Bringing Bajillions to Your Students

An Educator's Guide to Participating in the Bajillions Early Math Study

Partner with the Marsico Institute for Early Learning to help shape the future of early mathematics.

Whether you're looking for innovative ways to support children's mathematical thinking or opportunities to collaborate with education researchers, we're excited that you're here.

This guide will help you understand:

- What Bajillions is
- Why we're conducting this research
- What participation looks like
- What support you'll receive
- How to get started

Ready to learn more?

Read through this guide and schedule an Information Session with research staff, Erin Jamieson at Erin.Jamieson@du.edu.

Ready to try Bajillions?

Apply Now! Bajillions Early Math: **Application for Access**

Welcome

Thank you for your interest in the Bajillions Early Math Study.

The Marsico Institute for Early Learning at the University of Denver is partnering with educators to better understand how digital learning experiences can support young children's developing mathematical thinking. Teachers play a critical role in this research. By partnering with schools and classrooms, we can evaluate Bajillions in authentic learning environments while generating knowledge to benefit future educators and children.

Whether you're simply exploring the opportunity or ready to apply, we hope this guide answers your questions and helps you determine whether participation is right for your classroom.

What is Bajillions?

Bajillions Early Math is a research-based combination of digital and hands-on learning activities designed to engage young children in playful mathematical thinking through interactive games and classroom activities tailored to their learning. The platform includes a child-facing app that can be accessed at school, in extracurricular programs, or at home.

Developed through a collaboration between the Marsico Institute for Early Learning at the University of Denver and FableVision Studios, Bajillions combines decades of research on how young children learn mathematics with engaging learning experiences that inspire curiosity, discovery, and problem solving. Bajillions is designed to complement – not replace – your existing classroom instruction. However, with both digital and in-person learning activities, Bajillions is comprehensive enough to use as a whole curriculum that provides meaningful, developmentally appropriate opportunities for children to deepen their mathematical thinking through play.

About the Bajillions Early Math Study

The Bajillions Early Math Study is the next step in the platform's ongoing development. While Bajillions is grounded in decades of research, educators, children, and families play an essential role in helping researchers understand how the platform works in authentic learning environments. By partnering with classrooms and schools, the research team learned how children engage with the games, identified opportunities to strengthen the learning experience, and refined how the system responds to children's learning needs.

We now seek to evaluate the effectiveness of the system by testing whether children's math learning will differ based on their experience with the games. Specifically, children will be randomly assigned to experience either Number or Geometry games and receive the other half in the Spring. We'll compare the groups' math learning at three points across the year.

The Bajillions Early Math system was designed by early mathematics researchers Dr. Douglas Clements and Dr. Julie Sarama and is supported through funding from the National Science Foundation (NSF).

Ongoing Support

Participating educators receive guidance and support from the Bajillions research team throughout the study. You can expect us to reach out to you regularly and be available to answer your questions as needed.

