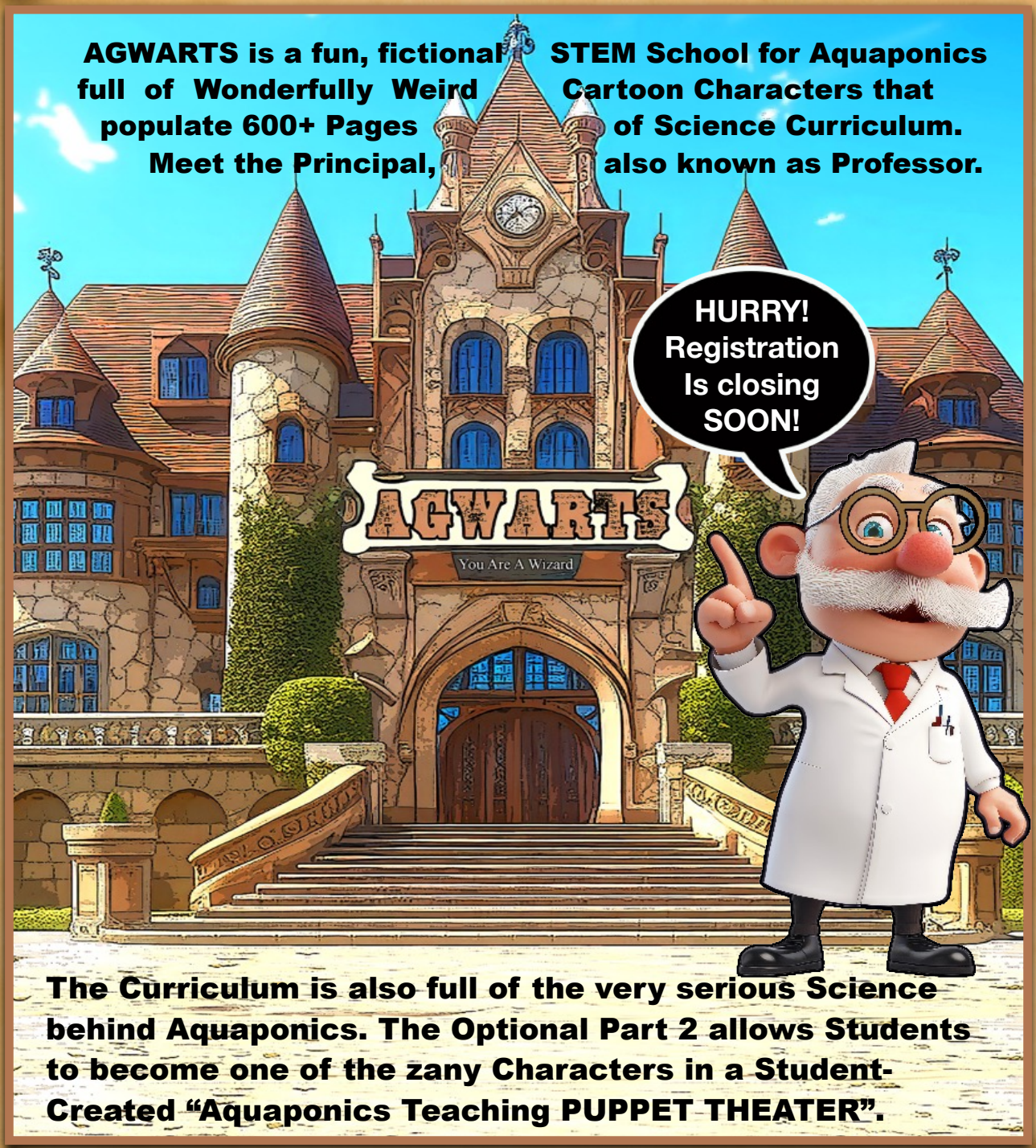
CURRICULUM PROLOGUE

AGWARTS, A STEM School By Aquaponics USA



PROLOGUE PAGE 2

Congratulations on your purchase of an Aquaponics Classroom CTE, FFA & STEM Teaching & Food Growing System (AP System). We are so pleased to count you among the forward looking Teachers, Administrators and Principals who have taken this big step into the future of Farming. That's right, we just said Farming not Gardening. Here's WHY!

