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Dear Friends,

We hope that you and your loved ones are finding a good path through these difficult times. This issue we celebrate the talented winners of this year's Ingenuity Awards. Enjoy their creativity and hard work! Thanks to sponsors, donors, and Premium subscribers who make these student programs possible!

Fernette Eide

Visit our wonderful sponsors: Winsor Learning / Sonday System All About Learning (Reading & Spelling), Scanning Pens, FastBridge, Summit Center, Churchill Center & School, Touch-type, Read & Spell, Recite Me, and The Writers Studio.



We're happy to announce that our partner NEUROLEARNING has launched their iPad-based Dyslexia app for adults and ages 7 & up! The app provides a dyslexia score as well as a report with weak areas and strengths. 3% of profits are donated to Dyslexic Advantage.

Thank you to volunteers Trish Seres, Dayna Russell Freudenthal, Michelle Williams, and Shelley Wear for their tireless proofing and feedback. Thank you Lady Grace Belarmino for her beautiful design work and admin support by Sarah Macapobre.

GO PREMIUM

NEWSLETTER HERE.

Editors' Note: to ensure that our dyslexic members are able to read our publication without difficulty, our editorial policy is to avoid the use of fonts or typefaces, such as italics, that can impede readability.



INGENUITY AWARDS

TOP PRIZE ENGINEER



Gus, 17 California Nueva School



VIRTUAL REALITY MOTION SIMULATOR

"I built a virtual reality motion simulator which translate virtul movement from racing and flight simulation into the real world, enhancing realism and enjoyment."

Watch Gus' video of his machine below.



I would like to thank Wally, my neighbor and mentor.

Two years ago I got an Oculus Rift virtual reality headset for Christmas. For a while, I had been enjoying using it for racing and flying simulation, however, I found that I had a difficult time becoming immersed in the games. While the visual feedback was stunning, there was no physical feedback or motion cueing, a fact which also made motion sickness more common. To solve these problems, I successfully designed and built a motion simulator that is used in conjunction with virtual reality in order to provide intense physical feedback to the user to enhance their virtual reality experience....

The simulator uses 6 750 Watt motors mated to 80:1 size 75 worm drive gearboxes, powered by 3 2000 Watt power supplies, and controlled by 3 Sabertooth 2x32 boards and 3 Arduino Uno boards.

The simulator is capable of fast, precise movements with a rider weight of up to 285 pounds. It moves in all 6 degrees of freedom (pitch/roll/yaw/heave/surge/ sway). The platform is able to perform a maximum pitch/roll of 15 degrees, at a maximum rate of 30 degrees per second. It is capable of a maximum displacement of 9 inches.

I built this project at home in my garage over the summer and beginning of this school year as a passion project. I have so far spent approximately 400 hours on the project. I did not work with a team, however, I had a mentor who helped me learn how to use a milling machine and provided expert engineering advice on a plethora of power tools.

ADVICE TO FELLOW CREATORS AND DISCOVERERS: Find a project that you love working on, and try to find someone you love working with and who knows more than you do, to work on it with. If you love what you're doing, you'll be more resilient, and learn even more. Things always take at least twice as long than you think they will, cost twice as much as you think they will, and you're going to become frustrated and challenged and want to quit along the way, however, none of this is any reason not to start.

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TOP DESIGNER



JACOB, 15 Oregon Homeschool ENTREPRENEUR AWARD

WAXED LEATHER CANVAS 43L BACKPACK

Ergonomic custom-designed backpack with support exactly designed to fit my back.

There are limited options for this size backpack made from leather and waxed canvas. This is the first problem I solved. Also, I wanted ergonomic back support shaped exactly to my back. This is an entrepreneurial aspect in my backpack design that could be added to any type of backpack, no matter the material it is made from. As I continue to grow, this might not continue to fit me, but I will remake this one portion when needed. Having back support will help you distribute the weight and keep proper posture. The ergonomic frame could also be made out of carbon fiber reducing the weight and making it look more modern in design. The doorskin material makes the pack have a vintage look which I was going for.

I began wanting to buy a backpack for camping. Not seeing anything that I really liked, I began leaning to my own design. I made a mock-up of the size I wanted with cardboard. Once I was happy with that I took measurements. I then began researching canvas, weights of canvas, waterproofing techniques, leather, buckles, etc. After getting samples in the mail, I settled on an olive green 10oz canvas. I used a 50/50 combination of paraffin and beeswax to waterproof the canvas using a clothes iron to melt it in. I also tried it on the leather and decided I liked the look and function the wax gave. I cut out my pieces. I hand-sewed a good portion of the leather and then talked my dad into a used vintage treadle

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INGENUITY AWARDS

machine that made the sewing so much faster/better. For the back support, I made a 2D replica of my back curves. With this, I used a vacuum bag system to suction down the doorskin (wood) to get that shape. Using a vacuum bag system was one of many new skills for me along with sewing canvas and using a treadle sewing machine.

