# Bachelor of Education (Elementary)
# Unit Plan

**Unit Title:** Intro to Coding - Blue Bots **Number of Lessons:** 8 **Days:** 8

**Your Name:** Samantha N. Sipos (Miss S.) **Subject(s):** ADST **Grade:** K/1

**Rationale**

It is important for students to stay up to date and current with technology as it is incorporated into many aspects of day to day life. Coding with blue bots is a very engaging way for students to start learning about technology in a hands-on way.

**Overview**

Students start the unit off with STEM challenges to have them start working on their teamwork and creative and critical thinking skills. Students then advance from using simple manipulatives to working with Blue Bots and start using simple coding strategies to program them to move. Tied into many of the games are ways for students to practice their oral storytelling skills, spelling and math skills.

**Indigenous Connections/ First Peoples Principles of Learning**

Learning involves patience and time → if students are struggling and facing difficulties they will focus on the attributes of our spirit buddies to stay calm and remember that learning is a process that is not always fast.

**CORE COMPETENCIES**

| Communication | Thinking | Personal & Social |
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| ● Communicating<br>*Connecting and engaging with others* → Students engage in informal and structured conversations in which they listen, contribute, develop understanding and relationships, and learn to consider diverse perspectives. | ● Critical thinking<br>*Designing and developing* → Students think critically to develop ideas.<br><br>● Creative thinking<br>*Creating and innovating* → Students get creative ideas that are novel and have value. | ● Social awareness and responsibility<br>*Building relationships* → Students build and maintain diverse, positive peer and intergenerational relationships. They are aware and respectful of others' needs and feelings and share their own in appropriate ways. |

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| • Collaborating<br>*Working collectively* → Students combine their efforts with those of others to effectively accomplish learning and tasks.<br>*Supporting group interactions* → Students engage with others in ways that build and sustain trusting relationships and contribute to collective approaches. | | |

**BIG IDEAS**

| Subject Name: **ADST** | Subject Name: | Subject Name: |
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| • Skills can be developed through play.<br>• Technologies are tools that extend human capabilities. | | |

**LEARNING STANDARDS & ASSESSMENT**

| Curricular Competencies | Content | Assessment |
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| **ADST**<br>• Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore the use of simple, available tools and technologies to extend their capabilities<br>**ELA**<br>• Explore oral storytelling processes<br>• Show awareness of how story in First Peoples cultures connects people to family and community | **ELA**<br>• elements of story<br>• structure of story<br>• oral language strategies<br>**Mathematics**<br>• Single attributes of 2D shapes and 3D objects<br>• Direct measurement with non-standard units (non-uniform and uniform)<br>**AE**<br>• Processes, materials, movements, technologies, tools and techniques to support arts activities | Checklist |

**Prerequisite Concepts and Skills**

Students will already have background knowledge on how to work together as a group and what it means to be a good group member. Students will also have an understanding of how to respectfully use technology.

**Teacher Preparation Required**

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| Lesson 1 | Toothpicks (30) and mini marshmallows (25) - per group<br>https://www.youtube.com/watch?v=zrnR2y2Bzl4&t=123s&ab_channel=BostonChildren%27sMuseum |
| Lesson 2 | Mystery bags (1 per 2-3 students filled with recyclables), mystery task ideas |
| Lesson 3 | Blue bots, story maps<br>https://sites.google.com/gedu.sd73.bc.ca/kamthompsontechtalk/teach-with-tech/robotics?authuser=0&pli=1 |
| Lesson 4 | Blue bots, print out pictures of blue bot buttons, story maps, Indigenous story<br>https://sites.google.com/gedu.sd73.bc.ca/kamthompsontechtalk/teach-with-tech/robotics?authuser=0&pli=1 |
| Lesson 5 | Blue bots, chart paper, markers, pencil crayons |
| Lesson 6 | Blue bots, chart paper, markers, pencil crayons |
| Lesson 7 | Large chart paper of alphabet, simple CVC word cards printed and cut up, large chart paper of numbers 0 - 20, simple addition/subtraction equations on cut up strips, linking cubes, large chart paper with maze drawn on it, large chart with graph and shapes drawn in spaces, blue bots<br>https://dsb1makes.weebly.com/beebot.html |
| Lesson 8 | Large chart paper of alphabet, simple CVC word cards printed and cut up, large chart paper of numbers 0 - 20, simple addition/subtraction equations on cut up strips, linking cubes, large chart paper with maze drawn on it, large chart with graph and shapes drawn in spaces, blue bots<br>https://www.pinterest.com/pin/91831279887986659/ |

