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| **Grade 4** |
| **Grade: 4 Subject: Math**  **Unit: Patterns: Sorting Numbers/Carroll diagrams**  |
| **Learning Target:** Students will use Carroll diagrams to express mathematical relationships. |
| **Curriculum Outcomes**: **PR 04** – Students will be expected to identify and explain mathematical relationships, using charts and diagrams to solve problems.**PR04.01** Complete a given Carroll diagram to solve a problem. **PR04.02** Determine where new elements belong in a given Carroll diagram.**PR04.03** Solve a given problem using a Carroll diagram. **PR04.07** Solve a given problem by using a chart or diagram to identify mathematical relationships. |
| **Screencast support:**  |
| **Resources/AT Tips:** Teaching Graphs app – Carroll diagramsiPads |
| **Lesson Procedure** | **21st Century Skills** |
| **I do:** * Activate Prior knowledge by reviewing work previously done on sorting numbers with Venn Diagrams on my [Celebrating 4th Grade Math](http://celebrating4thgrademath.weebly.com/patterns--relations.html) site.
* Show Carroll diagram on the smart board and ask how could this be used to sort numbers.
* Examine the carroll diagram below as a class.
* In the first row all the numbers are odd. In the second row all the numbers are not odd. Numbers whose digits add to less than 10 are in the first column. Numbers whose digits add to more than 10 are in the second column

|  |  |  |
| --- | --- | --- |
|  | Digits add to 10  | Digits add to more than 10 |
| Odd | 5111 513 25 | 391679 |
| Not odd | 8000 | 15863874 |

 |  find, validate remember, understand  collaborate, communicate analyze, synthesizecritical thinking evaluate, leverage create, publish citizenship |
| **We do:** * Display teaching graphs app on the Smartboard. Read Carroll diagrams together and answer questions as a class. Students may follow along on their iPads answering as we do.
* Look at making Carroll diagrams together. Explain how to change the values. Double tap the columns and rows to change the values.
* Collaborate with a tablemate. Use the numbers 1002, 54, 636, 2003, 1543, 872, 890 – display the numbers on the board. Choose the attributes and put in Venn. We will look at these at the end of class.
 |  Notes |
| **You do:** * Complete the question below on your own. This can be done on the app we have been using or on the sheet and passed in through Showbie
 |  |
| **We share:*** Bring class back together and
 |   |
| **Differentiation** |
| **Adaptations:** Change attributes for students that are struggling and 2 dgit numbers it may be easier to understand if they use even/ odd, more than 10/less than 10 – 2, 4, 15, 3, 22, 7, 35Have them practice with the iPad – Teaching graphs app. | **Enrichment:** Change attributes for students. Have them use even/not, divisible by 5/not divisible by 5 – 15, 36, 60, 99, 83, 55, 74, 85, 17, 42. They may need a multiplication chart. |
| **Assessment:**Using on going assessment check student for comprehension and application. Students should be continuously assessed in math.  |
| **Notes:** |

Copy this Carroll diagram.

 Use the Carroll diagram to sort these numbers.

 5122 2143 3689 4042 9842 5601 7234 3331

|  |  |  |
| --- | --- | --- |
|  | Even   | Odd |
| Digits add to 10 |  |  |
| Digits add to more than 10 |  |  |