ADVICE TO FELLOW CREATORS AND DISCOVERERS:

Map out your project before doing it. Make a mockup. I have jumped into many projects too soon and wasted material and time only to start over. The more expensive the material becomes the more crucial it is to start slow and make a plan before wasting expensive material.

Take your time to research. You can learn new skills and materials from other people.

When you have a large goal, learn your materials on a smaller scale. My first project wasn't a waxed leather/canvas backpack. I started handsewing leather passport covers. I've made my own templates for smaller projects. These experiences made scaling up a lot easier.

Break down the project into smaller steps. It makes it easier on you and less likely to burn out. With each small step completed, you can see you are making progress toward your main goal.





INGENUITY AWARDS

MAKAILA, 12 Alabama Homeschool

HIGH HONORS AWARD IN SCIENCE

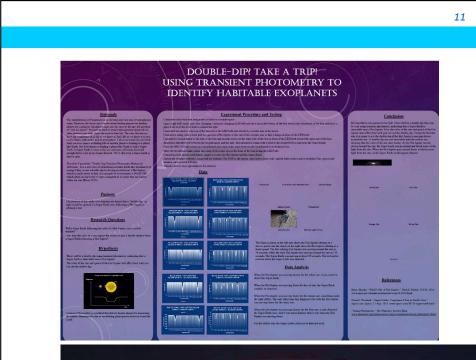
DOUBLE DIP? TAKE A TRIP USING TRANSIENT PHOTOMETRY TO IDENTIFY HABITABLE EXOPLANETS

The most likely place at finding a planet like Earth is with a Super Earth. A Super Earth is close to the size and mass of Earth but would

be like a small version of Uranus. But even a Super Earth is hard to spot. This is why I posed the "Double Dip Transient Photometry Method of Detection". It is a new way of identifying potential Earth-like Exoplanets by seeing if they create a double dip by having an orbit near a Hot Jupiter, which is much easier to find.

My project is a four-foot box painted black like space on the inside. Inside there is an LED light bulb that can change color and brightness to simulate the star. Above it there is a motor with a string attached to it with a foam ball on the end to simulate a hot Jupiter. There is a pully system with a bead on it to simulate a super earth. On the other end there is an Arduino light meter to test to see if there is a double dip. I changed the speed of the hot Jupiter to see if speed mattered and I also used the main colors of stars which are red, blue, white, yellow and orange.

The results of this project were when the Hot Jupiter was moving slower for the white star it was easier to detect the Super Earth; when the Hot Jupiter was moving faster for the red star the Super Earth couldn't be detected; when the Hot Jupiter was moving faster for the orange star something made the light reflect back; when the Hot Jupiter was moving slower for the blue star it only detected the super earth once and it was much dimmer than it was when the Hot Jupiter was moving faster; and for the yellow star the Super Earth could not be detected at all.







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National Center for Learning Disabilities, the International Dyslexia Association have evaluated the Sonday System(r) and deemed that the program contained the required elements for teaching reading identified by the Nation Reading Panel.

In conclusion, a double-dip can be seen using transient photometry, indicating that a Super-Earth is detectable near a Hot Jupiter. Also, the color of the star and speed of the Hot Jupiter does affect how well you can see the double-dip. Except for the blue star, it is easier to see the double-dip if the Hot Jupiter is moving slower around the star. A double-dip was not detectable with the yellow star showing that the color of the star does matter. As the Hot Jupiter travels slower around the star, the Super-Earth can go around and block more of the light from the star. When the Hot Jupiter goes around faster, it blocks more light from the star, so the Super-Earth would appear dimmer.

ADVICE TO FELLOW CREATORS AND DISCOVERERS:

If you are interested in something then learn all you can about it and once you know a lot about something tell others about it.

I would like to thank Mommy, Daddy, Dr. Jedildah Isler, Dr. Neil DeGrasse Tyson, and members of Von Braun Astronomical Society



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HONORS AWARD IN SCIENCE



BRYCE, 12 California Chartwell School

USING MYCELIUM FOR SUSTAINABLE BUILDING STRUCTURES

As the Soup Dogs Robotics Team Captain, I led and supported our group in identifying a problem with building in our community. When we looked at pollution in cities, we

found out that there are huge environmental problems with building materials, from making concrete to small things like walls and even some types of treated wood.

