

Blackbird Code

<p>GRADE LEVELS: 6-12</p> <p>Educational Setting: Both in school and out of school.</p> <p>Award Provides:</p> <ul style="list-style-type: none"> ● \$140 stipend + \$50 travel for training. ● Student licenses. <p>Additional Cost(s) to Awardee in 2024-2025: None</p> <p>Approximate Sustainability Cost After Award Period:</p> <ul style="list-style-type: none"> ● \$20 / student / year (access to all curricula) ● Training for new teachers: \$150. 	<p>2024-2025 STEM Scale-Up Program Summary: Blackbird teaches text-based coding to <u>all</u> students (and teachers!), starting in middle school. Project-based curricular units teaching math or science are included in core math and science classes. Accessible (but real) coding is used to illustrate core math / science concepts.</p> <p>Text-based coding is normally taught in electives, so this important skill has been limited to students with the confidence to sign up for what might be a very challenging coding class.</p> <p>The good news is that it doesn't have to be that difficult! Blackbird uses new educational technologies to make coding accessible enough for all students at the middle-school level and above. (Read more about the technology here, and evidence of success here.)</p> <p>Blackbird's educational philosophy is based on supported practice. Closely scaffolded lessons gradually give way to less scaffolding and greater opportunities for creativity (particularly in longer curricula), but every student always has adequate support and the chance to review the material and get answers to their questions so they feel comfortable and can keep practicing successfully.</p> <p>Instructors receive responsive, unlimited support from our knowledgeable staff.</p> <p>Curricula include:</p> <ol style="list-style-type: none"> 1. Expressions and Equations: 4-6 class periods at 6th grade math level. Also appropriate in 7th grade. <i>Students solve math problems and learn order of operations using code.</i> 2. Ratios and Proportions: 4-6 class periods at 7th grade math level. Can be used throughout middle school. <i>Students model ratios graphically using code.</i> 3. Magnetism: 9-10 class periods at 8th grade science level. It can also be used in high school. <i>Students build a simulation of a magnetic repulsion "rocket" that flies up and falls back down, using concepts of magnetism, acceleration and gravity.</i> 4. Farmstead: 9-10 class periods at 9th grade business (or math) level; can be used from eighth grade on. <i>Students model revenue and expenses of a small farming business over time using concepts of compound interest, reinvestment, profit and loss. Student code generates graphics illustrating the farm's growth over time with numerical readouts showing the farm's accounts.</i> 5. Games and Animations: One year (high school), multiple year (middle school). <i>Students write animations and games of increasing complexity, including guided projects with lighter scaffolding, and optionally creative projects.</i> <p>Requirements to Implement the Program:</p> <ol style="list-style-type: none"> 1. One day training in person or 5 hours on Zoom. Additional Zoom practice times optional. 2. Each student will need a desktop or laptop computer. 3. Educator(s) must participate in the STEM Council Scale-Up Educator Survey.
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Website:
www.blackbirdcode.com

- Videos:**
- [Product video](#)
 - [Ashley](#) (teacher)
 - [Bailey](#) (teacher)

Slideshow:
[Blackbird presentation](#)

- Social Media:**
- [Facebook](#)

Informational Webinar(s):
[Wednesday, Jan. 24 at 3pm](#)
[Monday, Feb. 26 at 4pm](#)

Iowa Standards Alignment:

Expressions and Equations: *Math:* 6. EE.A.2. A, 2.B, 2.C; CS 2-AP-11, 2-AP-13;
21 Century Skills: 21.6-8.TL.1, TL.6, ES.2, ES.5.

Ratios and Proportions: *Math:* 6. RP.A.3. B, 3.D, 7. RP.A.2.C; CS: 2-AP-11, 2-AP-13;
21 Century Skills: 21.6-8.TL.1, TL.6, ES.1, ES.5.

Magnet Rocket: *Science:* MS-PS3-2, MS-PS2-3; CS: 2-AP-11, 2-AP-13;
21 Century Skills: 21.6-8.TL.1, TL.2, TL.3, TL.6, ES.1, ES.5.

Farmstead: *Math:* 7. RP.A.1, A.2 (A, B, C), A.3, 7. NS.A.1 (A, B, C, D), 7. NS.A.3, 7. EE.A.2, B.3, B.4.
CS: 2-AP-11, 2-AP-13.
21 Century Skills: 21.6-8.ES.1, ES.2, ES.3, ES.4, ES.5, TL.1, TL.3, TL.4, TL.6, SS.7.18, 19, 28, 31.

Games and Animations: CS: 2-AP-11, 12, 13, 14, 15, 16, 17, 18, 19
Math Practices: MP1, MP2, MP4, MP5, MP6, MP7, MP8
Math Content: 6.RP.A.1, 7.RP.A.1, 6.RP.A.2, 7.RP.A.2, 6.RP.A.3.D, 6.NS.A.1, 7.NS.A.1, 6.NS.C.6, 7.NS.A.2.A, 6.EE.A.2, 7.EE.B.4, 6.EE.B.5, 7.G.A.1, 7.G.B.4, 7.SP.C.6, 7.SP.C.8;
Reading Standards for Literacy in Science and Technical Subjects: RST.6-8.3, 8.4, 8.7.
21 Century Skills: 21.6-8.TL.1, TL.2, TL.4, TL.6, ES.1, ES.2, ES.4, ES.5

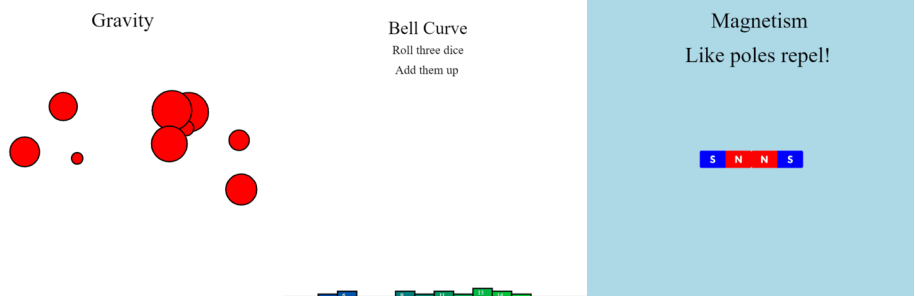
Professional Development:

Duration: 1 day in person or 5 hours at the Zoom. Additional Zoom supported practice times available.

Date(s): In-person -- 7/13
Zoom -- 7/17
Will schedule more dates as needed.

Location: TBD (In Iowa)

Photos:



STEM Scale-Up Program Application Link: www.iowaSTEM.org/Scale-Up-Application