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BITS & BYTES

THE OFFICIAL NEWSLETTER OF BRBYTES

BATON ROUGE: BRINGING YOUTH TECHNOLOGY, EDUCATION, AND SUCCESS

Praise for BRBytes from the East Baton Rouge Parish School Board

BRBytes presented to the East Baton Rouge Parish School System (EBRPSS) Board on February 4, 2021.

The presentation focused on explaining the program and the goals it has related to grants from the National Science Foundation and the U.S. Department of Education. It also provided an update on the progress BRBytes has made so far.

Associate Superintendent Ben Necaise, who also serves as a principal investigator for the BRBytes program, called BRBytes "a coordinated, comprehensive approach to computer science pathways."

EBRPSS Board Member Jill Dyason commented on the apparent advantage students would have if a place was found for BRBytes courses within the TOPS program, an idea seconded by EBRPSS Superintendent Sito Narcisse.

"We can look into courses that are similar to what's being presented to see where [BRBytes] would actually fit in the curriculum, integrated, so students can receive credit for it," Narcisse said.

BRBytes presenter John Underwood mentioned that the Introduction to Computational Thinking courses is currently under review to be added as a TOPS art credit. Along with the discussion of TOPS inclusion, BRBytes received praise from some school board members in attendance.

"My hat goes off to you and your team. This is phenomenal work," said Dadrius Lanus, EBRPSS Board Member. "I would love to see you all expand this all across our district."

Lanus also noted one of his former high school teachers is involved as a BRBytes teacher.

EBRPSS Board Member Evelyn Ware-Jackson enjoyed a slide in the presentation which shared a screenshot of computer code and the image that code created. She called it "a perfect picture of how arts and STEM just blend together to form that STEAM that we love so much."

"I can't even tell you how much I appreciate this," Ware-Jackson said. "This is so cool. I love it when I see things that I think will make kids' brains tingle, and this one made mine tingle."

Nothing BRBytes does would be possible without the teachers implementing our curriculum and the principals who bring our courses into their schools.

"I want to tell our teachers and our principals how much I appreciate their work in expanding these pathways," Necaise said. "They've chosen to really make this happen at all the middle school and high school levels, so thank you."

see page 3 for *Presentation Summary*

IN THIS ISSUE

Computer Science Teachers Association Louisiana Chapter

If you are looking for another place to collaborate with computer science teachers, you might be interested in Louisiana's chapter of the Computer Science Teachers Association (CSTA).

CSTA's Louisiana chapter was founded in 2018 by Katy Ullrich, a teacher at Liberty High School who is involved in BRBytes, and three other computer science teachers in Baton Rouge. Since then, the organization has expanded to include over 50 members across the state.

Ullrich and the other co-founders were the only computer science teachers at their schools, so they began reaching out to each other about curriculum ideas, their classes, and suggestions. This blossomed into the idea of starting a CSTA chapter.

"We decided that there must be other people in the state of Louisiana that needed another resource," Ullrich said. "We felt like it would give us, the teachers in Louisiana, an opportunity to collaborate and work together."

CSTA meetings often provide opportunities for professional development, with guest speakers from the computer science industry and universities. BRBytes has also presented at some of these meetings to share information about the opportunity to teach BRBytes courses with CSTA teachers who are not yet involved in BRBytes.

Ullrich said the Louisiana chapter is still in its infancy, but they are hoping to work with other chapters in the meantime.

"I just received an email from some of the Texas chapters that they're actually holding a summit," Ullrich said. "They have invited local chapters, meaning like states that are around Texas, so us included, to participate in those type of summits."

As the Louisiana Chapter of the CSTA continues to grow, they hope to expand the professional development opportunities they offer and reach out to teachers in more areas across the state.

If you are interested in becoming a member, you can sign up on their website: https://louisiana.csteachers.org/.

CSTA Louisiana

Computer Science Career of the Month:

DATA SCIENTIST

Data scientists analyze data to address problems. They are in charge of collecting and organizing data, and then use programming languages and software tools to visualize that data, identify important patterns, and propose solutions to the organizations they work for. Data scientists make a median salary of $90,070 and jobs in this field are expected to grow at a rate of 9% between 2018 and 2028. Most data scientists have their bachelor's degree, and many have a master's degree too. If you're interested in a career in data science, you should build your skills in big data analytics, Java, machine learning, Hadoop, Python, data mining, data warehouse creation,SAS, SQL, and R.