**Cross-Curricular Connections**

This unit connects to Indigenous oral storytelling, allowing students to practice their own story telling as well as their spelling, math, and teamwork skills.

**Universal Design for Learning (UDL)**

1. I provide for multiple means of **representation** in this unit in the following ways: instructions are given orally as well as in picture form, oral stories, story maps.
2. I provide multiple means of **action and expression** in this unit in the following ways: students are doing hands-on activities, and sharing information orally.

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| 3. I provide multiple means of **engagement** in this unit in the following ways: students are working in small groups, using multiple areas of the classroom, and opportunities to work with technology. |

**Differentiated Instruction (DI)**

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| Lessons will offer groups the ability to take more time if needed.<br>Student with autism will be invited to join a partner for activities and encouraged to work on social skills, boundaries, and taking turns. |

**Overview of Lessons:**

**Lesson 1**

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| Lesson Name & Time (Minutes Allotted): | Toothpick Tower Challenge - 30 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work |
| Learning Standards: Content | • Single attributes of 2D shapes and 3D objects<br>• Processes, materials, movements, technologies, tools and techniques to support arts activities |
| Instructional Objectives (SWBAT…): | SWBAT work together with their teammates<br>SWBAT create a tower using toothpicks and marshmallows |
| Assessment: | Observation of teamwork |
| Teaching Strategies: | Teacher will give instructions and organize student groups<br>Teacher will circulate and give verbal advice if need be, only stepping in if students have tried on their own first |
| Materials: | Toothpicks (30) and mini marshmallows (25) - per group<br>https://www.youtube.com/watch?v=zrnR2y2Bzl4&t=123s&ab_channel=BostonChildren%27sMuseum |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Show video of toothpick marshmallow tower on YouTube<br>Review shapes, how to make shapes (3D) |
| Body: | Divide students into predetermined groups<br>Give students materials (30 toothpicks and 25 mini marshmallows)<br>Students spend time working with groups |

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| Closure: | Ask each group to share what techniques they used → what worked/what didn't<br>Measure all of the towers to see who built the tallest → if time, organize into shortest to tallest? |

**Lesson 2**

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| Lesson Name & Time (Minutes Allotted): | Mystery Bag Challenge - 35 minutes |
| Learning Standards: Curricular Competencies | • Develop their skills and add new ones through play and collaborative work<br>• Explore the use of simple, available tools and technologies to extend their capabilities |
| Learning Standards: Content | • Processes, materials, movements, technologies, tools and techniques to support arts activities |
| Instructional Objectives (SWBAT…): | SWBAT work together with teammates<br>SWBAT create an object using their creative thinking skills |
| Assessment: | Observation of teamwork |
| Teaching Strategies: | Teacher will give explicit instructions before students work independently |
| Materials: | Mystery bags (1 per 2-3 students filled with recyclables), mystery task ideas |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Teacher will read out a mystery task card and show students a bunch of materials, together they can brainstorm what they would make<br>Teacher will give out mystery bags and assign partners/groups |
| Body: | Students work independently to create an object<br>Mystery Card Ideas:<br>- You have a unique pet iguana that does not like the sun. Design a shelter for him so he can stay in the shade.<br>- You are at the swimming pool on a nice warm day, but you forgot to bring your pool toys. Create a pool toy that would be fun to play with in the pool.<br>- You are a bird and need to build a home for your bird family. Build a home that will keep your bird family safe and comfortable.<br>- You are an elephant at a zoo and just found out you'll be transferred to another zoo that is full of mice! You are very afraid of mice. Design something you can use to keep the mice away. |