PROLOGUE PAGE 3

The Elementary Students in this first image represent 2 of our AGWARTS, A STEM School by Aquaponics USA, Students wearing their AGWARTS Baseball Caps and Kid's Shirts with AGWARTS Cartoon Characters from our AGWARTS Store, and they are Gardening. School Gardening Programs are wonderful, and we applaud every School that has one, but when you Teach Aquaponics, you're not teaching Gardening!

Your first 2 clues are: There is no SUN, and there is no SOIL! We talk more about what replaces the SUN and the SOIL in our 3-Part Curriculum. For now, let's just say that even if you purchased your AP System to enhance your School Gardening Program, we are encouraging you to widen your thinking about what this incredible Food Producing Workhorse really is.

So let's start with some Farming History. In the early 19th Century in the Clyde Valley of Scotland, a now famous horse was bred to perform heavy draft work, which involved pulling heavy loads or doing heavy digging in Agriculture. These were the Clydesdale Horses. Ironically in the U.S., Clydesdales are mostly known for pulling the Budweiser Beer Carriage—way off the mark from their true Origin Story. These big, beautiful, muscular legged, but gentle horses were Agricultural Workhorses! The thought of hooking them up to a Child's Circle-Ring Pony Ride would be ridiculous even though their gentle nature makes them great with children.

PROLOGUE PAGE 4

The same goes for our AP Classroom CTE, FFA & STEM Teaching & Food Growing Systems. Seeing them as mere Gardening spaces, albeit indoor Gardening spaces, is not recognizing what is actually High-Tech Farming that is so advanced it borders on Magic.

Aquaponics is a disruptive Food Growing Agri-Tech that is about to take over the way we've been farming since the end of WWII, when small, Family-Owned Rural Farms were wiped out by the environmentally destructive practices of Big Agra & Big Chemical Companies and their Industrial Farming. But the tables are about to turn again because Aquaponics is putting Farming back into the hands of modern day Farmers who use Water Conserving, Multi-Crop Farming Technology. They grow Food Locally in Indoor Warehouses or in Protected Greenhouses and will soon lead the Farm-To-Table Movement with Locally Grown Fresh Vegetables & Fish.

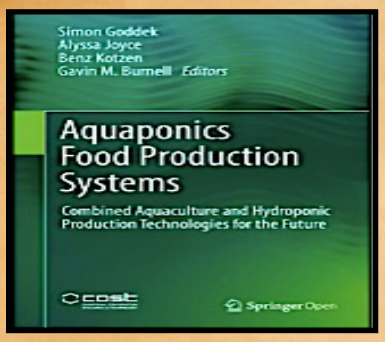
PROLOGUE PAGE 5

When you see an Aquaponics CTE, FFA & STEM Teaching & Food Growing System, you are seeing this advanced High-Tech Farming scaled down to fit into your Classroom with all of the Bells & Whistles we are about to describe in our following "10 Attributes List".

You are seeing a Clydesdale disguised as a Pony.

PROLOGUE PAGE 6

Why is Clyde, our Clydesdale, wearing a Graduation Cap? Because this scaled-down version of High-Tech Farming is one of the best Teaching Tools available for Teachers to: #1. Advance CTE, FFA & STEM Education, which is the first Attribute. Before we go on with the remaining 9 Attributes, look at what is being said by EU University Researchers about Aquaponics as the Future of Farming as well as a Teaching Tool. "This great Linked Book is licensed under the terms of the Creative Commons Attribution 4.0 International License, which Permits use, distribution and reproduction in any medium or format, as long as you give Appropriate credit to the original authors." It is an excellent Resource and can be used in your Classrooms to Learn and Teach about Aquaponics.



