

## **STEM Renaissance Pathway Descriptions**

### **Computing and Cybersecurity**

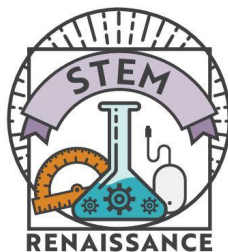
The Louisiana computing and cybersecurity pathway allows students to engage in a program of study that combines computer science, cybersecurity, and mathematics through project-based learning. Students will be able to apply computational thinking techniques in many different STEM disciplines and demonstrate proficiency in computing in many settings. Students will explore the implications of technology usage in social interactions, learn how to protect systems from possible cyberattacks, and create interactive websites and applications. Students will discuss the ethics of advancements in robotics and artificial intelligence as they consider the value of true autonomous devices. They will build complex systems capable of multiple sensory inputs and advanced logic structures. Pathway coursework prepares TOPS University and Jump Start TOPS Tech diploma-seeking students to compete in the 21st century by immersing them in the fundamentals of the field, as well as its impacts and applications in the workplace.

### **Digital Design and Emergent Media**

The Digital Design and Emergent Media Certification Pathway is designed with a 21st century approach to media production. It centers on developing the skills and creativity for producing digital media from the initial assets through to the final presentation. The pathway incorporates the multiple STEM disciplines to address the constantly transforming field of digital media by enabling: digital storytelling – no matter the media; production skills training and certification in a variety of media types; programming experience specializing in web and digital media; and engagement in emergent media practice culminating in group-based projects, exhibition/performance, and portfolio development.

### **Environmental Protection and Sustainability**

The Environmental Protection and Sustainability Pathway has been established to provide both TOPS University and TOPS Tech diploma-seeking high school students with the knowledge and skills necessary to pursue careers connected to the natural environment. The ultimate goal of this pathway is to allow students the opportunity to understand the weather, geology, and ecology that are specific to our region. Students will understand the careers available to them in a variety of different settings to prepare for the sustainability of natural resources and the future of our state's citizens.



## **STEM Renaissance Pathway Descriptions (continued)**

### **Pre-Engineering**

The Louisiana pre-engineering pathway provides a pre-engineering program for both TOPS University and TOPS Tech diploma-seeking high school students. Through hands-on projects and interaction with industry professionals, the curriculum prepares students to compete in the 21st century by engaging them in understanding the fundamentals of engineering in the classroom as well as in the workplace. Students will understand the careers available to them in the field of engineering as well as learn key skills such as teamwork, oral and written technical communication, and work ethic that will serve them well whether they pursue an advanced degree or immediately join the workforce.

### **Pre-Healthcare/ Pre-Veterinary**

The Louisiana pre-healthcare/ pre-veterinary pathway provides a program for both TOPS University and TOPS Tech diploma-seeking high school students. Through hands-on projects and interaction with industry professionals, the curriculum prepares students to compete in the 21st century by engaging them in understanding the fundamentals of STEM practices in the classroom as well as in the workplace. Students will understand the careers available to them in the medical field as well as learn key skills such as teamwork, oral and written technical communication, and work ethic that will serve them well whether they pursue an advanced degree or immediately join the workforce.