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| Closure: | Go around and have groups share the task and what they built |

**Lesson 3**

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| Lesson Name & Time (Minutes Allotted): | Intro to Coding - 50 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore oral storytelling processes<br>• Show awareness of how story in First Peoples cultures connects people to family and community |
| Learning Standards: Content | • Oral language strategies |
| Instructional Objectives (SWBAT…): | SWBAT identify the directional buttons on the blue bots<br>SWBAT use the directional buttons on the blue bots to move forward, backward, left, right<br>SWBAT use the directional buttons to move blue bot in a square |
| Assessment: | Observation + checklist at end of unit |
| Teaching Strategies: | Teacher will introduce blue bot directional buttons with diagrams<br>Teacher will use animated voices when telling stories with blue bots<br>Teacher will give explicit instructions before students explore independently |
| Materials: | Blue bots, story maps<br>https://sites.google.com/gedu.sd73.bc.ca/kamthompsontechtalk/teach-with-tech/robotics?authuser=0&pli=1 |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Show blue bot - explain directional buttons<br>Tell story with blue bot moving on story map |
| Body: | Students are divided into partners/small groups to work with a blue bot<br>Students explore how to code blue bot to make a square shape, move around on mat |
| Closure: | In partners/small groups must show that they can code a simple pattern |

**Lesson 4**

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| Lesson Name & Time (Minutes Allotted): | Blue Bot Exploration - 50 minutes |

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| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore oral storytelling processes<br>• Show awareness of how story in First Peoples cultures connects people to family and community |
| Learning Standards: Content | • Oral language strategies |
| Instructional Objectives (SWBAT…): | SWBAT identify the directional buttons on the blue bots<br>SWBAT use the directional buttons on the blue bots to move forward, backward, left, right<br>SWBAT use the directional buttons to move blue bot in a square |
| Assessment: | Observation + checklist at end of unit |
| Teaching Strategies: | Teacher will introduce blue bot directional buttons with diagrams<br>Teacher will use animated voices when telling stories with blue bots<br>Teacher will give explicit instructions before students explore independently |
| Materials: | Blue bots, print out pictures of blue bot buttons, story maps, Indigenous story<br>https://sites.google.com/gedu.sd73.bc.ca/kamthompsontechtalk/teach-with-tech/robotics?authuser=0&pli=1 |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Teacher will review how to program blue bot |
| Body: | Teacher will divide students into partners/small groups to explore the story maps with blue bots |
| Closure: | In partners/small groups must show that they can code a simple pattern |

**Lesson 5**

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| Lesson Name & Time (Minutes Allotted): | Create A Story - 50 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore oral storytelling processes |
| Learning Standards: Content | • Elements of story<br>• Structure of story |

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| | • Oral language strategies |
| Instructional Objectives (SWBAT…): | SWBAT create OR retell a simple story<br>SWBAT draw and design a simply story mat<br>SWBAT program blue bot to travel on story mat |
| Assessment: | Observation of teamwork and participation |
| Teaching Strategies: | Teacher will review elements of a story, give groups hints and ideas if they are struggling, explicit instructions before setting students off to work independently<br>Teacher will circulate amongst groups |
| Materials: | Blue bots, chart paper, markers, pencil crayons |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Review how to program blue bots<br>Review elements of a story → key elements: beginning, middle, end, setting, characters, problem arises/conflict, problem is solved/conflict resolution |
| Body: | Students are divided into small groups and given materials to work on story chart |
| Closure: | Tidy up materials and plug blue bots back in |

**Lesson 6**

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| Lesson Name & Time (Minutes Allotted): | Create A Story cont… + Stem Challenge - 50 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore oral storytelling processes |
| Learning Standards: Content | • Elements of story<br>• Structure of story<br>• Oral language strategies |
| Instructional Objectives (SWBAT…): | SWBAT create OR retell a simple story<br>SWBAT draw and design a simply story mat<br>SWBAT program blue bot to travel on story mat |
| Assessment: | Observation of teamwork and participation |
| Teaching Strategies: | Teacher will review elements of a story, give groups hints and ideas if they are struggling, explicit instructions before setting students off to work independently<br>Teacher will circulate amongst groups |

