

# Natural Resource Management AG STEM Pathway

Why take an Ag pathway? I don't want to be a farmer?!

Agriculture is more than farming!

Learn about the **LARGEST** industry in the state of **GA**: (Agribusiness)

Population is predicted to be 9 billion by 2050, yet we are running out of arable land. We need scientists, inventors, engineers, entrepreneurs, all in the realm of agriculture!



# Ag-STEM pathway!

<u>Grade</u>	<u>Course</u>
9 <sup>th</sup> Grade	Biology PLUS Basic Ag Science
10 <sup>th</sup> Grade	Chemistry PLUS *Forestry
11 <sup>th</sup> Grade	Physics PLUS *Natural Resource Management (Aquaponics)
12 <sup>th</sup> Grade	AgSTEM internship (optional)

-students eligible for seal on diploma if pathway completer, eligible for cord at graduation, AND many STEAM and AP Capstone projects with Aquaponics lab!

***\*Counts as a 4<sup>th</sup> year science course to complete required Carnegie units.***

***-Intro to Ag is the prerequisite for Forestry and NRM, if students want to take the End of Pathway Assessment, it is recommended there is NOT a gap in the sequence***

***-shifting Forestry to 11<sup>th</sup> and Natural Resource Management to 12<sup>th</sup> is an option if NOT interested in the internship opportunity. OR, they can take 2 of the courses in one year.***

# Basic Agriculture Science

- ▶ Students in this course are exposed to project-based learning through a supervised agricultural experience (SAE) that explores the applicable practices within both the science and agricultural industries.

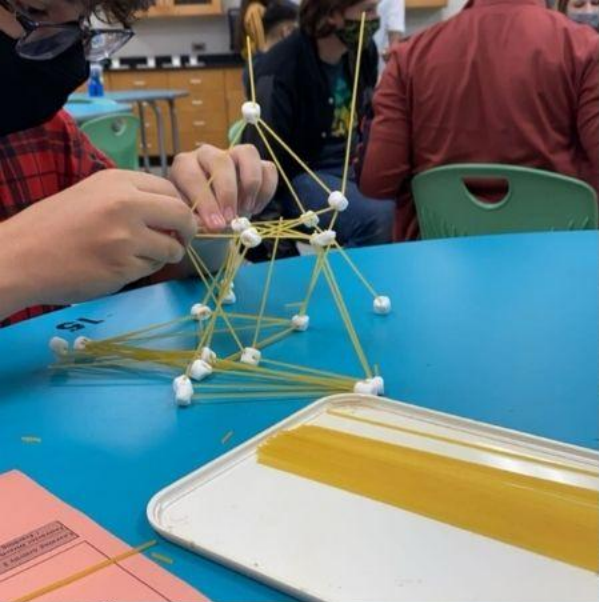


**Pre-vet? We have a small animal care unit!**

Units of Study	
Employability Skills	Simple Machines & Energy
Future Farmers of America (FFA)	Biotechnology
History & Importance of Agriculture	Animal Science & Industry
Agriculture Safety	Natural Resource Management
Soil Science	Food Science
Environmental Science	Plant Science



**We make our own ice cream & butter during dairy unit!**



# Basic Agriculture!!





# Forest Science

## - Outdoor Forest Classroom

- ▶ Students study concepts such as the establishment of forests, identification of tree species, dendrology foundations, and forest economics. Classroom and lab activities include hands-on supervised agricultural experiences (SAE) that develop leadership through the discovery of real-world phenomenon in an outdoor setting. *10<sup>th</sup> – 12<sup>th</sup> grade only (\*Counts as 4<sup>th</sup> year science)*

Units of Study	
Employability Skills	First Aid & Hazards
Future Farmers of America (FFA)	Economic & Environmental Value
History & Importance of Agriculture	Forest Fires
Occupational Safety	Succession
Forest Regeneration	Timber Stand Management
Forest Product Inventory	Invasive Species
Dendrology	Pest Management



# Forestry Science!







# Natural Resource Management

## - Aquaponics Lab

- ▶ Apex course that connects the gaps between environmental science, agriculture, and economics. This course expands the understanding of agriculture by utilizing scientific practices to solve real-world problems and develop content mastery through a supervised agricultural experience. Students demonstrate leadership and agricultural awareness in this course by participating in discourse on sustainability, community outreach, and project-based entrepreneurship.