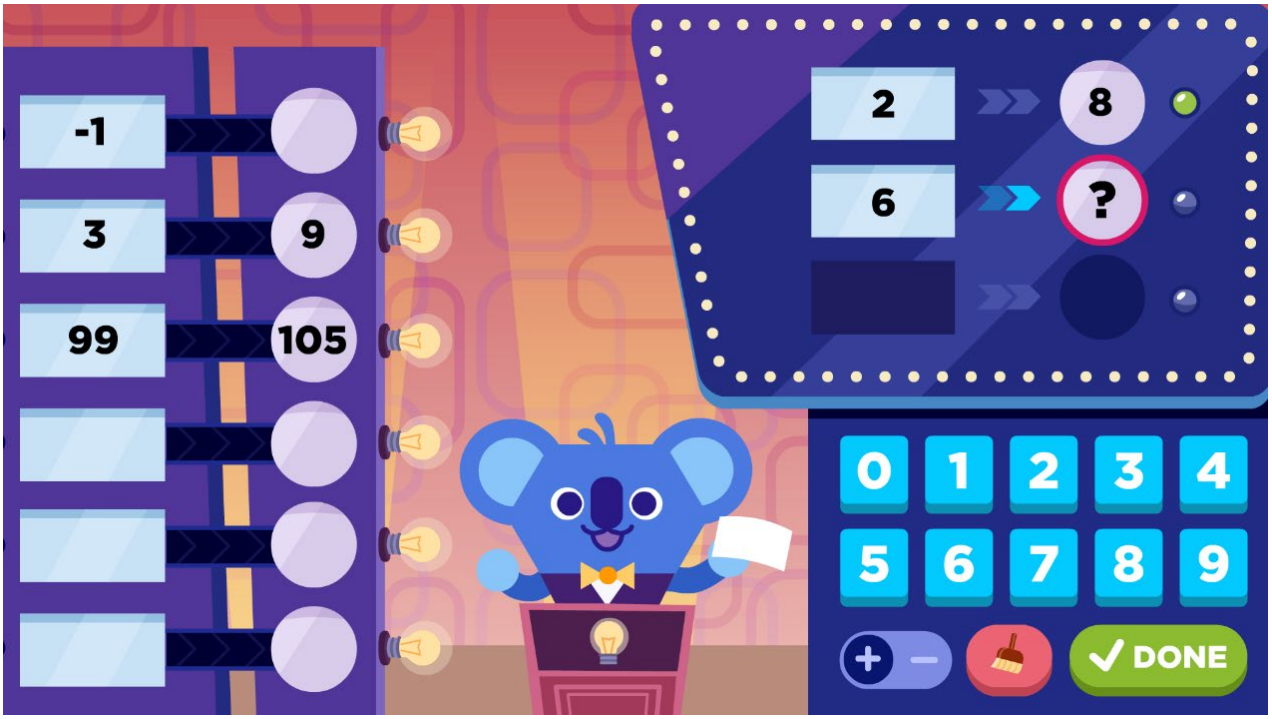
Apply Now

What You'll Find Inside Bajillions

As children engage with Bajillions, they'll explore a variety of interactive features designed to support early mathematical thinking through play. We've worked to engaging narratives, adorable characters, adaptive feedback to support children's incorrect responses, and digital math manipulatives to support problem solving and conceptual understanding.

Interactive Math Games

Children engage in playful, research-based games that encourage exploration of important mathematical ideas through meaningful challenges. Completing a quest unlocks the game so that children can revisit their favorites.



Daily Quests

Guided activities introduce new mathematical concepts and provide structured opportunities for children to build their understanding over time.

Free Play Activities

Free play activities allow children to choose challenges or create within mathematical worlds, and digital manipulatives to support children's problem solving. This creates opportunities to explore at their own pace, and practice emerging skills through open-ended play.

Research-Based Learning Experiences

The Bajillions Early Math system was designed by early mathematics researchers Drs. Douglas Clements and Julie Sarama. It is supported through grant funding from the National Science Foundation (NSF).

Every activity is intentionally designed using decades of research on early mathematics learning and child development to provide engaging, developmentally appropriate experiences.