The following is one of the many Quotes that could be shared with your Students: From the Preface:

"As our ability to understand the environmental costs of industrial farming increases, we are more capable of developing technologies to ensure that farming is more productive and less damaging to the environment. This positive outcome should be bolstered by the very encouraging signs that although young people are statistically not interested in being the farmers of the future, they do want to be future farmers if technology is involved and they can adapt these technologies to live closer to urban environments and have a better quality of life than in the rural past. Kids of all ages are fascinated by technology, and it is no wonder as technology solves many problems."

PROLOGUE PAGE 7

"At the same time though, kids (perhaps less so with teenagers) are also environmentally conscious and understand that the future of our planet lies in the melding of nature and technology. Technology allows us to be more productive, and although we have no certainty that we can and will effectively solve climate change, we still have hope that there will be a future where people will be healthy and fed with nutritious food. We, the authors of this book, realize that we are but small fry in a world of much bigger fish (sometimes sharks), but we are more than hopeful, indeed confident, that Aquaponics has a role to play in the world's future food production."

Now go to the Linked Chapter 22 "*Aquaponics as an Educational Tool*" to read what the authors are saying about Aquaponics in Classrooms.

"Aquaponics is not only a forward-looking food production technology; it also promotes scientific literacy and provides a very good tool for teaching the natural sciences (life and physical sciences) at all levels of education, from primary school [Middle School, High School] to [CTE] vocational education. An Aquaponic classroom model system provides multiple ways of enriching classes in Science, Technology, Engineering, and Mathematics (STEM). The 'hands-on' approach also enables experiential learning, which is the process of learning through physical experience, and more precisely the 'meaning-making' process of an individual's direct experience. Aquaponics can thus become an enjoyable and effective way for learners to study STEM content. It can also be used for teaching subjects such as business and economics, addressing issues such as sustainable development, environmental science, agriculture, food systems, and health."

Likewise, our Mailings introduce our Product Line like this: "We offer one of the most advanced AP Classroom CTE. FFA & STEM Teaching Tools on the market. It's a Sustainable Ecosystem, which is a Living-Learning-Lab, to be used to teach Multiple Disciplines at Multiple Grade Levels.

PROLOGUE PAGE 8

#1 This all happens while your AP System Conserves Water and Produces Multi-Crops of Fish and Vegetables. We call them AP Classroom CTE, FFA & STEM Teaching & Food Growing Systems.These AP Classroom CTE, FFA & STEM Teaching & Food Growing Systems turn ordinary Classrooms into fun and exciting adventures in Learning Science, Biology, Chemistry, Agriculture, Horticulture, Aquaculture, Math, Botany, Biochemistry, Ecology, Nutrition, Culinary Arts and Special Education."

Now for the next 9 Attributes of AP Classroom CTE, FFA & STEM Teaching & Food Growing Systems, (AP Systems):

#2. Water Conservation: AP Systems use Recirculating Aquaculture System (RAS) Technology in which the Water is Recirculated through the System in multiple, endless passes, where no water is lost in the ground, making Aquaponics 90% more water efficient than soil Farming.

#3. Land Conservation: AP Systems can grow up to 200% or more Plants per unit area compared to traditional Soil Farming due to the ability to grow them in dense, vertical arrangements with continuous nutrient availability, as well as the advantage of year-round production.

#4. Food Protection: AP Systems grow Food in Covered, Protected environments like Greenhouses, Warehouses, Homes and Classrooms to ensure that no Acid Rain or Radioactive Fukushima Fallout contaminates the Food.

PROLOGUE PAGE 9

#5. <u>More Food Protection</u>: AP Systems grow Food in Climate-Controlled Greenhouses, Warehouses, Homes and Classrooms to ensure that the crops are not subject to the threatening results of Climate Change.

#6. <u>Multi-Crop Food Production</u>: AP Systems grow 2 Crops, including Food Fish and Vegetables in a Multi-Pass System that provides both Protein from the Fish and Multiple Essential Nutrients from the Vegetables (See Part 4 of our Curriculum for Vegetable Nutrients).

