Lesson 6.01: Introduction to Dictionaries ## Learning Objectives Students will be able to... * Define and identify: **dictionary**, **key**, **value** * Create dictionaries of key-value pairs * Access items from dictionaries ## Materials/Preparation * [Do Now] * [Lab - Dictionary of Internet Abbreviations] ([printable lab document]) ([editable lab document]) * [Associated Reading - section 6.1](https://tealsk12.gitbook.io/intro-cs-2/readings#6-1) * 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 will copy and edit code involving creating a dictionary and accessing items from that dictionary. ### 2. Lesson #### Instruction - Dictionaries * Ask the students what *type* they think `my_dictionary` is. * `my_dictionary` is a **dictionary** or a collection of **key-value** pairs. * You use the key to look up the value in the dictionary. * Keys and values can be of any type. The syntax is: `{key : value, key : value, ...}` #### Discussion * Did anyone run the `type()` function to find out what type 'my_dictionary' is? * Ask: what are the keys in the example from the Do Now? What are the associated values? * Ask the students what `my_dictionary['dog']` did, and if this syntax reminds them of anything (lists!). #### Instruction - Square Brackets * To get the value associated with a key in a dictionary you use square brackets. * You can also use `my_dictionary.get()`, which will return `None` if the key isn't there. * *Note*: You can pass in a second argument to `get` which takes the place of the `None` default. #### More Discussion * Ask how students would get the value for `chair` or `car`. * Discuss what happened when students ran `my_dictionary['kittens']`? #### 'in' keyword * Explain that this error is common and means that there is no value in the dictionary. To avoid this error, use the `in` keyword with an `if` statement. If a certain key is `in` a specified dictionary, it will return `true`. Otherwise it will return `false`. #### Example ```python my_dictionary = {'a': 1, 'b': 2, 'c': 3} if 'a' in my_dictionary: print("It's there!") else: print("It's missing!") ``` ### 3. Lab * Students will create a dictionary translating common internet phrases into their meanings. ### 4. Debrief * Review what was covered in today's lesson and check for understanding of the three concepts covered: **dictionaries, keys,** and **values**. ## Accommodation/Differentiation * If any students are struggling with today's lesson, be prepared to offer additional examples of the usefulness of having key-value pairs. * Students that are moving quickly through the lab should work on the bonus and research how to add new key/value pairs to a dictionary. ## Forum discussion [Lesson 6.01: Introduction to Dictionaries (TEALS Discourse Account Required)](https://forums.tealsk12.org/c/2nd-semester-unit-6-dictionaries/lesson-6-01-introduction-to-dictionaries) [Do Now]: do_now.md.html [Lab - Dictionary of Internet Abbreviations]: lab.md.html [printable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/6_unit/01_lesson/lab.pdf [editable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/6_unit/01_lesson/lab.docx