We wanted to find a better way to build structures without polluting the environment or using natural resources. After a lot of research, I helped the team decide to focus on concrete.

Our research showed that concrete is one of the leading causes of carbon dioxide, a major greenhouse gas in cities. Concrete also causes toxic dust in cities, often contains toxic chemicals, and needs tons of water to create.

We found the solution right under our feet, mushrooms! If we used mycelium to build, we would actually help the environment. We also think it can replace some concrete, drywall, and even more leading to business opportunities.

With our research, we found mycelium, which is biodegradable and grows easily and naturally, can be used to create strong structures but also it could replace treated wood, drywall, and even furnishing. Mycelium is pretty much the root of mushrooms. It grows in thin strands through the soil and it's everywhere in the world. It's really easy to grow, so it could be farmed.

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INGENUITY AWARDS

We found articles online about growing mycelium, then by drying it in the oven, you can make a dense material that could replace structures. From our research, I think it can replace some concrete, drywall, and even more. Here are some interesting things we found in our research:

Mycelium is a carbon sink. This means it can remove carbon dioxide from the air! Mycelium is easy to grow - even our 6th grade robotics team did it. Some scientists and artists have created small structures already. It is a sustainable and natural product.

Mycelium breaks down naturally. This means it can't be used outside unless it's protected from weather. But you can seal it to protect it. We need to further test the best way to connect mycelium together with screws or nails, like other construction materials.

The mycelium we used is from a small company in San Francisco. After three attempts, we were able to grow structures in small tetris molds that we 3D printed, and tupperware containers from home that made brick shapes. When we tested the structures, they were not as strong as concrete but with more testing we might have made them more dense and stronger.

To get feedback about our ideas and testing, we interviewed two experts in our community.

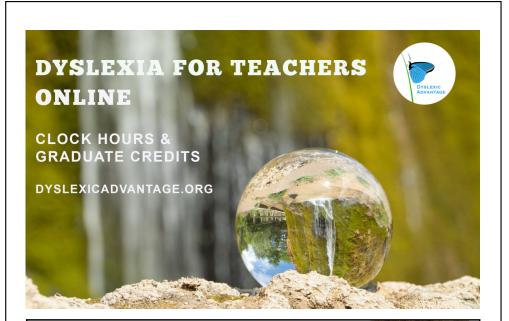
ADVICE TO FELLOW CREATORS AND DISCOVERERS:

Usually your creation or idea does not work the first time or even the 100th time. You need to keep on trying, make changes when necessary, and then test again. Sometimes you may get frustrated and want to give up. But if you keep at it, when your idea works, it feels really good. You will feel proud of yourself and what you accomplished.



Thanks additional team members: Kai, Ayden, Matthew, Tyler, Jorge, Michael, and Eli.

Bricks made out of Mycelium



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INGENUITY AWARDS

YOUNG ENTREPRENEUR SPECIAL RECOGNITION



MADIE, 12 Texas

BRACELETS FOR A BENEFIT

ADVICE: Running a business, even a really small one is harder than you think! Make sure you ask for help from smart people around you. For my business, my Mom helped me keep track of the money and expenses and my Dad helped me pack and organize the bracelets I sold.



ALEX, 13 lowa

TYPE A MOWING LAWN ATTACHMENT

ADVICE: You can spend lots of time and money on supplies and it still may not work very good (but I still had the best time doing this project). You can learn a lot either way, but sometimes it's easier and better to save your time and money and buy things and find a different project to do just for fun. I saw when you keep messing with something it can make it worse by the wear and tear. It's also a good idea to always take your time, use precision and think things over to save time and materials and avoid silly re-dos. Don't give up!

AIDEN, 12 California

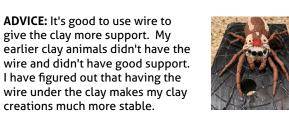
THE SCIENCE BEHIND BOTTLE BUSTING

ADVICE: Get Out There. Be Curious. And Make Something!

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GRACE, 11 California

SPIDER



INGENUITY AWARDS

ANDREW, 14 California Marantha High School

YOUNG SCIENTIST SPECIAL REGOGNITION

FROM HOUSE DOG TO SPACE DOG

ADVICE: Do whatever you want to do, not what others tell you to do.



