, engagement, and confidence in exploring mathematics with their children.

## Big Messages

- Math is everywhere.
- Math is important.
- Everyone can use/learn math.
- Persistence in problem-solving is essential.
- Math learning begins early in life and should be both supported and encouraged.

## Project Components

- Production of *Peg + Cat* episodes, online games, and app
- Adult Learning
  - Professional Development for Teachers
  - Family Support and Engagement
- Research and Evaluation

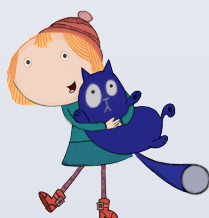


## Production

- 27 *Peg + Cat* episodes
- 8 online games
- Big Gig App

## Professional Development

- 58 Head Start teachers and educational supervisors
- Two-year, two-cohort PD Model: one summer, one school-year
- Developmentally-appropriate math content
  - Year 1: Pre-number, number concepts and operations.
  - Year 2: Geometry, measurement and data analysis
- How to incorporate math into everyday routines with children
- How to build families' confidence and interest in math
- Educator and Facilitator Resource Guides

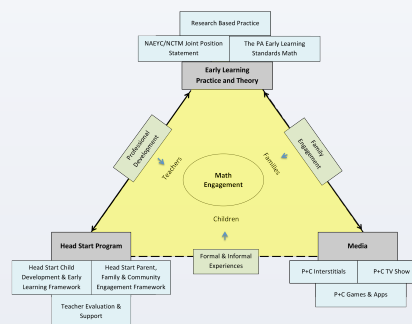


## Family Engagement:

### *Peg + Cat + Us*

- Focus on exploring math with young children in everyday contexts
- Family Activity Days
- Take-Home Materials: *Peg + Cat* Trading Cards and Activity Sheets
- Classroom Lending Box with math activities

## Coupling of Resources



## Research Questions

- Do participating educators:
  - Develop or extend their knowledge of age-appropriate mathematics content?
  - Integrate effective practices to support mathematical learning among students?
  - Increase their confidence and self-efficacy in teaching math to pre-K children?
- How do the project resources help parents engage their children in math?
- Do coupled learning opportunities (media, PD for teachers about how to best engage families with math) enable teachers to enhance children's engagement and interest in math?



## Evaluation Questions

- To what extent does this project meet its objectives and deliverables?
- What are the key teacher-reported program elements that support or hinder transfer of knowledge to pedagogy?
- How did teachers and parents use the project resources and strategies?
- What are the key parent-reported program elements that support or hinder parents':
  - interest, engagement and confidence in exploring math with their children
  - development of knowledge of math as accessible and important for their children
  - development of strategies to support children's mathematics learning and engagement?
- Does teachers' participation in the project's professional development and children's involvement with program resources and activities impact children's interest in and positive and persistent attitudes towards mathematics?

## Mixed Methods

- Surveys, content assessments, focus groups, interviews, PD observations, classroom observations

## Challenges

- Scheduling professional development
- Measurement development: dearth of measures focused on early math
- Limited technology available in Head Start classrooms

For more information about this project, please contact Dr. Mallary Swartz at [swartz@fredrogers.org](mailto:swartz@fredrogers.org).