#7. <u>Soilless Food Production:</u> AP Systems grow Food without Soil in Light, Expanded Clay Aggregate (LECA) Grow Bed Media that is indestructible. LECA holds the Plants in place in the Grow Beds while simultaneously providing a place for the necessary Friendly Bacteria to live and multiply. (See Part 1 of our Curriculum for Information on Friendly Bacteria).

#8. <u>Sunless Food Production:</u> AP Systems grow Food without the Sun using Light Emitting Diodes (LEDs). Regardless of what ultimately happens in regard to Climate Change, enclosed AP Systems will keep producing Food because they are independent of the Sun and Climate Change. (See Part 4 of the Curriculum for information on LEDs)

#9. <u>Local Farm To Table Food Production:</u> AP Systems grow Food in small Multi-Crop Local Farms rather than gigantic, sprawling Big-Agra Monoculture Farms that are responsible for Soil degradation, including erosion and loss of organic matter due to over farming.

PROLOGUE PAGE 10

#10. <u>Local Farm To Table Fish Production:</u> AP Systems grow Fish in Aquaponics Fish Tanks rather than overfishing the Oceans or raising Farmed Fish in high density floating or submerged cages requiring heavy use of antibiotics to control diseases.

When you start Teaching Aquaponics with your new AP Classroom CTE , FFA & STEM Teaching & Food Growing System, just remember you're Teaching <u>Water Conserving, Multi-Crop Farming of the Future</u> (not Gardening), and sending your Students into future Food Growing environments that look and feel nothing like traditional Farming.

—Environments that have no Tractors, no Plows, no Picks or Axes and most importantly no Soil, or perhaps, even no Sun. Environments that are contained in Climate-Controlled Greenhouses or Warehouses and are independent of the weather or time of year and, therefore, can Grow Food year-round, not Seasonally.

—Environments that are often Off Grid and/or run with Solar Power and Battery Back Ups so a Grid Down event is of no consequence. This is the Farming of the Future that is here today, and it looks something like what you see on the Page 11.

PROLOGUE PAGE 11

Future Farms are going to look like this:

Walls of Lettuce Growing Vertically in Greenhouses

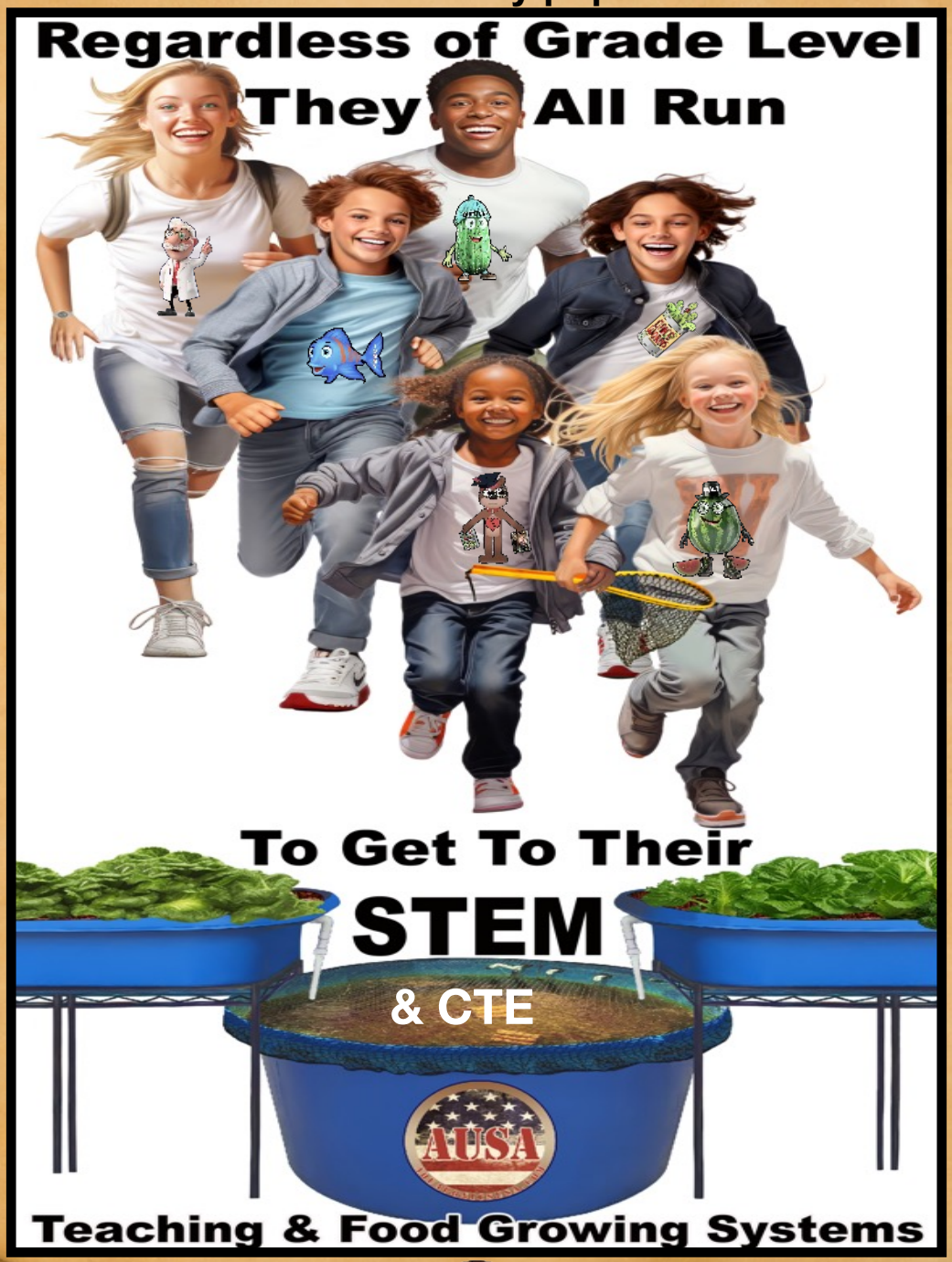
Multiple Fish Tanks in Fish Grow Out Areas

