Goal: Learn about coding through inquiry based learning activities to understand the process and outcomes of computer programing.

Standards:

ITSE Standards:

- Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem solving.
- Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated systems.

Standard: Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems

Objectives:

- Students will be able to design a code to get from one point to the next point.
- Students will be able to test the codes that they have wrote and determine the success of the code.
- Students will be able to solve authentic problems by using the coding tools that they have learned.

- Students will be able to come up with original ideas to use in the coding process.

Standard: Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

Objectives:

- Students will be able to determine the digital tools to use when they are writing their codes.
- Students will be able to explain their coding plan when they are writing their codes.
- Students will be able to take risks and explain whether their risks were a success or need to be rewritten.
- Students will be able to finish a project in writing code by managing their digital tools.
- Students will be able to explain when how to be a responsible digital citizen when working on computers.

Standard: Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem solving.

Objectives:

- Students will be able to successfully write algorithms to write computer code.
- Students will be able to break down the codes that are given to them to determine where the bugs are in the code.
- Students will be able to explain the different parts of the written code.
- Students will be able to fix a code that has an algorithm that problems throughout it.

Standard: Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated systems.

Objectives:

1. Students will be able to explain how an algorithm works in a given code.
2. Students will be able to follow an algorithm to create a product described in the algorithm.
3. STudents will be able to write an algorithm for real life situations.
4. Students will be able to write an algorithm for code.org.
5. Students will be able determine where the problem is in a written code.

Day 1: My robotic friends

1. I will talk to the students to determine how do engineers get robots to move. Do you just talk to a robot when you are programing the robots? Do robots usually understand what you are saying to them when you are just talking to them? How do we get robots to do what we want them to do?
2. Today you all are going to be robots. Your peers are going to write codes for you to read and then you are going to have to build a structure that goes along with the code that they have written.
3. We will review what each of the symbols means and how to use it. We will talk about how the cups will be set up.
4. Once we have reviewed the students will write code for their partners to read. Some of the students will go in another part of the classroom until their partners are ready for them.