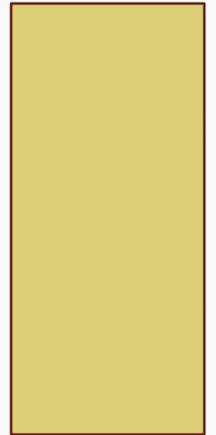
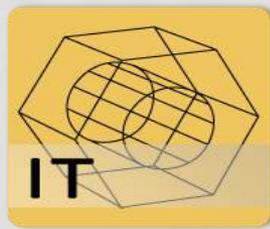
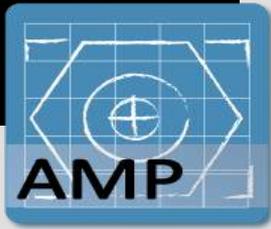


# **BUILDING A PRESENCE FOR SCIENCE**

UTILIZING PARTNERSHIPS TO SUPPORT SCIENCE





Advanced Manufacturing & Prototyping Integrated to Unlock Potential



**Georgia Adopt-A-Stream**  
GEORGIA'S VOLUNTEER WATER QUALITY MONITORING PROGRAM

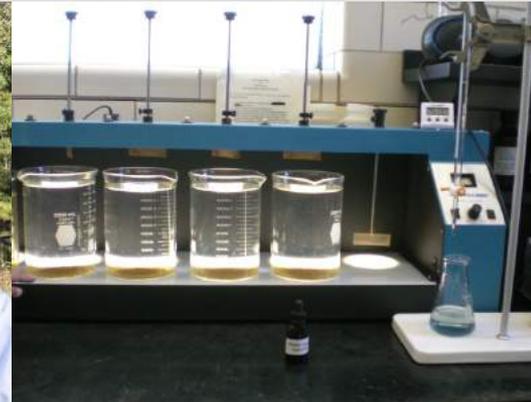


## COMMUNITY CONNECTIONS

PARENTS, GOVERNMENT, MUNICIPALITIES

# TYPES OF SUPPORT

- Monetary
- Equipment
- Expertise
- Staff Projects
- Facilities



# BUILDING RELATIONSHIPS

- Within your class
- Within your school
- Within your district schools
- Within your community
  - Government agencies
  - Extension service
  - Educational institutions
  - Business and industry

# EXAMPLES - TRAIL

## Outdoor Trail and Classroom

- First step, Parks and Rec contacted school system and extension service for input on educational value
- Progressed to Education Stations → Self-Guided Learning Experience → Annual Watershed Field Day → PLUS STEM program for local elementary school



## THE TRAIL - 4<sup>TH</sup> FOOD CHAINS & WEBS

STUDYING MACROINVERTEBRATES FROM STREAM

# EXAMPLES - CONNECTIONS

- City of Griffin applied and received a 319 grant through EPD
- Hired a water education specialist (Alexa)
- Successful programming initiated through 4-H, incorporating watershed education
- Developed relationships with schools/teachers leading to successful programs such as Watershed Field Day and STEM (Adopt-A-Stream)

You never know where a connection may lead.

Making connections is the first step!



CITY ART CONTEST FOR STREAM CLEAN-UP – EFFECTS OF CHANGE IN AN ENVIRONMENT

# EXAMPLES - PARENT/BUSINESS

- A parent working for a business provided a connection to tour facilities being renovated.
- Led to tour of the local Water Works and expanded to touring the journey water takes from intake to outtake release point.
- Leading to strengthening relationships with the water department.
- It is self-sustaining and can be replicated even when the initial contact is no longer in the picture.



## VISITING WATER WORKS

STUDENTS LEARN HOW WATER IS CLEANED – EFFECTS OF  
CHANGES IN AN ENVIRONMENT

# MODEL WATER TOWER CHALLENGE



# EXAMPLES - HIGHER EDUCATION

- **Project-Based Unit on ecology.**
  - **UGA-Griffin Campus researchers provided information and activities about the problems in which they have active programs. We extended this study by visiting UNG in Dahlonega.**
- **Video interviews of researchers and projects**
  - **High school video students complete interview projects for the university and the school system to use to promote scientific research**

