blackbird

A K-12 COMPUTER SCIENCE PATHWAY WITH A FOCUS ON PROGRAMMING

The goal of this program is to have students graduate High School with a demonstrable understanding of computer science evidenced by computer programming skills necessary to enter the workforce or continue their education at the university level.

Grade	K-2	3-5
Learning Objectives	Students learn what computers are. Students learn how to engage with computers. Students learn to follow written instructions. Students start solving math problems	Students develop the skills they need to learn to program computers. Students learn what computers are and how they work. Students create computer programs using block-based tools.
CS Curriculum	**Pre-reader Express**	**CS Fundamentals**
Teaching Format	Units and lessons taught throughout k-12 years.	Units and lessons taught throughout 3-5 years.

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We recommend students begin Year 1 in middle school to ensure students have the time they need in high school to practice their programming skills as their math and literacy skills develop. Year 1 and 2 could be condensed into a year-long course for 9th or tenth grade students.

Grade	MS/HS Year 1	MS/HS Year 2
Learning Objectives	Students use the math and literacy skills they've learned and engage them in a new way with text-based computer programming. Students create text-based computer programs. Students begin to attend to the precision required to write computer programs. Students continue to develop their algorithmic thinking skills.	Students build on their attention to detail and ability to work with abstract concepts in the context of computer programs. For example, continuous loops, or nested objects. Students begin taking more risks and trying more advanced programming techniques.
CS Curriculum	**Blackbird - Unit 1**	**Blackbird - Unit 2** **+ Capstone Project**
Teaching Format	A semester course depending on the pace desired.	A semester or year-long course depending on the pace desired.

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By the end of this program, students will have gained the computer programming skills necessary to enter the workforce or continue their education at the university level.

Grade	MS/HS Year 3	MS/HS Year 4
Learning Objectives	Students begin exploring more complex programming techniques and applications beyond the Blackbird platform. Students are ready to begin development of application-level programming tasks, ie. creating a webpage.	Students build on their programming experience by developing portfolio projects. Students start exploring the ways and patterns that developers use in their work. Students start investigating current developments in the world of programming.
CS Curriculum	**AP Computer Science Principles**	**AP Computer Science A**
Teaching Format	A year-long course.	A year-long course.

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