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| **Grade 4** |
| **Grade: 4 Subject: Math**  **Unit: Patterns and Relations** |
| **Learning Target:** Students will describe and identify patterns finding errors in particular patterns |
| **Curriculum Outcomes**:SCO PR01 – Students will be expected to identify and describe patterns found in tables and charts, including a multiplication chart.PR01.01 – Identify and describe a variety of patterns in a multiplication chart.PR01.02 – Determine the missing elements in a given table or chartPr01.03 – Identify the error(s) in a given table or chartPR01.04 – Describe the pattern found in a given table or chart |
| **Screencast support:** [Investigating Hundreds Chart](https://www.youtube.com/watch?v=6aMjvyS1GUQ) – for adaptations |
| **Resources/AT Tips:** Pearson Interactive Number Charts – Found on NSVS.[Hands on Math](https://itunes.apple.com/ca/app/hands-on-math-hundreds-chart/id466906485?mt=8) app for enrichment and adaptationsNSVS textbook page 7 to display on smartboard – Math makes senseMath Makes Sense 4 Pages 8-9Hundred Chart sheet (below) |
| **Lesson Procedure** | **21st Century Skills** |
| **I do:** * Activate Prior knowledge – Have students identify the pattern rule of the following in increasing pattern and extend it to 3 more terms

4, 7, 10, 16 …13, 18, 23, 28, 33, …Identify the errors in the following decreasing patterns138, 128, 118, 108, 88, 7830, 28, 24, 21, 19, 15, 12, 9, 6, 3* Display Number Chart – Hundred Chart on NSVS – Color seven numbers 1, 5, 9, 17, 21, 29, 37. Ask students to examine the chart and tell you what numbers are missing – 13, 25, and 33. How did you figure it out?
* Read through connect together. Discussing different patterns
 |  find, validate remember, understand  collaborate, communicate analyze, synthesizecritical thinking evaluate, leverage create, publish citizenship |
| **We do:** * Using a hundred chart decide on a number pattern. Keep it secret. Write the first 10 numbers in your pattern. Erase 3 numbers in your pattern.
* Trade patterns with your partner. Describe your partner’s pattern. Identify the missing numbers, extend the pattern 4 more numbers.
 |  Notes |
| **You do:** * Working from page 8 complete questions 1, 2 and 3 – continuously circulate supporting students and assessing comprehension of the task.
* Mini assessment sheet to be passed in using showbie app
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| **We share:**Come back as a class. Ask who was able to figure out their partners secret numbers? How did you do it? Were you able to extend their pattern?  |   |
| **Differentiation** |
| **Adaptations:** Students that are struggling with the concept may use the app Hands on Math to map questions and look at straight increasing and decreasing patterns.[Hundred Chart song](https://www.youtube.com/watch?v=RWg5yCu4V8A)[Investigating Hundred Chart screencast](https://www.youtube.com/watch?v=6aMjvyS1GUQ) | **Enrichment:** Students who complete all tasks early can take the time to explore the app Hands on Math making and identifying patterns. |
| **Assessment:**Ongoing assessment should be taking place, anecdotal notes of students that are not understanding this concept should be takenMini assessment sheet – students do not need to know their x-tables to complete this assessment. All work should be done by examining the patterns found in the chart. |
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### Mini assessment

### Patterns in Charts

1. Use a hundred chart. Choose a start number. Count on by 4s. Shade these numbers with one colour.

 Use the same start number. Count on by 6s.
Shade these numbers with another colour.

a) Write the numbers that are shaded in both colours.

b) What is a rule for this pattern?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **×** | **1** | **2** | **3** | **4** | **5** |
| **1** | 1 | 1 | 1 | 1 | 5 |
| **2** | 2 | 4 | 6 | 7 | 8 |
| **3** | 3 | 4 | 5 | 12 | 15 |
| **4** | 4 | 8 | 12 | 8 | 9 |
| **5** | 5 | 7 | 15 | 16 | 20 |

2. Identify the errors in this multiplication chart.

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| --- | --- | --- | --- | --- |
|  | Name  |  | Date |  |

 **Hundred Chart**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** |
| **21** | **22** | **23** | **24** | **25** | **26** | **27** | **28** | **29** | **30** |
| **31** | **32** | **33** | **34** | **35** | **36** | **37** | **38** | **39** | **40** |
| **41** | **42** | **43** | **44** | **45** | **46** | **47** | **48** | **49** | **50** |
| **51** | **52** | **53** | **54** | **55** | **56** | **57** | **58** | **59** | **60** |
| **61** | **62** | **63** | **64** | **65** | **66** | **67** | **68** | **69** | **70** |
| **71** | **72** | **73** | **74** | **75** | **76** | **77** | **78** | **79** | **80** |
| **81** | **82** | **83** | **84** | **85** | **86** | **87** | **88** | **89** | **90** |
| **91** | **92** | **93** | **94** | **95** | **96** | **97** | **98** | **99** | **100** |