PROLOGUE PAGE 12

And your Students will look something like this:

PROLOGUE PAGE 13

And You and Your Class will be the most popular on Campus. Now, Start with Part 1 of the Curriculum, have fun, and Visit our AGWARTS Store, which has its 1st Collection Live and will be fully populated for Christmas.



PROLOGUE PAGE14

PROFESSOR: Here's a Bird's Eye View of what's in our AGWARTS Store.

Teachers we have a Red Bubble AGWARTS Store.

And your Students are going to Love it because it's going to be full of their favorite **AGWARTS** Characters on everything imaginable including **Stickers, Phone Cases, T-Shirts, Hoodies, Pins, Notepads, Totes, Mugs** and more, by early November, which, of course, is just in time for Christmas.

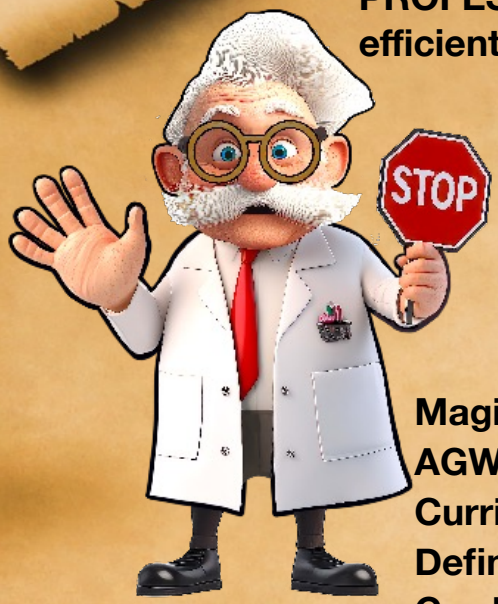
Why all the Veggies? Because right now the **First Live Collection** in our **Red Bubble AGWARTS Store** features all **20 of the weirdly wonderful Vegetable & Fruit Cartoon Characters** that are also featured in **Part 4** of this Curriculum with their Taxonomy Charts, Nutritional Info and Origin Stories. The Next Collection will be the **AGWARTS Mascots.** Then the **AGWARTS Students and Staff** will be added, until every Character is available.