Units of Study	
Employability Skills	Ecology
Future Farmers of America (FFA)	Human Impact on Environment
History & Importance of Resources	Soil Science
Hydrologic Cycle & Watersheds	Waste Management
Wildlife Management	Woodland Relationships
Government Programs	Safety Practices

# Natural Resource Management



- Focus on sustainable agriculture via aquaponics (using fish waste to fertilize indoor grow lab) and vertical farm systems, water quality testing
- Ex of Resource management- study quantifying food waste & designing solutions for our own school!





# Natural Resource Management!





# AG-STEM Interns

Opportunities for research projects through internship!



# SAE

## Supervised Ag Experiences:

Experiential service and/or work-based learning through the implementation of a supervised agricultural experience program.

### Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales).

### Exploratory

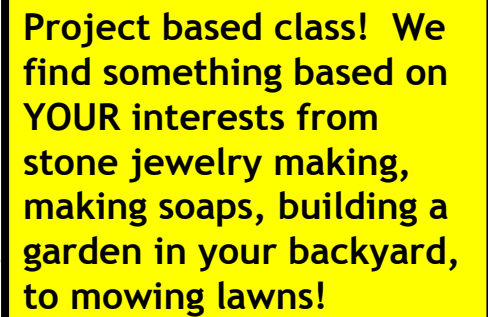
Explore careers in agriculture by attending an agriculture career fair or creating a report or documentary on the work and job shadow.

### Placement

Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school (Aquaponics lab) or factory laboratory.



Earn an American Degree & get a brick with your name on it for our garden!



Project based class! We find something based on YOUR interests from stone jewelry making, making soaps, building a garden in your backyard, to mowing lawns!

# All 3 Courses Include:

- ▶ Intra curricular club-FFA
- ▶ Participate in a SAE
- ▶ Work in indoor and outdoor grow spaces (see next slides)!
- ▶ Incorporate **entrepreneurship** education & Farmer's Market planning

Our Solar panel/  
wind turbine  
(power charges  
USB ports in the  
seating).



A part of our energy units!



# Raised Beds

For Summer, spring and fall planting



# Philanthropic!

#WEFEEDPEOPLE

Free little pantry, our community outreach to those who are less fortunate



Another shot of  
the Aquaponics  
lab!

