

LINK: Algebra and LEGO Robotics

**FREE
SUMMER
CAMP
AT
MISSION
HILL
SCHOOL**

LINK is a two week **FREE SUMMER CAMP** for Boston area students in the 6th, 7th, and 8th grades during the current 2008-2009 school year.

LINK is part of a research study on algebra education. Each camper must agree to participate in the research.

Learn algebra in the morning;
Build LEGO robots in the afternoon!

WHERE?

Mission Hill School
67 Alleghany St.
Roxbury, MA

WHEN?

June 29-July 10
Monday-Friday
9AM-3PM

Breakfast and Lunch will be served!

**YOU DO NOT NEED HIGH GRADES IN
MATH TO ATTEND**

Applications due April 30, 2009

CALL: 417-427-4207 FOR AN APPLICATION

OR GO TO OUR WEBSITE:
www.earlyalgebra.org



Tufts
UNIVERSITY



INSTITUTIONAL
REVIEW

Approved IRB# 1100

Approved as Noted

[Signature]

TUFTS MEDICAL CENTER/TUHS
IRB CHAIR/VICE CHAIR/DESIGNEE

LINK (Learning Innovative Number Knowledge)

Algebra and LEGO Robotics

Build, Learn, and Have Fun!
Free Summer Camp!

LINK: *Algebra and Lego Robotics* is a **FREE** summer program for Boston area students like you! It is part of a long-term research study. During two weeks you will work in a group of 15-20 students and:

- Learn how to do and get more out of algebra.
- Learn lots of fun algebra games.
- Talk about algebra and how we can use algebra in our everyday lives.
- Look at real-world problems, and work to analyze them.
- Learn how to design, build and program robotic creations using LEGO bricks

You will be issued a certificate from Tufts University once you have completed the camp.

WHO CAN APPLY?

- We are accepting applications from Boston students in grades 6, 7, or 8 during the current 2008-2009 school year.
- We are looking for students who are excited to come to the program! **You do not have to have high grades in math to attend;** just show an interest and commitment to attending the *Algebra and LEGO Robotics* camp.
- There are no required computer skills.

WHEN AND WHERE WILL THE CAMP TAKE PLACE?

- From June 29 through July 10
- From Monday through Friday, from 9 AM to 3 PM.
- At the Mission Hill School, 67 Alleghany Street, Roxbury

INSTITUTIONAL REVIEW BOARD	
<input checked="" type="checkbox"/> Approved	IRB# <u>4920</u>
<input type="checkbox"/> Approved as Noted	
<u>DMN for N20</u>	
TUFTS MEDICAL CENTER/TUHS IRB CHAIR/VICE CHAIR/DESIGNEE	

WHO ARE WE?

LINK is sponsored by the National Science Foundation, Tufts University, and Mission Hill School. It is part of a research study on how middle and high school students learn algebra and how our previous teachings to some participants in grades 3 through 5 may impact this learning. The camp will be conducted by a group of students, researchers, and professors at Tufts University and other institutions who have been doing work in algebra education for the past 10 years. We are interested in helping students enjoy math and in making algebra easier for them. The Algebra team has partnered with the Center for Engineering Education and Outreach to bring students a range of mathematical applications that can be put to use with LEGO Engineering and Robotics design. All camp activities will be video-taped for future analysis and demonstrations for teachers. Only those who agree to part of the research study and to be video-taped can participate in LINK.

WHAT WILL A DAY AT *LINK* BE LIKE?

- Students will work on algebra projects from 9 AM to 12 noon. There will be some instruction from the teachers, but the emphasis will be on group work and activities.
- Our activities will expand on the Connected Mathematics Project (CMP) textbooks that middle school students in Boston typically use.
- In the afternoon, students will focus on robotics and the engineering design process
- Afternoon activities will include creative building with LEGO bricks, designing movable robots like Art-bots, Dance-Bots, and Animal-Bots, and using computers to program the robots.

OTHER IMPORTANT INFORMATION

- Mission Hill School is conveniently located close to I-93 and the Orange Line Roxbury Crossing stop.
- Breakfast will be offered starting at 8:30 am. Lunch will be served as well!

HOW TO APPLY

- Applications can be obtained from Amelia St. Peter-Blair (see address below) or from the Mission Hill School.
- Completed applications must be received at Tufts University by June 1, 2009.
- Your application must include ALL of the following:
 - _____ Part 1: Application Form (6 pages)
 - _____ Part 2: Parent/Guardian Consent Form (2 pages)
 - _____ Part 3: Student Consent Form (1 page)
 - _____ Part 4: Copy of student's most recent MCAS scores if taken (if MCAS have not been taken, please indicate on the application)
 - _____ Part 5: Copy of most recent report card

Please remember: we will not use your grades or MCAS scores to select you. We need these to know how to plan for our activities!

