Welcome to Teknowledge!

Instructor Guide

Overview

This lesson plan will give students an introduction to computer programming, Teknowledge, their peers and mentors, and Scratch.

Resources Required

- One assembled [Mirobot](#) with 4 AA batteries per one or two students
- One computer with internet access per one or two students
- One Sharpie per Mirobot, and multiple extra multi-colored Sharpies for drawing
- One mentor per one or two students
- Multiple large (20x30 at a minimum) sheets of white paper per Mirobot. This is so each student group has space to do multiple drawings. Also bring multiple regular size sheets of white paper so the students can make art and easily take it home. If possible, also get one really large sheets that multiple Mirobots can use at once, so students can collaborate on their final drawings.

Instructor Preparation

- Check that the Mirobots are able to connect to the computers, and the computer's browsers can run ScratchX (they need Flash installed).
- Print out enough [surveys](#) for the students, plus a few extras

In Depth Description of Lab Activities

Video Introduction

- Start class with this video: https://www.youtube.com/watch?v=nKIu9yen5nc
- Show the Teknowledge intro video [TO BE CREATED] showing a wide-range of cool, cutting edge stuff technology is being used for, and what they will be able to create in Teknowledge

Discussion Points

What will we be learning about?
- How to code (we'll be using mostly a language called Python, which is the first language we all learned)
- Demystify how computers work on the inside!
- All the cool stuff we can do with code :)

Why learn about Computer Science?
- There are not enough people in the world who understand computers, us people who love the workings of computers always want more people to join the club :)
- Computers are powerful, but stupid, and need the insight of human beings to teach them to do "new tricks"

What is code all about?
- Breaking down big lofty ideas such as making a video game or the newest snapchat filter into very simple step-by-step instructions - that is *code*
- It is really about creativity - we want *you* to be creative in these lessons in a way that your classes might not allow - it should be fun and creative, and if it's not, let us know what we can do more of to make you have the best experience
- At first it may seem a bit dull, but like any other skill, there are essential building blocks you need to do cooler and cooler things
- Part of the computer being essentially stupid is that there are only a small number of words that it understands and we have to teach you how to use those words and symbols to make many many cool things happen

No Computer Science background is needed to understand the lessons
- But if you don't understand something at any point, ask a mentor, or the main Guide (instructor)

Commitment from the students
- Commitment from our side: give us feedback, tell us if it is not fun, tell us about things you may want to play with or have experience with and we will do the best to accommodate those. We're very flexible and this is all about you!
- Commitment from your side: regular attendance, putting effort during the session, we don't want this to be a class but we want you to be committed to it.

- Schedule: meeting twice a week, for 1.5 h each time. So a total of 3 h commitment each week.
- How to catch up if you miss a session?

Ice Breaker

Each person comes up with three fun facts about themselves. They then start out with a piece of paper which has their name written on it. They go around and meet people. When they meet someone, they introduce themselves, say 3 interesting facts about themselves, and trade papers with the other person. The next time they meet someone, they will introduce themselves as the person on the paper, and say three facts about that person. After a while, the game will stop. We then go around the room, and each person stands up, introduces the person whose paper they have, and say that persons three fun facts. Then, the actual person stands up and introduces themselves and says their ACTUAL three fun facts. There may be a reward for individuals who actually get the fun facts right.

Programming Basics

In this activity, students will get to program the Mirobot. Have each group of students (one or two students) place a Sharpie in the Mirobot, turn it on, and connect it to their computers. Then have them use Scratch to give basic commands to the robot. Students can experiment with the robot, and mentors can teach them whatever they want to learn regarding the robot for almost the rest of class.

Survey

Explain to students that in order to tailor the course to them, we would like them to know more about their interests and background. Have them fill out the survey and hand it to instructors whenever they're done.

Lesson Plan

(:10) means that this part should be done by the tenth minute of the lesson
1. Video Introduction (:10)
2. Discussion Points (:25)
3. Ice Breaker (:45)
4. Programming Basics (:75)
5. Survey (:90)