# REAL-WORLD PROBLEMS

- Investigating real-world problems in Georgia with researchers at UGA:
- Honeybee – Colony Collapse Disorder (Jim Quick)
- Hemlock Woolly Adelgid – Killing Eastern Hemlocks (Kris Braman)
- Kudzu Bug – Crop destruction (Wayne Gardner)



## UGA RESEARCHERS SHARED WITH STUDENTS

DR. GARDNER, DR. BRAMAN, AND JIM QUICK



## UNIVERSITY OF NORTH GEORGIA

EXTENDING OUR STUDY OF HEMLOCK WOOLLY ADELGIDS



DR. KRIS BRAMAN SHARING RESEARCH

STUDENTS LEARN ABOUT CONSERVATION GARDENS



FILMING BY HIGH SCHOOL STUDENTS TO SHARE

JIM QUICK SHOWS PART OF RESEARCH ON POLLINATORS

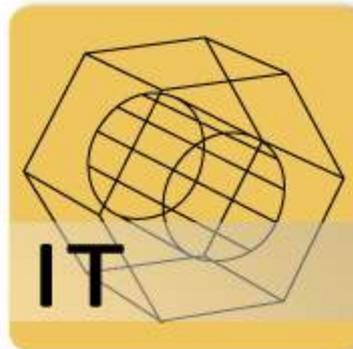
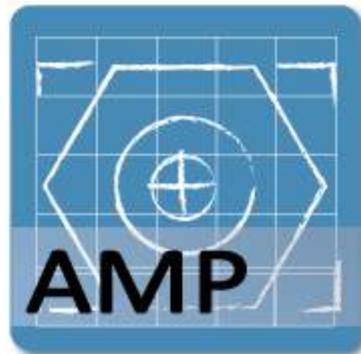


DR. HABTELSELISSIE AND DOCTORAL STUDENT

SHARE THEIR PASSION FOR RESEARCH ON VIDEO

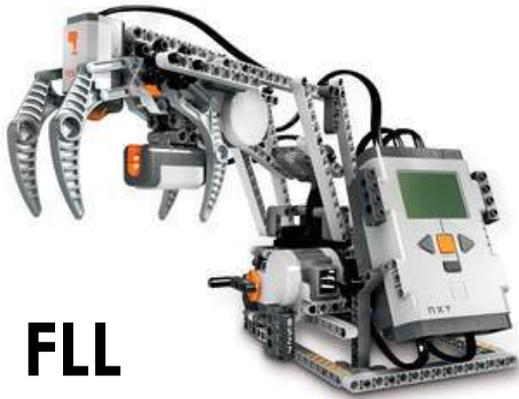
# GEORGIA TECH GRANT

- **\$7.3 million 5 year grant to promote STEM**
- **Middle School focus with transition to high school. Modules in CTAE classes and in Science and Math classes.**



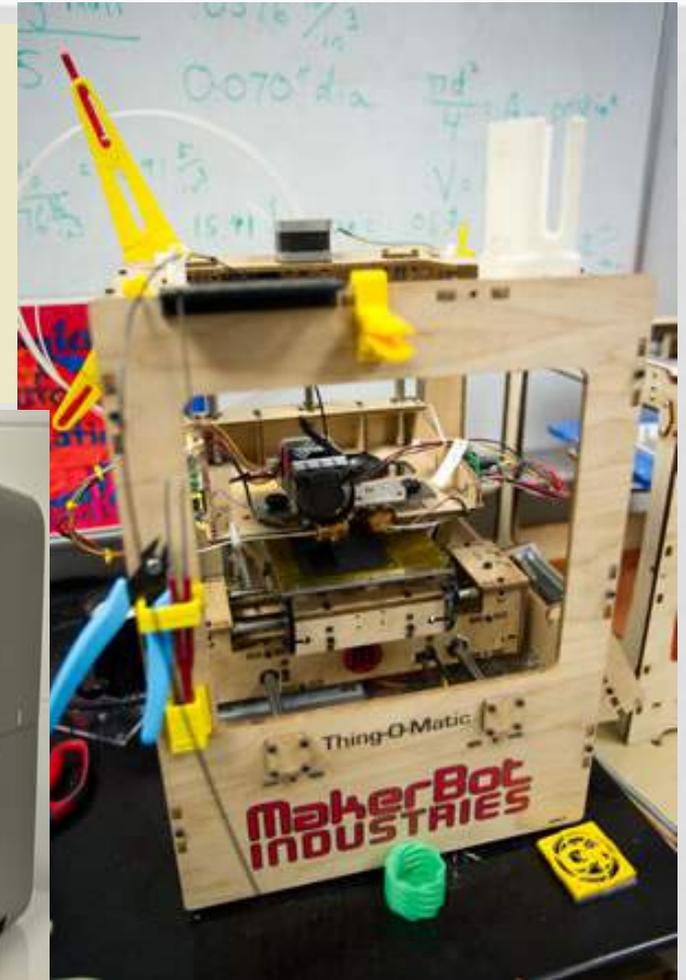
Advanced Manufacturing & Prototyping Integrated to Unlock Potential