**WE CANNOT PROCESS INCOMPLETE APPLICATIONS!
MAKE SURE YOU HAVE ALL 5 PARTS OF THE APPLICATION!**

MAIL TO:

Amelia St. Peter-Blair
Early Algebra Project, Paige Hall, 205
Department of Education, Tufts University
12 Upper Campus Road
Medford MA 02155-9975
Attn: LINK 2009 (REESE)

OR FAX:

617-627-3901
C/O Early Algebra Project
LINK 2009 (REESE)

If you have any questions please call Amelia St. Peter-Blair at 617-627-4207

**Link: Algebra and LEGO
Robotics June 22-July 3, 2009**



Department of
Education

APPLICATION FORM

School Information (to be filled out by student)

Today's Date:	_____ / _____ / _____ Month Day Year	
Student's Name: (please print)	[] Student's First Name [] Student's Last Name	
Student's Address (please print)	_____ (street address) _____, Massachusetts _____ (city, zip code)	

School you now attend:	Grade you will go to in Fall 2009: <input type="checkbox"/>
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School you will go to in Fall 2009:

Elementary school you attended:

Circle all the math classes that you have completed or that you are taking right now:

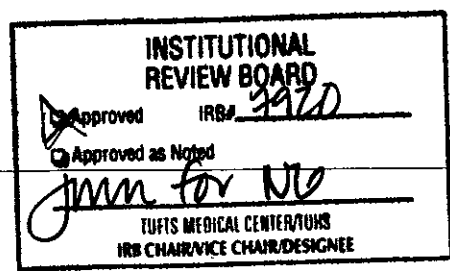
6th Grade Math	8th Grade Math	Algebra
7th Grade Math	Pre-Algebra	Geometry

Have you gone to any summer programs before that had to do with math?
If yes, list them here:

Program:	Year:	Course topic:
Program:	Year:	Course topic:

Languages spoken at home:

1. What do you think about when you hear the word "algebra"? What kinds of problems make up algebra?



PART 1 (page 2)

2. Why do you want to come to LINK?

3. If you come to LINK, what kind of things would you like to work on or learn?

Do you qualify for free or reduced school lunch? Yes / No

PART 1 (page 3)

Authorization (Parent or guardian fills out this part)	
Who is filling out this part of form?	<div style="display: flex; justify-content: space-around;"> Father of student Mother of student Guardian of student </div> <p>(circle one)</p>
Name	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div style="width: 50%; text-align: center;"> Parent or Guardian's First Name </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div style="width: 50%; text-align: center;"> Parent or Guardian's Last Name </div> </div>
Parent or Guardian's Signature	
Work Phone	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Other Phone	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
E-mail	
Does your child have an IEP?	YES <input type="checkbox"/> NO <input type="checkbox"/> If yes, you may choose to share the IEP with the teachers and counselors at LINK
Is there any other information about your child that you would like us to be aware of during the summer camp?	

PART 1 (page 4)

Medical Emergency Clearance	
Date	
Name of Child	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> First Name <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Last Name
Home Address	
Name and Phone Number of Parent/Legal Guardian	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> First Name <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Last Name <hr/> Phone
Name and Phone Number of Parent/Legal Guardian	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> First Name <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Last Name <hr/> Phone
Names of 2 persons who may be called or to whom your child may be released in case you cannot be reached	<p>(1) _____ Name</p> <hr/> Address
	<hr/> Phone Number
	<p>(2) _____ Name</p> <hr/> Address
	<hr/> Phone Number

PART 1 (page 6)

Dismissal Form

My child _____ is permitted to leave with the people listed below at the end of each day. I understand that the *LINK* will not release my child to persons whose names do not appear below without my prior consent. I also acknowledge that the *LINK* is not responsible for my child after 3:00pm.

Names

Public Transportation

My child has permission to take public transportation on his/her own after camp.

Please Circle One: YES NO

Parent/Guardian's
Signature

Date

PART 2 (page 1)
Parent/Guardian Consent Form

Title of the Project: The Impact of Early Algebra on Later Algebra Learning

Protocol Approval Number:

Principal Investigator: Bárbara M. Brizuela, Tufts University, Department of Education, Medford, MA 02155, 617-233-9645, barbara.brizuela@tufts.edu

Co-Investigators: Mary Caddle, Gabrielle Cayton, Mara Martinez, Analúcia Schliemann, Department of Education, Tufts University, Paige Hall, Medford, MA 02155

Consultant: David Carraher, TERC (Cambridge, MA)

Emergency Contact: Contact any staff member at the summer workshop.

