|  |
| --- |
| **Teacher: ROSE** |
| **Date: 8/15/18** |
| **Subject / grade level: Computer Science – AP CS Principles** |
| **Materials:****objectDemo\_student****objectDemo\_teacher** |
| **Essential Question(s):**How can we use an object (key-value pairs) to count unique items? (inventory)How can we make sense of (quantify/measure) this data?How can we sort an object? |
| **Essential Standards (NGSS) and (CCSS):**

|  |  |  |
| --- | --- | --- |
| **Science & Engineering Practices (SEPs)** | **Disciplinary Core Ideas (DCIs)** | **Crosscutting Concepts (CCs)** |
| N/A | N/A | **N/A** |

**Common Core State Standards (CCSS):**3A-DA-11: Create interactive data visualizations using software tools to help others better understand real-world phenomena.3A-Da-12: Create computational models that represent the relationships among different elements of data collected from a phenomenon or process. |
| **Lesson objective(s) - *Students will demonstrate understanding or learning around the following Big Ideas:****Objects in JavaScript are collections of key-value pairs, similar to an associative array or dictionary data structure. There is no implied order of key-value pairs. One common use of an object is to keep track of an inventory of items.**Arrays are an ordered list of items. We can use arrays to sort an object. By copying the keys into an array, we can then sort by their respective values.* |
| **Differentiation strategies to meet diverse learner needs:**Extension: visualization with a bar graph (according to % totals calculated) |
| **ENGAGEMENT (*Anchoring Phenomenon*)*** *Teacher will run the teacher demo which visualizes the packets/IP.*
* *How is the bar graph generated? (shape, size, color)*
* *How do you keep track of the different IP address and the packets associated with them?*
* *How do you sort this data?*
 |
| **EXPLORATION*** *Teacher shares the socket object as JSON*
* *Students are invited to make sense of the data in the console using for-in loops*
* *1) output the number of keys (ip addresses)*
* *2) sum the values (packets)*
* *3) calculate percent totals for each key (ip)*
 |
| **EXPLANATION*** *Shiffman’s website with videos:* [*https://shiffman.net/a2z/text-analysis/*](https://shiffman.net/a2z/text-analysis/) *(assign as previous night’s HW)*
* Review the Text Concordance section
* Instead of a text concordance, we will create an IP/socket concordance
* As objects are unordered collections of key-value pairs, we will use an ordered data structure we are familiar with (arrays) to sort the keys by their respective values
 |
| **ELABORATION*** *As a class or in partners:*
* *a) Create a student object to keep track of grades, absences, etc. OR*
* *b) Create a classroom inventory object to keep track of classroom items.*
* *Sort the object by highest values*
* Sum the values and calculate % total for each key
 |
| **EVALUATION*** *There are 8 tasks to complete along with a challenge in objectDemo\_student*
 |