

Time Travel to a Robot Society with mBot

Content Standard Alignment

(G3-G4)

Lesson 1 The Mind of a Robot (Part I)

Type	Indicator	Standard
ISTE	1a	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	6a, 6c	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
	7d	Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
CSTA	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
	1B-AP-12	Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.

Lesson 2 The Mind of a Robot (Part II)

Type	Indicator	Standard
ISTE	1a	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	6a, 6c	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
	7d	Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
CSTA	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
	1B-AP-12	Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.

Lesson 3 All About Lights

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3a, 3c	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	4a	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
	5a, 5d	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
CSTA	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-IC-18	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.
	1B-IC-20	Seek diverse perspectives for the purpose of improving computational artifacts.

Lesson 4 When mBot Meets a Robot

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3c, 3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
NGSS	3-5-ETS1-1	Define a simple design problem.
CSTA	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

Lesson 5 The Secret Code

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3c, 3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	6a, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-NI-04	Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.
	1B-DA-07	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
	1B-IC-18	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.

Lesson 6 Orientation

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	5a	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
	6a, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-DA-07	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.
	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
	1B-AP-16	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

Lesson 7 Frère Jacques

Type	Indicator	Standard
ISTE	6a, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
	1B-AP-15	Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

Lesson 8-9 mBot's Gifts

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3c, 3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	4a	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions
	6a, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
	1B-AP-13	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.
	1B-IC-18	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.

Lesson 10 Red Light, Green Light

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	5a, 5c	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
CSTA	1B-NI-04	Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.
	1B-DA-07	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

Lesson 11 mBot the Musician

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3a, 3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	5c	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
CSTA	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

Lesson 12 The Magic Box

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	5a, 5c	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
CSTA	1B-DA-06	Organize and present collected data visually to highlight relationships and support a claim.
	1B-DA-07	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.
	1B-AP-09	Create programs that use variables to store and modify data.
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.

Lesson 13 The Time Machine

Type	Indicator	Standard
ISTE	1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3c, 3d	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	4a	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions
	6a, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
	1B-AP-13	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.
	1B-IC-18	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.

Lesson 14-16 To a Future Robot Society

Type	Indicator	Standard
ISTE	1a, 1c, 1d	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
	3a, 3c	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
	4b, 4c	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
	6a, 6b, 6d	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
CSTA	1B-AP-16	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.