

Robotics Unit 1: Introduction to Programming

This unit consists of 3 lessons that introduce students to coding and programming, and gets them started on programming using the code.org Angry Birds maze lessons with Snap! We won't use the Finches at this stage, but we will let students know that they will be using robots after they finish this unit.

Lesson 1 - Unplugged: Graph Paper Programming

Lesson plan:

https://drive.google.com/a/hillelpgh.org/file/d/0BwVAeaQEv0_7b1NYZGRKVTY4X1E/view

Online version with clickable links is here: <https://code.org/curriculum/course2/1/Teacher>

This lesson does not require a computer but does need some supplies as noted in the lesson plan.

Note that the actual "coding" part is 20 minutes. We will be having 30 minute blocks for these classes, so we will adapt this slightly: 10 minutes for intro, 15 minutes for activity, and 5 minutes for wrapup/conclusion.

Assessments are available here, and can be done on the Smartboard as a group:

<https://studio.code.org/s/course2/stage/1/puzzle/2>

<https://studio.code.org/s/course2/stage/1/puzzle/3>

Lesson 2 - Unplugged: Algorithms and Paper Airplanes

Lesson plan:

https://drive.google.com/a/hillelpgh.org/file/d/0BwVAeaQEv0_7cV9WLVAAtWUc3aEE/view

Online version with clickable links is here: <https://code.org/curriculum/course2/2/Teacher>

This lesson also does not require a computer. As the previous lesson, the actual lesson is designed for 20 minutes. Cut down on the introduction, though you should review the vocabulary from the previous lesson and add the new vocabulary word - algorithm. Use 10-15 minutes for the activity. The assessment is important, so try to allow 10 minutes for it. The worksheet is here: <https://code.org/curriculum/course2/2/Assessment2-EverydayAlgorithms.pdf>

Lesson 3 - With the Chromebooks: Maze Sequence

Students should work in pairs and take turns putting together blocks of "code" to guide the bird through the maze. Each member of the pair should switch off being the one to sit at the computer and drag in the blocks, but the other member can still offer advice and suggestions. Begin with the instructional video to guide students and get them started:

<https://youtu.be/h7NtxHTrggU>

The video is also saved to our Google Drive here:

https://drive.google.com/drive/folders/0BwVAeaQEv0_7R0N0WG5zSmlXTmc

There are two maze levels. This one is recommended for grades 2-5:

<https://studio.code.org/s/course2/stage/3/puzzle/1>

If you find some students struggling, there is an easier version to get them started here:

<https://studio.code.org/hoc/1>

If students finish quickly, they can do the artist sequence which is more complex:

<https://studio.code.org/s/course2/stage/4/puzzle/1>

Walk around to guide students and help as needed.

Wrap up/Conclusion: As students complete their last maze, tell each pair to click on “Show code.” They should look at the code and discuss how the code actually describes what they have been doing as they drag and drop blocks on the screen.

Let them know that next time, they will be doing the same thing - but this time, instead of moving a bird around the screen, they will be moving a “bird robot” called the Finch in the real world!