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| Materials: | Blue bots, chart paper, markers, pencil crayons |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Review how to program blue bots<br>Review elements of a story → key elements: beginning, middle, end, setting, characters, problem arises/conflict, problem is solved/conflict resolution |
| Body: | Students get into their previous small groups and continue to work on story chart and programming blue bots<br>If there is time we can share our stories with the class! |
| Closure: | Tidy up materials and plug blue bots back in |

**Lesson 7**

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| Lesson Name & Time (Minutes Allotted): | Coding Game Centers! - 50 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore the use of simple, available tools and technologies to extend their capabilities |
| Learning Standards: Content | • Direct measurement with non-standard units (non-uniform and uniform)<br>• Print awareness<br>• Number concepts to 20 |
| Instructional Objectives (SWBAT…): | SWBAT use blue bots to show answers to simple ELA and Math questions<br>SWBAT program blue bots |
| Assessment: | Observation + checklist |
| Teaching Strategies: | Teacher will have materials ready and partners/groups ready and predetermined<br>Teacher will give examples to class of each center with explicit instruction before students explore and work independently |
| Materials: | Large chart paper of alphabet, simple CVC word cards printed and cut up, large chart paper of numbers 0 - 20, simple addition/subtraction equations on cut up strips, linking cubes, large chart paper with maze drawn on it, large chart with graph and shapes drawn in spaces, blue bots<br>https://dsb1makes.weebly.com/beebot.html |
| LESSON ACTIVITIES | |

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| Introduction/Hook: | Students are given tour of blue bot stations |
| Body: | Students are divided into small groups to start exploring stations<br>10 minutes per station then rotate |
| Closure: | Pack up materials and plug blue bots in |

**Lesson 8**

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|---|---|
| Lesson Name & Time (Minutes Allotted): | Coding Game Centers! - 50 minutes |
| Learning Standards: Curricular Competencies | • Use materials, tools, and technologies in a safe manner in both physical and digital environments<br>• Develop their skills and add new ones through play and collaborative work<br>• Explore the use of simple, available tools and technologies to extend their capabilities |
| Learning Standards: Content | • Direct measurement with non-standard units (non-uniform and uniform)<br>• Print awareness<br>• Number concepts to 20 |
| Instructional Objectives (SWBAT…): | SWBAT use blue bots to show answers to simple ELA and Math questions<br>SWBAT program blue bots |
| Assessment: | Observation + checklist |
| Teaching Strategies: | Teacher will have materials ready and partners/groups ready and predetermined<br>Teacher will give examples to class of each center with explicit instruction before students explore and work independently |
| Materials: | Large chart paper of alphabet, simple CVC word cards printed and cut up, large chart paper of numbers 0 - 20, simple addition/subtraction equations on cut up strips, linking cubes, large chart paper with maze drawn on it, large chart with graph and shapes drawn in spaces, blue bots<br>https://www.pinterest.com/pin/91831279887986659/ |
| LESSON ACTIVITIES | |
| Introduction/Hook: | Students are given tour of blue bot stations |
| Body: | Students are divided into small groups to start exploring stations<br>10 minutes per station then rotate |
| Closure: | Pack up materials and plug blue bots in |

**Resources**

https://www.youtube.com/watch?v=zrnR2y2Bzl4&t=123s&ab_channel=BostonChildren%27sMuseum
https://sites.google.com/gedu.sd73.bc.ca/kamthompsontechtalk/teach-with-tech/robotics?authuser=0&pli=1
https://dsb1makes.weebly.com/beebot.html
https://www.pinterest.com/pin/91831279887986659/

**Blue Bot Assessment Checklist**

| | Emerging | Developing | Proficient | Extending |
|---|---|---|---|---|
| I can get better at something and build my skills as I play and explore with others. (ADST) | | | | |
| I can use tools and technology safely. (ADST) | | | | |
| I can work respectfully with others to achieve a common goal. (Career) | | | | |