Accessibility

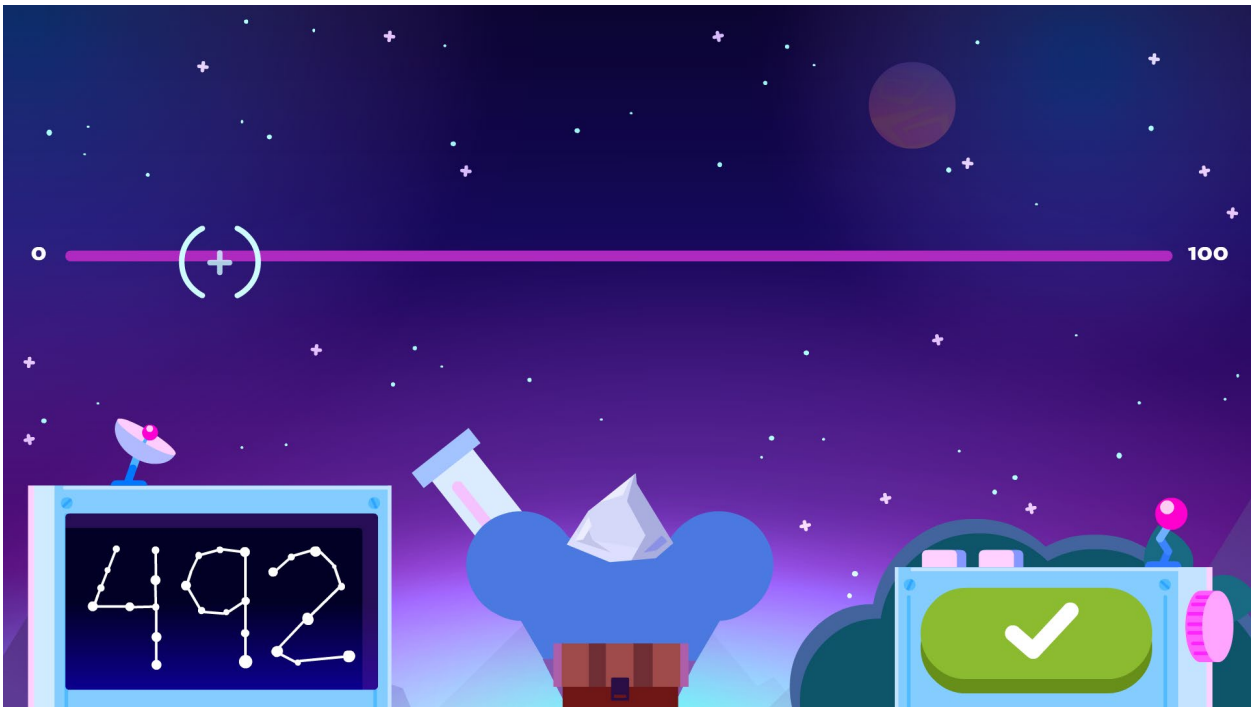
The Bajillions Early Math platform was built with accessibility in mind and strives for intuitive design that is seamless to the user experience. The platform includes adjustable closed captions, sound, and visuals, adaptive keyboard options, and game play in English or Spanish.

Why Are We Conducting This Study?

The Bajillions Early Math Study is designed to deepen understanding about how digital mathematics activities support young children's mathematical learning and engagement in authentic classroom settings. By partnering with educators, schools, and families, researchers can examine how children interact with Bajillions, how they engage with the learning experiences, and the ways digital activities may contribute to the development of early mathematical thinking.

The findings from this study will help researchers, educators, and app developers better understand the role that thoughtfully designed digital learning experiences can play in early mathematics education. Insights gained through the study will also inform the continued development of Bajillions, helping to ensure the platform evolves based on research, classroom practice, and feedback from participating educators and children.

Your participation is an important part of this work. Every classroom that joins the study contributes valuable insights that help advance research and shape the future of early mathematics learning.



Why Participate?

Participating in the Bajillions Early Math Study is an opportunity to partner with researchers while bringing an innovative, research-based learning experience into your classroom. Together, we can advance our understanding of how young children develop mathematical thinking and shape the future of early mathematics education.

Benefits for Your Classroom

By participating, your classroom will receive:

- Access to Bajillions' engaging digital learning experiences throughout the study.
- Research-informed instructional resources that complement your existing teaching and encourage meaningful mathematical exploration.
- Implementation guidance and ongoing support from the Bajillions research team to help ensure a successful experience.
- The opportunity to contribute to research that may inform future early mathematics resources and classroom practices.

Benefits for Your Students

Children participating in the study will have opportunities to:

- Explore important mathematical ideas through engaging, developmentally appropriate digital experiences.
- Build curiosity, confidence, and problem-solving skills through playful learning.
- Contribute to research that will help improve educational tools for future learners.

Benefits for You as an Educator

As a participating educator, you'll have the opportunity to:

- Collaborate with researchers who are advancing the field of early mathematics education.
- Gain insight into an innovative, research-based learning platform.
- Play an active role in shaping the future of educational technology and early mathematics learning.