Purpose of the Study

The purpose of the study is to learn more about how children in grades 6, 7, and 8 learn algebra and how our previous teachings to some participants in grades 3 through 5 may impact this learning.

Participant Information

Your child is being asked to join this study because they are currently (2008-2009 school year) in grades 6, 7, or 8 in Boston.

Your child will be one of about 60 children in the program. We will have three groups of 15-20 students each. All children in the program will be study participants.

Procedures to be Followed

Your participation is voluntary and would be highly appreciated. Your participation would include agreeing to have your child's written work collected, to have all activities in the summer workshop videotaped, audiotaped, and photographed, to have your child interviewed by the study investigators, and to have all activities that occur during the workshop documented. Video, audio, and written materials may be shared with other education researchers and with teachers, for research or training purposes. Clips of video or audio, as well as written materials, may be posted on the worldwide web for research or training purposes. The results of our research may appear in publications related to research and education. Because we will be video and audiotaping, we ask your consent to use your children's first names in all published work and video or audio clips.

Risks

There are minimal risks involved with participating in this study. All information you provide will be kept confidential. If your child encounters an unforeseen risk, such as during a recreational period, assistance will be available at the Mission Hill School.

Benefits

We hope that your child will both enjoy his/her two weeks in the program and will see an increase in their mathematical knowledge, specifically in the area of algebra, as a result of participation in this study. However, we cannot guarantee an increase in your child's grades or standardized test scores as a result of participation. Your involvement may contribute to further research or recommended educational or parenting practices.

PART 2 (page 2)

Alternatives

You may prefer for your child not to participate in this study or to withdraw at any time once you begin. This decision will have no negative consequences and the written materials collected on your child will be destroyed if you so desire. You may also request that the photographs, audiotapes, and videotapes of your child be destroyed, but this will not be possible once these materials have been shared with other education researchers and with teachers for research or training purposes.

Costs and Stipends

There are no costs or stipends associated with your participation in the study.

Statement of Consent

I have read this consent form and have been given the opportunity to discuss the procedures described above. If I had questions, these have been answered to my satisfaction. I understand that any questions that I might have will be answered verbally or, if I prefer, with a written statement.

I understand that I will be informed of any new findings developed during the course of this research study.

I understand that my child's participation is voluntary. I understand that I may refuse for my child to participate in this study. I also understand that if, for any reason, I wish to discontinue my child's participation in this study at any time, I will be free to do so, and this will have no effect on my child's future treatment.

I understand that all of the algebra activities that my child is involved in will be audiotaped, videotaped, photographed, and all written materials produced will be collected, for research, education, and dissemination purposes. These may appear in publications and websites related to education and research. I also understand that my child's first name may be used for these research purposes.

Should I have any questions concerning my child's rights and welfare as a volunteer in the research study I may contact the Human Investigation Review Committee at (617) 636-7512 and/or the Principal Investigator named on the first page of this document.

I have been fully informed of the above referenced study with its risks and benefits, and I hereby consent to the procedures set forth above. I have received a copy of this consent form for my records.

I understand that as a participant in this study, my child's identity and my child's records and data related to this research study will be used solely for research purposes, except as required by law.

Signature of parent/legal guardian giving consent Date

Print Name of parent/legal guardian giving consent

Signature of Investigator Date

Print Name of Investigator

Name of Student

Is it okay to offer snacks to your child during the study session) Yes No

Does your child have food allergies: (circle one) Yes No

If yes, please list the foods your child is allergic to: _____

PART 3 (page 1)
Student Consent Form

Title of Research Study: The Impact of Early Algebra on Later Algebra Learning
Protocol Approval Number:
Principal Investigator: Bárbara Brizuela
Emergency Contact: Contact any staff member you see in the Mission Hill School

Hi! You are being invited to participate in a summer program about mathematics and algebra called *LINK: Algebra and LEGO Robotics*. During the two weeks of the program, we will be engaging in a variety of math and algebra activities.

As part of this program, we will be collecting the work that you complete for our research study. We will also be videotaping the classes so that we can go back and watch them later.

We hope to use the results of this study to help educators know more about how students like you learn about mathematics and algebra. We may submit the results to academic journals or conferences, and may use your first name, videos, or some of your written work for these research purposes.

You do not have to participate. If you wish, you can say no. If you do not understand anything in this form, feel free to ask your parent/guardian for help.

You can quit at any time. If you quit early, no questions will be asked and we will not tell your school or teachers that you quit.

If you would like to participate in this study, please sign your name below.

Please sign your name here

Date