ANNOUNCEMENTS

BRBytes is seeking collaboration with new teachers, schools, and districts! If you know of anyone who may be interested, please send their contact information to us at info@brbytes.org.

Our next Community of Practice Meeting is scheduled for Thursday, March 18 and Saturday, March 20. Remember, if you are teaching a BRBytes course this semester, you must attend a session.

Hack-A-Thon has been re-scheduled for Friday, April 30. Stay tuned for more information!

View our curriculum on our website! The BRBytes program utilizes the open sourced curriculum from LSU's Computing Pathway. We invite public comment and review.

BR-BYTES

web: brbytes.org
email: info@brbytes.org

partners & funding agencies:

LSU EBR EAST BATON ROUGE PARISH SCHOOL SYSTEM NSF

BRBytes, Grants, and Progress Made: A Summary of the Presentation for the EBR School Board

The following article summarizes the presentation BRBytes gave at the East Baton Rouge Parish School System (EBRPSS) Board Meeting on February 4, 2021. It includes details about the program, the purposes of the grants that fund it, and progress that has been made so far.

One grant that supported BRBytes is from the National Science Foundation. A goal of this grant is to create the first 7-12th grade class offering pathway for computer science, according to BRBytes presenter John Underwood.

"We're one of the first districts in the state to be actually working towards bringing this online," Underwood said. "We have all of our high schools [in EBRPSS] working with us and half of our middle schools so far, and this is just the first year of our five year grant."

The courses developed by BRBytes are all "designed to allow the students to work through programming, as well as increase their mathematical skills with application, while also learning career skills that are tied directly to some of the features that are there," Underwood said.

Another grant, from the US Department of Education, is focused on assessing the effectiveness of the Introduction to Computational Thinking (ICT) course. Preliminary research has shown that students taking ICT have slightly improved Algebra I and EOC scores, according to Underwood.

BRBytes also emphasizes the importance of diversity and culturally relevant pedagogy.

"Both grants are designed to increase access and reduce inequity in students' ability to take computer science," Underwood said.

To do this, BRBytes has worked to increase course offerings in computer science and to ensure all high schools in EBRPSS have access to a rigorous, grade-level appropriate curriculum with opportunities to connect with industry and other career pathways.

BRBytes is also working to challenge the misconception that the type of students who should take computer science courses are "kind of a white nerdy guy that is into computers," Underwood said. This has involved training principals and counselors to understand BRBytes courses are open for all students, regardless of background or academic ability.

"A big thing that we emphasize is that math ability is not a limiting factor," Underwood said. "We work with students at all levels, and so because of the scaffolding built into the curriculum, there is something for differentiation, but also there's something for each student to be able to increase their abilities while being able to access the content and work with it freely."

BRBytes' commitment to diversity extends beyond student recruitment and into the courses themselves.

"We work to do an integration of culturally relevant pedagogy in which students explore what culture means for them," Underwood said. "You can see [in their work] where students chose things like Black Live Matter, as well as different historic monuments in the state [to represent themselves culturally]."

As BRBytes continues to expand, we will focus on including more rural districts as well.

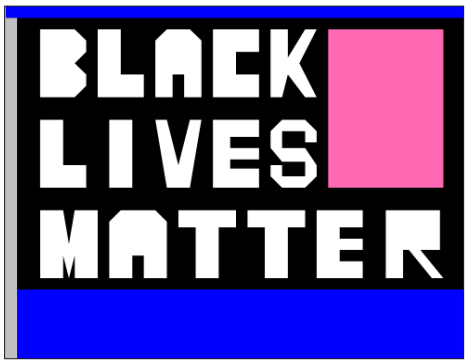
BRBytes has reached over 2,000 students in the 2020-2021 school year, which is almost three times the rate of students previously taking computing courses. Of these students, 67% are from minority backgrounds and 47% are from economically disadvantaged backgrounds.

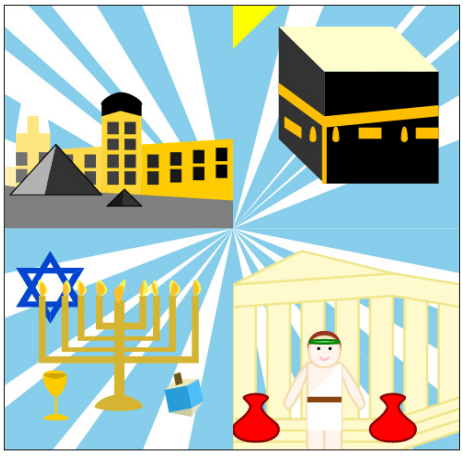
BRBytes has also trained 26 teachers who had never taught computer science before, been recognized with a visit to Liberty High by the Assistant Secretary of the US Department of Education, and successfully published three research articles within National Review and top-tier journals. Additionally, Underwood was selected for the Computer Science Teachers Association's Equity Fellowship.