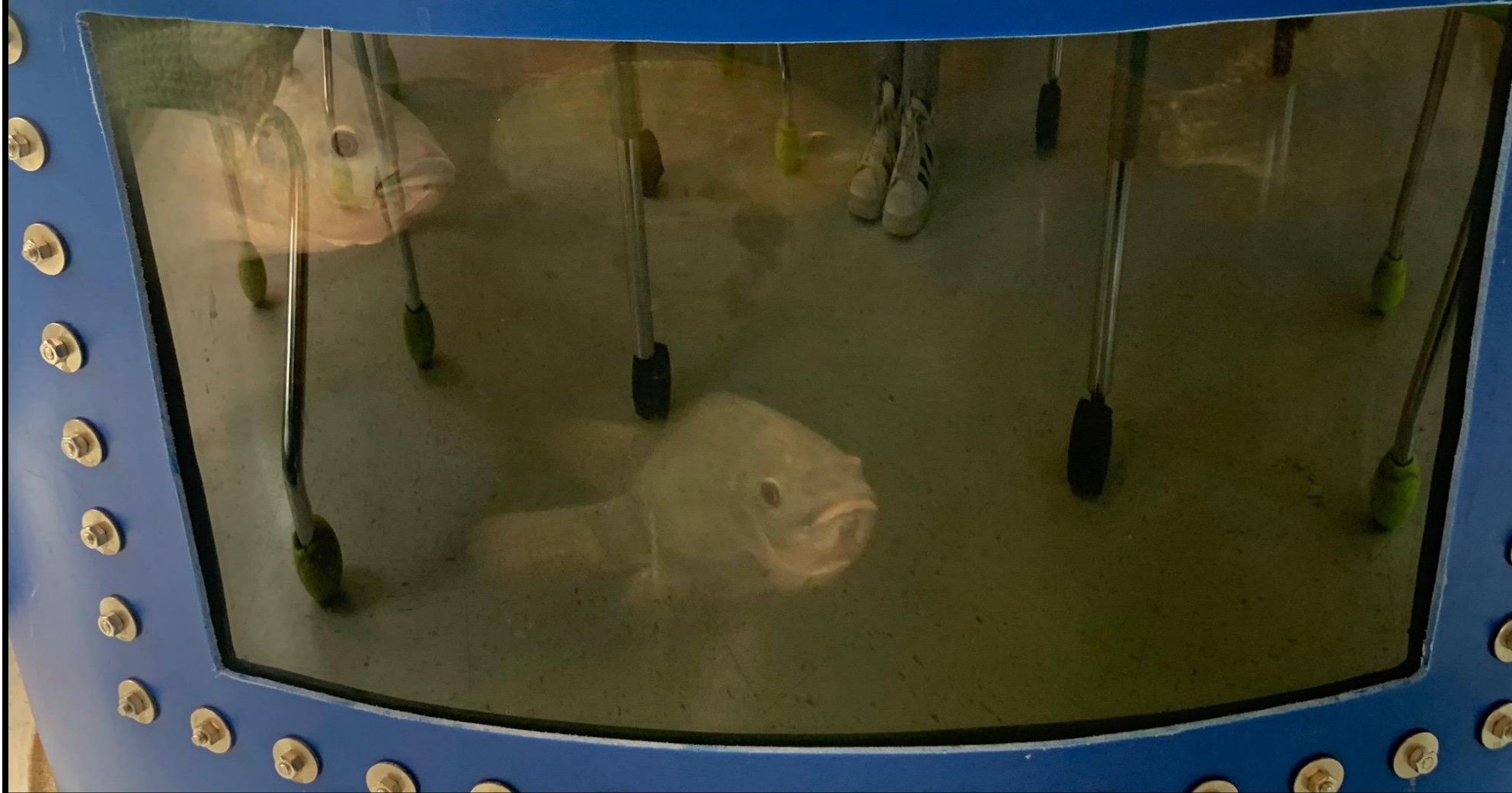
Growing raft

NFT channels  
(NFT means  
Nutrient Film  
Technique)

Floating beds



Our Fishies! These are Tilapia (Fun Facts-they eat their babies and are super tasty!)



# Farm bot!

Combining robotics, coding and agriculture-our farmbot will be able to start the process of autonomous planting and maintenance of our plants



Results from our Soap Making Lab!

## Participate in our School-Based Enterprise



Soaps, jewelry, candles, all student-made “eco-friendly” businesses!



@bwoodaquaponics



## What is “FFA?”

- ▶ FFA is a dynamic youth organization that changes lives and prepares members for premier leadership, personal growth and career success through agricultural education.
- ▶ FFA develops members' potential and helps them discover their talent through hands-on experiences, which give members the tools to achieve real-world success.
- ▶ Members are future chemists, veterinarians, government officials, entrepreneurs, bankers, international business leaders, teachers and premier professionals in many career fields.
- ▶ FFA is an intracurricular student organization for those interested in agriculture and leadership. It is one of the three components of agricultural education.

Possible cord at graduation,  
possible Stoll at graduation, and  
you go on trips!