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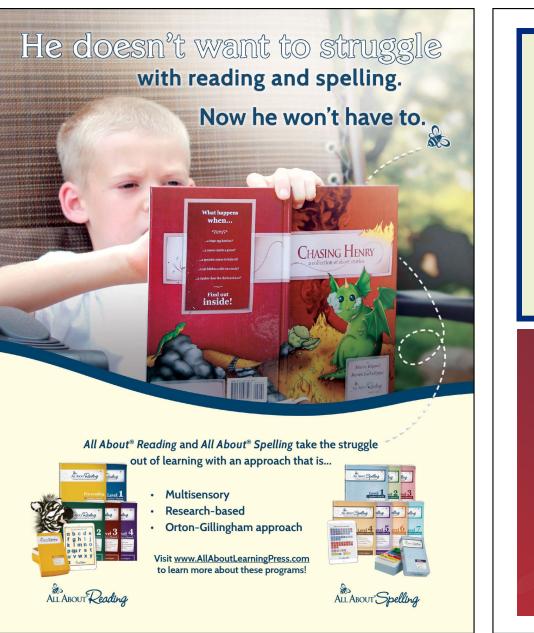
LEARN MORE



JAVON, 14 Alabama Homeschool

THE OPTIMUM TELEROBOTIC CONTROL SYSTEM FOR MULTI-OPERATIONAL SEMI-AUTONOMOUS ROBOTS

ADVICE: I would tell young creators to think outside the box. Just because something does not seem reasonable or does not exists yet doesn't mean it's not possible. Any idea you have no matter how big or how small can make a difference and you can accomplish anything you set your mind to (that obeys the laws of physics). Writing ideas down, no matter how messy, will help you remember them and elaborate more in detail. And speaking to others about your work will allow you to get ideas from others to improve whatever you a doing.



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YOUNG SCIENTIST SPECIAL REGOGNITION



JORDAN, 12 Alabama Homeschool

A COMPARISON STUDY OF DIFFERENT SPECIES OF BAMBOO TO COMMON WOODS USED IN BUILDING

ADVICE: My advice to young creators is not to give up on your ideas. If it doesn't work keep trying because you may invent or create something that could change the world for the better. We also learned the most when you overcome things that failed or didn't work well.



JUNA, 14 Michigan Washtenaw International HIgh School

MALE PRIVILEGE CHECKLIST

ADVICE: Don't let people make you believe your dyslexia is a setback or roadblock. Find the ways in which it makes you more innovative and unique. The different way your brain is wired gives you individuality as a creator and gives you access to new ideas. Use your big picture thinking to solve problems creatively!

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COVID COLLEGE

WHAT ABOUT FALL SEMESTER?



The outlook for the fall semester remains unpredictable. What does it mean for this community?

The situation about the pandemic remains very fluid as does the state of public and private schools at all levels, therefore complex and individualized decisions are being made at homes all across the country.

Many colleges and universities, secondary schools, and households are experiencing considerable financial stress leading many to decide to take a gap year or semester, or scale back on educational plans.

On the one hand, some college counselors have suggested aiming high for their college choices because college entrance exams are waived and students may be more likely to get into their 'reach' choices because of lots of other students choosing to stay closer to home or take gap years.

The risk of this option is getting a top school choice that is expensive, but also not able to offer the full college experience because teachers are struggling to teach on Zoom, many activities are canceled, and students don't get to experience the full away-from-home experience with fellow students. Students accustomed to work-study jobs may find fewer options available, too.

For students who were already in college or graduate school, some may choose to spend a gap year in their college town. Many faculty members may still need help and although dormitories are closed, off-campus apartments may now be looking for tenants so that it may be possible to save. If you are taking an internship, volunteer position, or paid position for a small amount of pay (or none), make sure that experience is a valuable one.

What project is being offered to you? Is there a possibility of publication? Will your supervisor value your efforts or is the job grunt work? Many jobs may be a mix - but see if you can get a sense how you will be valued by a supervisor or boss. In research labs for instance, many students may start cleaning glassware, but they also may sit in on lab meetings and be given more responsibilities as they learn to do more things - like maintain lab cell cultures or extract DNA. Bad jobs are those with little contact with other team members. If your prospective mentor doesn't take any interest in you and you may be holed away in a back room transferring numbers to other Excel sheets, then you will have a low paying job with no experience to speak of afterwards.

Because of financial considerations, many students may scale back on their away-from-home college experiences, opting instead to take a few online courses or courses at local community college that stand a good chance of transferring credit to a 4-year program. Others may opt to work if they're able or search for alternative tracks like certification that can improve job prospects as well as job rates.