Finally, with the implementation of BRBytes curriculum, EBRPSS has become the "first school district in Louisiana to bring the chance for all students to be able to have computer science in grades 7 through 12," Underwood said.

We look forward to the continued expansion of BRBytes with the help of partners like EBRPSS, as well as seeing all of the amazing work our students will produce in the future.

"All of our students are capable of doing these amazing things," Underwood said. "This is something that really combines the arts, the humanities, computer science, as well as linking it to graphic design and careers."





CLASSROOM SPOTLIGHT

DAVID MCMILLAN | WEST FELICIANA HIGH
ICT, CYBERSECURITY & PROGRAMMING FOR STEM

A desire to integrate the news and current events into his classroom resulted in a new annual activity for the students of David McMillan, Introduction to Computational Thinking, Cybersecurity, and Programming for STEM teacher at West Feliciana High School.

"I am a news person," McMillan said, "so whatever technology or computer kind of stories [are in the news], I'll typically start class with, mention them during class, [or] give them out as reading assignments."

One particular news story captured the attention of his Programming for STEM class two years ago.

"We watched the Mars rover land, and we saw the animation that NASA had put together," McMillan said. "The class said, 'hey, we could probably do that,' so they actually went back and, using Haskell and the Programming for STEM course, they ran their own Mars lander animation."

The next year, a new class of Programming for STEM students saw the animation and said they could do better. McMillan plans to keep an animation video as an annual project.

In addition to student desires to participate in this project, McMillan has found that students in several of his classes have blossomed after learning about the world of computing.

"A lot of them go well beyond what we're doing in class. They stay ahead in class. They want to learn more, so I have to find other computing programming things for them to do," he said. "They're really interested and really motivated to learn more and do more. I know it's an odd thing to hear that students do extra work, but with the computer, I find a number of students want to do extra work just on their own."

McMillan retired from the Navy in 2014 and began working at West Feliciana as the Junior ROTC instructor. As JROTC instructor, he started a CyberPatriot team, which got him thinking about the need for students to take classes on cybersecurity. Around this time, West Feliciana became involved in the BRBytes program, and McMillan has been teaching computer science ever since.

He has participated in three BRBytes summer professional development sessions.

"I've thoroughly enjoyed the summer training," McMillan said. "[I've] found it very useful and interesting. [It] answers a lot of questions and opens up a lot of new doors."

He added that he uses himself as an example for his students.

"Here I am at my age still going to school," he said. "The learning never stops. You keep learning. It's a lifelong thing."

Before partnering with BRBytes, West Feliciana High did not offer many computer science courses, according to McMillan, and offering these courses has had a direct impact on students.

"Over the past three years, we've had a number of students take [BRBytes courses] and then go on to LSU, Louisiana Tech and a few other schools to pursue computer science degrees," McMillan said. "I think we went from zero to five or six [students] a year going into computer science. To me, that's a good thing."

Even students who do not plan to pursue a career in computer science are benefiting from these courses.

"The things they learn in the class are going to be important no matter what career they decided to pursue," McMillan said. "It's a computing world, so no matter what job they're in they're going to have to understand how computers operate, not just to be a user, but to understand how they really operate, work, [and] communicate with other computers."

McMillan's goal is to prepare his students for the job market of 2030-2040, and he believes computer science courses are necessary to equip students with the skills they will need.

"We need to make computer science classes mandatory because every single job is going to involve computers," he said. "My hope is that the state realizes that and they make some of these classes mandatory for students."

For teachers new to BRBytes, McMillan has a bit of advice.

"That that old saying 'you can't teach an old dog new tricks' isn't true," he said. "You can learn. You just have to be open minded to learn."

McMillan also encourages teachers, as well as students, to push through the struggles.

"We're used to doing something one time [and] maybe make a small correction," he said, "but in programming, you may have to completely start over because you did everything wrong, and you have to be okay with that."

As far as integrating the curriculum into your own classroom, McMillan says it's all about having a positive attitude and fostering an environment where everyone is learning together.