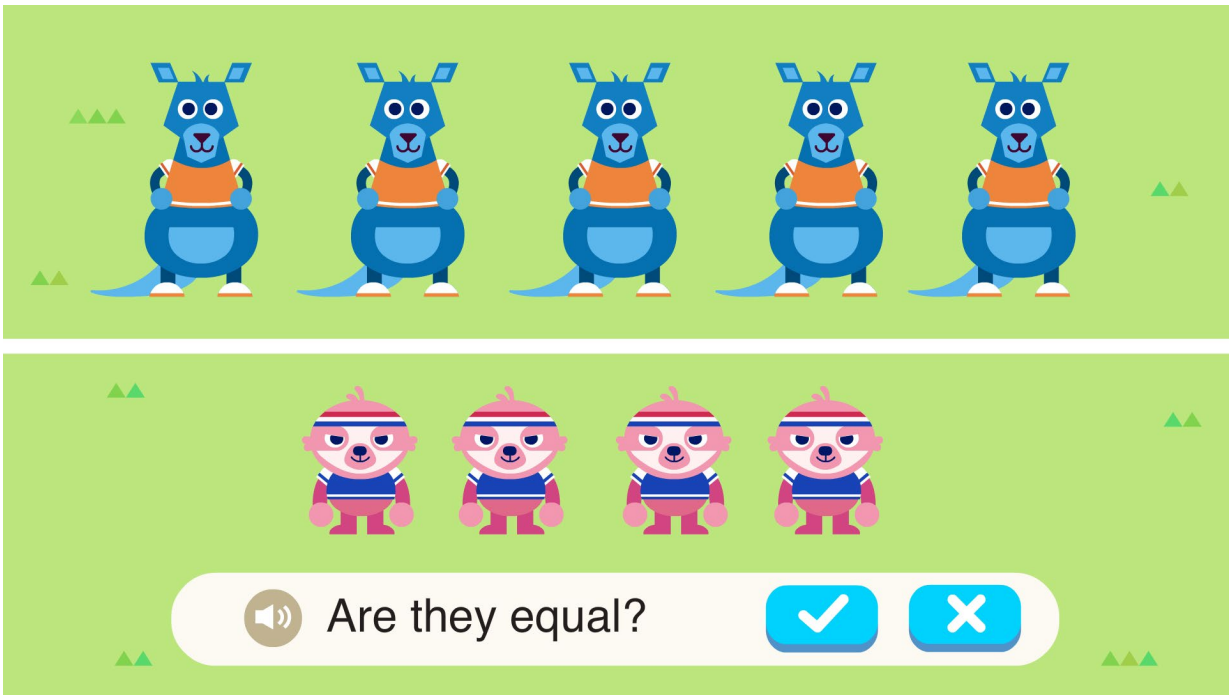
Is My Classroom Eligible?

Your classroom may be eligible if:

- ✓ You teach or care for children within the study's eligible age range (3 years to 8 years).
- ✓ Your school or program is interested in supporting young children's mathematical learning and development.
- ✓ A school or program administrator is willing to provide a Letter of Support for your classroom.
- ✓ Your team is willing to inform parents and guardians about student participation in the study to ensure their permission.

The research team will help determine eligibility and participation options after your application has been reviewed.

Not sure how to obtain a Letter of Support? The research team provides ready-to-use templates and will guide you through the process.



What Will Participation Look Like?

The Bajillions Early Math Study is designed to fit naturally within classroom routines or program activities while providing researchers with meaningful information about children's mathematical learning and engagement. Although specific activities and timelines may vary slightly depending on your classroom's participation in the study, the overview below reflects what participating teachers and children can generally expect.

Before you decide whether to participate, the research team will review your classroom's specific study activities, answer your questions, and ensure you have a clear understanding of what participation will involve.