What about if you or your student is determined to return to college in the fall? Currently, a wide range of possibilities are being considered by different schools: from all online, to partially online, smaller classes with social distancing, shorter class blocks, to postponing entire semesters. To see what some changes colleges have talked about, read articles from <u>NPR</u>, <u>Business Insider</u>, and <u>CBS</u> <u>News</u>.



With the option of taking classes over longer periods (for instance 2 quarters instead of 1 quarter), it's possible that the slower progress may help some students complete their programs. The difficult question is whether some flexibility might be given to the workloads that students must maintain in order for FAFSA requirements for scholarships and loans to be maintained.

As in pre-pandemic times, schools must provide accommodations to students in order to ensure equal access to information and demonstration of knowledge. For dyslexia assessment, some psychologists like <u>Summit Center</u> have the capability of testing remotely; some universities (like Stanford!) have accepted the results of remote testing using the <u>Neurolearning</u> app. Testing for college or university is confidential; the results are not shared with any outside organization or persons without your permission.

What can be unpredictable is knowing how easy (or hard) the experience may be for online college classes and tests.

COVID COLLEGE

Many students have talked about fatigue with extended online classes and some tech-averse professors over-compensate by overloading students with readings. One student recently complained that when all classes switched to online learning, the professor just posted pdf files and told his students to "summarize them."

Students must also be prepared to self-advocate when comes to test-taking conditions. If possible, it would also be helpful if the student could be given practice with software (text-to-speech, speech-to-text) or be told which software will be available. Because auditory and speech difficulty can accompany dyslexia, having to use new software suddenly for a high stakes exam can put students at a serious disadvantage.

Many may have difficulty recognizing different voices reading text aloud, while others may have trouble with software accurately transcribing on the basis of their speech. Having a scribe is also not without its difficulties; some schools insist that students dictate all punctuation and capitalization, even if those aspects of writing won't be graded.

If a student regularly uses a contextual spelling or grammar software like Ginger or Co:Writer, then you can request whether this can be regularly used as part of school accommodations.

Even if your college is all remote learning, many campuses still offer designated note-takers, so contact your student success office.

Tests taken in Canvas or other software platforms have time conditions - so if you have extended time accommodations, make sure your teacher sets up the exams to account for this.

If your school uses the UProctor system (such as used for the GRE, GMAT, and other standardized exams), check out articles <u>like this one</u> to anticipate problems that may occur and make sure you ask for enough time for tests to adequately reflect your knowledge.

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DYSLEXIA NEWS



American Psychological Association

Coping with COVID-19 Stress as a Student



New Dyslexia Law Oklahoma: Elementary School Screening

OKC Fox



For Some, Being at Home Has Been a Blessing in Disguise

10 Daily



Overcoming Dyslexia and Dysgraphia to Become a Paramedic

WCNC



Students with Dyslexia Need Structured Literacy

SmartBrief



Homeschool Help for Dyslexic Students During Lockdown

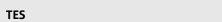
Barrington Stoke



Enabling Comic Sans Subtitles on Disney Plus

Nerdist





Being a Dyslexic Teacher - Now I Embrace It



Our Dyslexic Children Documentary Trailer

YouTube



University of California Schools Drop SAT and ACT for Admission

Forbes



Free Computer Sciences Learning Resources COVID

The Journal



Teaching Kindergarte at a Distance: What a Rookie and Veteran Learned (good for beyond kindergarten)

TampaBay.com



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Free writing Students can free-write inside TTRS and you'll get post-session feedback on spelling & typing performance



TTRS Reporting

Track performance and manage student accounts on your smartphone with our new app

Dyslexic Advantage



Dyslexic Advantage

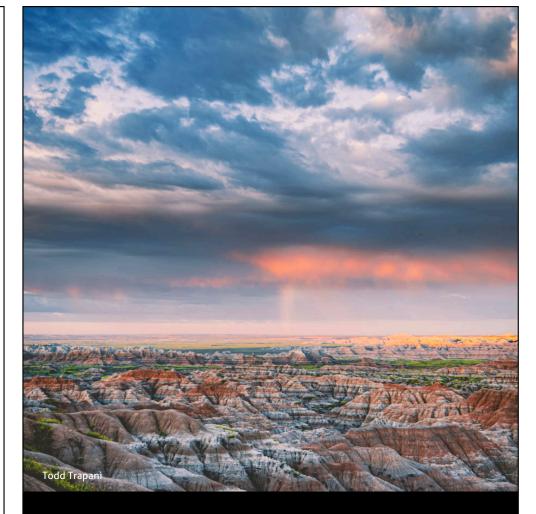


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Dyslexic