PROLOGUE PAGE 15

My Name is **Plato**, and I'm one of 3 Mascots in the **AGWARTS, A STEM School for Aquaponics Curriculum**. You'll discover I got lost in **Part 1** looking for **Part 3**, and right now I haven't found my way into the **RED BUBBLE** **AGWARTS Store** yet, but I'm next in line, and you'll see me on all of the great Products below.

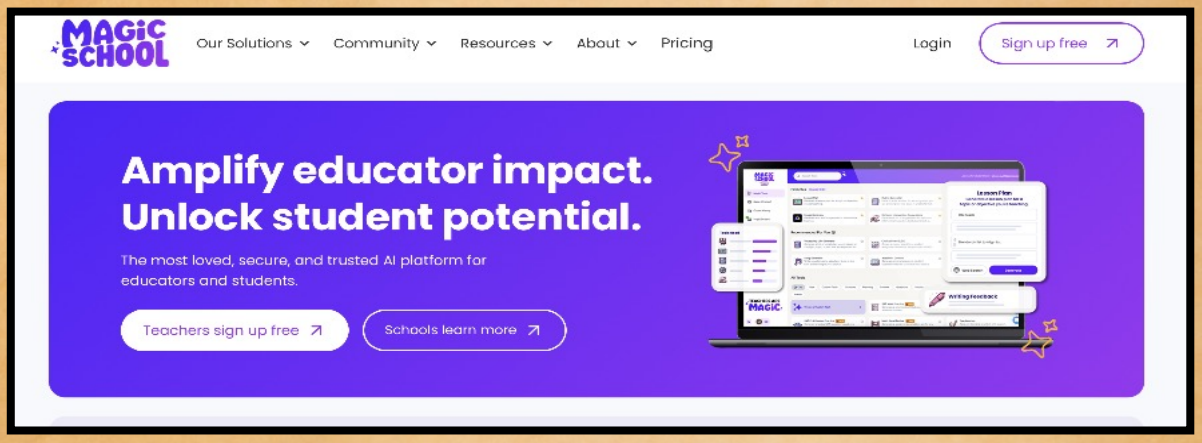
Just don't tell **OC Cat** that I'm going into the **AGWARTS Store** before him or we'll never hear the end of it as we have a bit of a rivalry. I'll see you in the Curriculum and in the **RED BUBBLE** **AGWARTS Store** soon. Oh, and Clyde is going to be in the **AGWARTS Store** too.

PROLOGUE PAGE 16



PROFESSOR: Get MagicSchool so you can have an efficient AI Assistant to go with this Curriculum.

MagicSchool goes perfectly with our AGWARTS, A STEM School By Aquaponics USA Curriculum! The AI Assistant can rewrite the Definition Boxes and even the Lessons to suit any Grade Level. And it's FREE!



MagicSchool for Educators:

"The go-to AI Assistant for Educators worldwide, designed to simplify teaching tasks, save time, and combat teacher Burnout. Our intuitive interface and guided prompts make prep and planning faster than ever, giving you more time where it matters most—with your Students."

MagicSchool for Students:

"AI is already shaping the world your Students will grad-uate into. With MagicSchool for Students, you can introduce responsible AI, deliver more personalized learning and ensure every student gets the support they need —all for FREE!

PROLOGUE PAGE 17

PROFESSOR: Get ClassDojo and turn your Classroom into a fun & Supportive Place where Everyone is CONNECTED!

ClassDojo

Where classrooms become communities

Loved by more than 45 million students and parents.
Free for teachers, forever.

2 million+ reviews

Keeping teachers, families, and kids connected

Turn Your Classroom into a CONNECTED. COMMUNITY Where You, Your Students & their Parents Are A Circle Of Support, Love & Success

ClassDojo

PROLOGUE PAGE 18

Clyde is also a Character in the AGWARTS STEM School for Aquaponics along with the many other weirdly wonderful Characters, and he'll soon be in the AGWARTS Store.