

Activity 1: Boat Journey

Adventures Awaits!

Subject: STEAM, Computer Science, Storytelling	Topic or Unit of Study: Computational Thinking, Coding
Grade/Level: Grades 1-2	Time Allotment: 1.5 hours
Objectives: <ul style="list-style-type: none">● We will follow instructions to create a program.● We will identify the main characters in a story.● We will practice helping a story character.● We will participate in collaborative conversations.	Standards: <p>MD 2.AP.A.01: Model daily processes and follow basic algorithms (step-by-step lists of instructions) to complete tasks verbally, kinesthetically, via a programming language, or using a device.</p> <p>NGSS K-2 ETS 1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p> <p>ISTE 1.5a: Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.</p>
Synopsis: <p>This unit introduces your students to computational thinking. They'll begin to understand what a sequence is, be able to follow instructions to create a sequence, and describe the sequence to their peers. They'll learn how to break problems down into smaller parts, identify cause and effect, and understand simple loops. Finally, they'll explore the process of testing and debugging programs to ensure that their programs work as intended.</p>	Materials: <ul style="list-style-type: none">● Teacher/instructor lesson plan● Teacher/instructor Google Slides presentation● Teacher computer with access to internet and teacher presentation● Student computers● LEGO Spike Essential kit (one per two students)● Paper copies of Building Instructions (optional)

Activity 2: Arctic Adventure

Adventures Awaits!

Subject: STEAM, Computer Science	Topic or Unit of Study: Computational Thinking, Coding
Grade/Level: Grades 1-2	Time Allotment: 1.5 hours
Objectives: <ul style="list-style-type: none">● We will use directional vocabulary to describe a sequence.● We will break a problem down into smaller parts.	Standards: <p>MD 2.AP.C.01: Create programs using a programming language that utilize sequencing and repetition to solve a problem or express creative ideas.</p> <p>NGSS K-2 ETS 1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p> <p>ISTE 1.5d: Students understand how automation works and use algorithmic algorithmic thinking to develop a sequence of steps to create and test automated solutions.</p>
Synopsis: <p>This unit introduces your students to computational thinking. They'll begin to understand what a sequence is, be able to follow instructions to create a sequence, and describe the sequence to their peers. They'll learn how to break problems down into smaller parts, identify cause and effect, and understand simple loops. Finally, they'll explore the process of testing and debugging programs to ensure that their programs work as intended.</p>	Materials: <ul style="list-style-type: none">● Teacher/instructor lesson plan● Teacher/instructor Google Slides presentation● Teacher computer with access to internet and teacher presentation● Student computers● LEGO Spike Essential kit (one per two students)● Arctic map copies (one per two students)● Paper copies of Building Instructions (optional)

Activity 3: Animal Detector

Adventures Awaits!

Subject: STEAM, Computer Science	Topic or Unit of Study: Computational Thinking, Coding
Grade/Level: Grades 1-2	Time Allotment: 1.5 hours
Objectives: <ul style="list-style-type: none">• We will develop a program to solve a problem.	Standards: <p>MD 2.AP.C.01: Create programs using a programming language that utilize sequencing and repetition to solve a problem or express creative ideas.</p> <p>NGSS 1-PS4-4: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.</p> <p>ISTE 1.5d: Students understand how automation works and use algorithmic algorithmic thinking to develop a sequence of steps to create and test automated solutions.</p>
Synopsis: <p>This unit introduces your students to computational thinking. They'll begin to understand what a sequence is, be able to follow instructions to create a sequence, and describe the sequence to their peers. They'll learn how to break problems down into smaller parts, identify cause and effect, and understand simple loops. Finally, they'll explore the process of testing and debugging programs to ensure that their programs work as intended.</p>	Materials: <ul style="list-style-type: none">• Teacher/instructor lesson plan• Teacher/instructor Google Slides presentation• Teacher computer with access to internet and teacher presentation• Student computers• LEGO Spike Essential kit (one per two students)• Paper copies of Building Instructions (optional)

Activity 3: Animal Alarm

Adventures Awaits!

Subject: STEAM, Computer Science	Topic or Unit of Study: Computational Thinking, Coding
Grade/Level: Grades 1-2	Time Allotment: 1.5 hours
Objectives: <ul style="list-style-type: none">• We will develop a program to solve a problem.	Standards: <p>MD 2.AP.C.01: Create programs using a programming language that utilize sequencing and repetition to solve a problem or express creative ideas.</p> <p>NGSS 1-PS4-4: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.</p> <p>ISTE 1.5d: Students understand how automation works and use algorithmic algorithmic thinking to develop a sequence of steps to create and test automated solutions.</p>
Synopsis: <p>This unit introduces your students to computational thinking. They'll begin to understand what a sequence is, be able to follow instructions to create a sequence, and describe the sequence to their peers. They'll learn how to break problems down into smaller parts, identify cause and effect, and understand simple loops. Finally, they'll explore the process of testing and debugging programs to ensure that their programs work as intended.</p>	Materials: <ul style="list-style-type: none">• Teacher/instructor lesson plan• Teacher/instructor Google Slides presentation• Teacher computer with access to internet and teacher presentation• Student computers• LEGO Spike Essential kit (one per two students)• Paper copies of Building Instructions (optional)