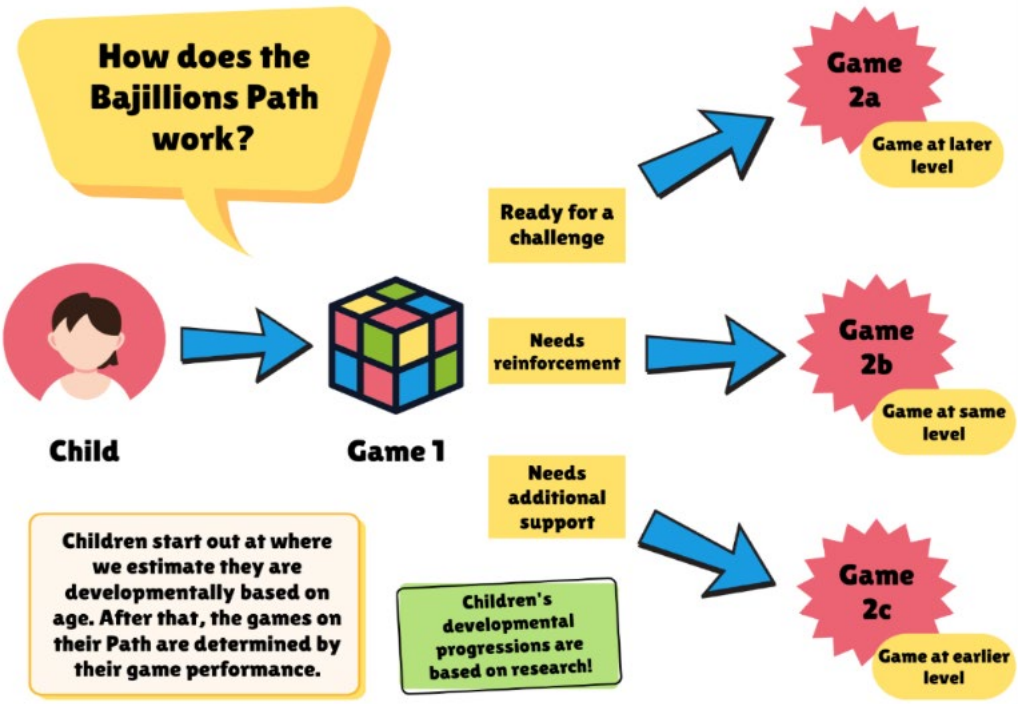
What will children do?

Children will use Bajillions as part of their classroom experience. Each participating classroom begins on a learning pathway that is appropriate for the age of the children in the class, with children randomly assigned to receive either number or geometry activities. Children access Bajillions through the child-facing app, where they complete a Daily Quest before exploring additional activities from their personalized dashboard.

During each session, children:

- Complete one Daily Quest, which introduces new mathematical ideas through engaging, developmentally appropriate activities.
- Visit their personalized dashboard, where they can:
    - Continue along their learning pathway by completing the next recommended activity.
    - Explore available **Free Play** activities.
    - Revisit digital activities they have previously completed.

Interested in seeing Bajillions in action?
Explore sample games and activities on the **Bajillions Project Page.**



What will teachers do?

As a participating teacher, you will be asked to:

- Share study information with participating families.
- Introduce Bajillions as part of your learning activities.
- Provide opportunities for children to engage with the platform once each week throughout the study by playing a single game (about 5 minutes).

Depending on your participation option, you may also be asked to:

- Coordinate scheduling for study activities, as needed.
- Complete teacher questionnaires.
- Participate in a teacher interview.

What Support Will I Receive?

The Bajillions research team is committed to making participation as straightforward, collaborative, and beneficial as possible. Throughout the study, participating educators receive both implementation support and access to instructional resources designed to enhance the classroom experience.

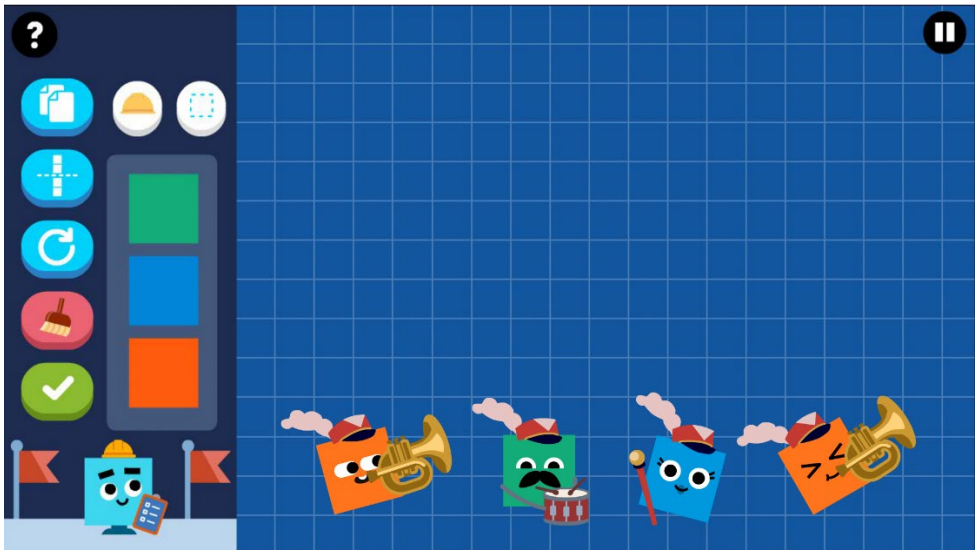
As a participating teacher, you'll receive:

- An initial orientation to prepare you for participation.
- Ongoing technical assistance and implementation guidance.
- Regular communication with the research team.
- Assistance coordinating participation with families and administrators.

Depending on your participation option, you may also receive:

- Access to classroom insights about children's developing mathematical thinking.
- Research-based instructional activities to support classroom instruction and benefit your entire class.
- Access to online professional development to enhance teaching skills in early math.
- Compensation for scheduling in-person assessments.
- Compensation for completing questionnaires or interviews.

Our goal is to ensure that participation is not only manageable, but also a valuable professional experience that provides meaningful resources for your classroom.



Ready to Participate?

We're excited that you're considering bringing Bajillions to your classroom! Whether you're ready to apply today or still exploring the opportunity, the research team is here to support you throughout the process.

Step 1: Complete the Application

The first step is to complete the online application. Your application helps the research team learn more about your classroom and determine whether it is a good fit for the study.

Apply Now: Bajillions Application for Access

Step 2: Obtain Administrator Support

Participation in the Bajillions Early Math Study requires a Letter of Support from your school or program administrator.

To make this process as simple as possible, the research team has developed resources that explain the study and provide a ready-to-use Letter of Support templates.

Resources for School Administrators

- Administrator Information Packet
- Letter of Support Template 1 (participation with in-person child assessments)
- Letter of Support Template 2 (participation with no in-person child assessments)

Step 3: Application Review and Next Steps

Once your application has been submitted, the research team will review your information and contact you to discuss your classroom, answer any remaining questions, explain the study requirements, and guide you through the next steps if your classroom is eligible to participate. If your classroom is eligible, we'll guide you through the enrollment process and offer ongoing support throughout your participation in the study.

Accessing Bajillions

Bajillions is currently available only to schools and families participating in the Bajillions Early Math Study. Access to the platform is provided by the Marsico Institute for Early Learning and cannot be purchased independently. Once your classroom has been approved for participation and the required Letter of Support has been received from your school or program administrator, the research team will provide access for participating educators, children, and families, as appropriate.

Not Quite Ready to Apply?

If you'd like to learn more before submitting an application, we're here to help.

You can:

- Schedule an information session with a member of the research team.
- Contact the research team with questions about the study or participation requirements.
- Review the study materials and frequently asked questions.

Questions?

We're here to help.

- **Schedule an Information Session**
  Erin Jamieson at erin.jamieson@du.edu
- **Contact the Research Team**
  Marsico Institute for Early Learning at marsico.research@du.edu

Additional Study Information

The Bajillions Early Math Study is conducted by the Marsico Institute for Early Learning at the University of Denver. The Bajillions Early Math platform ("Bajillions") is a collaboration between FableVision Studios and the Marsico Institute for Early Learning at the University of Denver ("Marsico"). The design of math content and research on learning and engagement is led by Marsico, with development and maintenance by FableVision Digital activities.

Principal Investigators
Dr. Douglas Clements
Dr. Julie Sarama

Project Director

Dr. Shannon Stark Guss at shannon.starkguss@du.edu

Funding
This research is supported by the National Science Foundation (NSF).**Institutional Review Board (IRB) Approval**
This study has been reviewed and approved by the University of Denver Institutional Review Board.

IRB #: 1916264