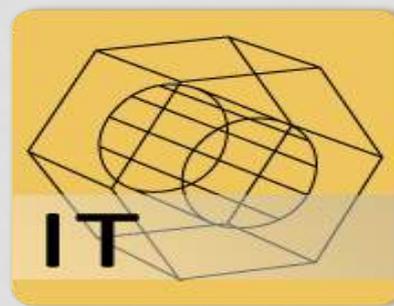
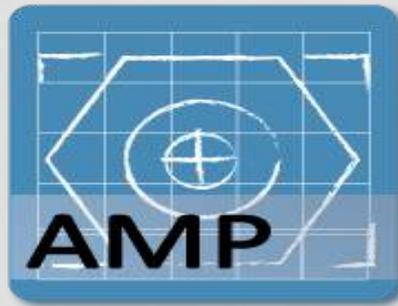
# GEORGIA TECH & AMP-IT-UP GRANT



**FLL**

**Modules for  
Connections  
+ Science &  
Math**





Advanced Manufacturing & Prototyping Integrated to Unlock Potential

- The AMP-IT-UP project researches how integrating science, math, and engineering can improve STEM performance for middle school students
  - Partnership with Griffin Spalding County School System
  - \$7.3 million award from the National Science Foundation



# GEORGIA TECH GRANT

- 4 middle schools

CTAE engineering connections class with modules to build projects

Science/Math modules

First LEGO League support

- 2 high schools

Engineering class support

- 11 elementary

Sponsors any FLL interest and funds to purchase supplies

# GEORGIA TECH AMP-IT-UP

- **Program Components**

- Middle school STEM Innovation and Design (STEMID) exploratory courses that enable students to explore their creativity using robotics and rapid prototyping
- Middle school math and science modules that promote inquiry and connect with manufacturing themes



- High school engineering courses that focus on design-build challenges
- Extracurricular enrichment (Junior Makers Clubs, robotics competitions, summer research internships, etc.) for GSCS students, with mentoring by Georgia Tech faculty and students
- Research on how AMP-IT-UP affects academic engagement, content understanding, knowledge transfer, and student persistence in STEM

# CONSIDERATIONS

- **Why do we want to involve the community?**
- **Of what value is a project-based learning approach?**
- **Why is it important for students to make connections to the real-world?**

# CONSIDERATIONS

- **Brainstorm**
  - **Who/What is in your area?**
    - **Government, higher ed., civic org.**
  - **Who is someone you or another person knows there?**
  - **Parent connections?**
    - **PTO/PTA/PTSO**

# CONSIDERATIONS

- **How will this connect with your standards?**
- **How will you approach the entities? What have you or can you do for them?**
- **Are you a member of any of the organizations that may support your ideas? Can you join?**

# CONSIDERATIONS

- **Is your administration aware? On board?**
- **Have you included others at your school?**
  - **Colleagues, other staff**
- **What type of interest do you have in your school building?**

# CONSIDERATIONS

- **Now that you have some ideas, how will you follow-through to make your plans come alive?**
- **Don't give up if the first plan does not succeed.**
- **There are people in your community that want to support you!**

# RESOURCES

- **Model Water Tower Competition**

<http://www.gawp.org/?page=MWTC>

- **Project-Based Learning**

[http://bie.org/about/what\\_pbl](http://bie.org/about/what_pbl)

<http://www.edutopia.org/project-based-learning>

# RESOURCES

- Georgia Adopt-A-Stream

<http://www.georgiaadoptastream.com/db/index.html>

- UGA Extension Service

<http://www.caes.uga.edu/>