

Lesson 4.02: For Loops Using Range ## Learning Objectives Students will be able to... * Define and identify: **range** * Use the `range` and `len` function to update lists via for loops ## Materials/Preparation * [Do Now] * [Lab - Getting Loopy] ([printable lab document]) ([editable lab document]) * [Associated Reading - section 4.2 of Book](https://tealsk12.gitbook.io/intro-cs-2/readings#4-2) * Read through the Do Now, lesson, and lab so that you are familiar with the requirements and can assist students ## Pacing Guide | **Duration** | **Description** | | ----- | ----- | | 5 Minutes | Do Now | | 10 Minutes | Lesson | | 35 Minutes | Lab | | 5 Minutes | Debrief | ## Instructor's Notes ### 1. Do Now * Display the Do Now on the board. * Students experiment with and are introduced to the `range` function. ### 2. Lesson ##### Part 1 of the Do Now * Ask students what the **range** function did. * Remind them that there are reference docs online. * Show the docs for the range function (note that it actually takes in a third value that is optional). * Work together with the students to write a for loop just using the range function. ##### Part 2 of the Do Now * Ask the students what happened * Ask the students why these values might be helpful * They are a list of the indices! ##### Part 3 (many students likely didn't finish) * Ask students to write the first line of the loop on the board * Work together as a class to come to a solution that is demonstrated for all to see. ### 3. Lab * Students re-write the fruit pluralize program from yesterday's do now, but without creating a new list. * Students write a function that reverses the letters in a string. ### 4. Debrief * Talk about any issues the students had with the lab today. * Discuss how lists are mutable, so you don't have to return a new value. Instead, the list is just updated as the loop runs. ##### Video explanation on Python Lists being Mutable [![Mutable Python Lists](https://img.youtube.com/vi/_y3PqL4lIzw/0.jpg)](https://youtu.be/_y3PqL4lIzw?t=181) ## Accommodation/Differentiation * If students are having a hard time with the fruit pluralize, consider altering the fruit program to not allow fruit that ends in y. * Some students may have issues with grabbing the last item of a string, consider providing tips or scaffolding for students that are struggling with this. * Go over the bonus question if any students got to it. Discuss having a function inside of the loop and how that operated. ## Forum discussion [Lesson 4.02: For Loops Using Range (TEALS Discourse Account Required)](https://forums.tealsk12.org/c/unit-4-looping/lesson-4-02-for-loops-nested-loops) [Do Now]: do_now.md.html [Lab - Getting Loopy]: lab.md.html [printable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/4_unit/02_lesson/lab.pdf [editable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/4_unit/02_lesson/lab.docx