# FFA!!







# Scholarships, Grants, & Awards

**Make that money!**

- ▶ **America's Farmers Grow Ag Leaders**

- ▶ \$1,500 Scholarship

- ▶ **Ford Built Tough**

- ▶ \$1,000 Scholarship

- ▶ **John Deere**

- ▶ \$2,000 Scholarship

- ▶ **Grants for Growing**

- ▶ Chapter-Wide (school);
- ▶ up to \$5,000 grant

- ▶ **Can earn American Degree**

- ▶ will earn a cord, stole, and brick with name

- ▶ **Can win CDE competitions**

- ▶ chance to compete at State and National Level

- ▶ **Can win proficiency awards**

- ▶ chance to compete at State and National Level

ex-FFA day at the fair - we spent the day at the Georgia state fair riding rides!

# Field Trips!!

Participate in fun activities with FFA

UGA: Warnell School of Forestry



Participate in fun activities with FFA!

Banquet! →

Homecoming Parade! →

State Convention! →



Officer Campout  
and visit to the  
Table Rock Tea farm  
for our BOBA Tea  
operation!





Electro fishing (don't worry, the fish survive, lol)




Flying Drones

University of Georgia- Warnell School of Forestry

# The Benefits of a “Pathway Completer”

- ▶ Career Pathways are “sub-groups” of occupation and career specialties that we use as an organizational tool for designing curriculum. Pathways are grouped based on their requirements.
- ▶ Benefits of Pathway Benefits
  - ▶ Promote the connection between education and workforce / economic development
  - ▶ Provide a seamless transition from high school to college and the workforce
  - ▶ Focus on high skill, high demand, and high wage careers
  - ▶ Increase attainment of technical skill proficiency
  - ▶ Promotes seamless education with courses built upon one another’s foundational knowledge
  - ▶ Increases advantage of college admissions due to commitment of courses in a sequence



Seal on diploma  
AND eligible for  
a cord at  
graduation!

# Various Majors Across Georgia

<b>Water &amp; Soil Resources</b>	<b>Entomology</b>
<b>Turfgrass Management</b>	<b>Dairy Science</b>
<b>Poultry Science</b>	<b>Biological Science</b>
<b>Horticulture</b>	<b>Avian Biology</b>
<b>Food Science</b>	<b>Applied Biotechnology</b>
<b>Environmental Resource Science</b>	<b>Animal Science</b>
<b>Environmental Economics &amp; Management</b>	<b>Animal Health</b>
<b>Agriscience &amp; Environmental Systems</b>	<b>Agricultural &amp; Applied Economics</b>
<b>Agricultural Education</b>	<b>Agribusiness</b>
<b>Agricultural Communication</b>	<b>Fisheries &amp; Wildlife</b>
<b>Forestry</b>	<b>Natural Resource Management &amp; Sustainability</b>
<b>Parks, Recreation, &amp; Tourism Management</b>	



**You see, Not just  
for Farmers  
folks!**

# FAQ's

- Will I dissect pigs? .....YES!!!!**
- I do not like science, should I take Basic Ag Science.....errrrrr**
- Do we do a lot of hands-on activities?.....YES!**
- I do NOT want to be a farmer, should I take an AgSTEM pathway?.....YES!**  
(see next slide!)
- How can I see the classes in action?.....See next slide  
to FOLLOW OUR INSTA!!!**
- Who can I contact to get more info?.....See next slide!**
- Who can take Basic ag science? .....YOU!!!**
- Do you go outside a lot?.....Not in the winter, lol**
- Do I HAVE to join FFA?.....No, Just recommended!**
- Will there be chances to get more involved with competitions?.....YES!**  
(but do you HAVE to?.....NO!)





Follow our INSTAS!

@bwood\_ffa

@bwood\_agstem

Click [here](#) for cute insta video!



# Questions?

[carrie.settles.livers@gcpsk12.org](mailto:carrie.settles.livers@gcpsk12.org)

[cole.hembree@gcpsk12.org](mailto:cole.hembree@gcpsk12.org)