

Patterns

- often repeat 404040
- follow a rule

| Rule | in | out |
|------|-----|-----|
| | 46 | 36 |
| | 104 | 94 |
| | 212 | 202 |
| | 463 | |

Sequence \rightarrow Count up or down by a number

(5s) 40, 45, 50, 55, 60, 65

(10s) 142, 132, 122, 112, 102, 92, 82

Clear tape (other example)

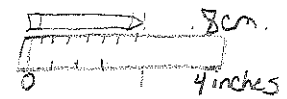
Double
 1, 2, 4, —, 16, 32, —

 3, 6, 12, 24, 48, 96

Halve (Divide by 2)
 32, 16, 8, 4, 2, 1

Data

\rightarrow information



Tally Chart

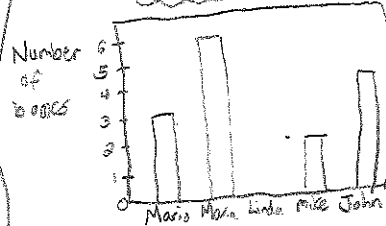
| Name | # of books |
|-------|------------|
| Mario | |
| Maria | |
| Linda | |
| Mike | |
| John | |

Picture Graph

| Name | Number of Books |
|-------|-----------------|
| Mario | M M M |
| Maria | M M M M M |
| Linda | |
| Mike | M M |
| John | M M M M |

M represents 1 book

Bar Graph



Maximum (highest) —
 Minimum (lowest) —

Frequency Table

| Length of our feet length in inches | # of students |
|--|---------------|
| | |
| | |
| | |
| | |
| | |
| | |

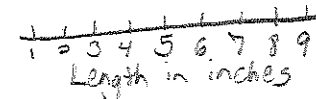
(students measure their feet to the nearest inch)

Line Plot

Length of our feet

(plot above data)

Number of students



Which measurement occurs the most? — mode
 Which measurement is in the middle? — median

Standards and Mathematical Practices

- 1) We will use mental strategies to sequence, count and add numbers by thinking about the structure of numbers.
- 2) We will measure objects while attending to precision.
- 3) We will build line plots, bar graphs and picture graphs and explain our thinking to others.

What we know about data Inquiry What we want to know about data

UNIT PLANNING TOOL

Unit 7 : EDM Patterns and Rules

CCSSM:

Construct arguments and critique the reasoning of others
Attend to precision
Math Practices being emphasized:

NBT 2 Count within 1,000; skip count by 5s, 10s, 100s
 NBT 5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or relationship of + and -
 MD 4 measure length of objects and compare how much longer one is than the other
 MD 9 measure objects, plot on line plot w/ horizontal scale in whole units
 MD 10 Draw a pictograph and bar graph w/ up to 4 categories. Answer put together, take apart and compare problems.

Essential Questions

How do you solve different addition problems in your head?
 How do you organize data?
 How do you describe it?

Pre and Post Assessments

Modified problems from written assessment
 Math boxes J1 P158
 P. 183-185 written assessment
 Open response P. 186

Key Concepts

- Describe patterns from skip counting by 2s, 5s and 10s
- Build mental arithmetic skills for adding 1-digit and multi-digit #s
- Measure to nearest whole unit
- Make frequency tables, line plots, and bar graphs from real data

Visual Models of Concepts

- repeat $\Delta\Delta\Delta\Delta\Delta$
 - follow a rule
 Rule in out
 Double (Add the same #)
 1, 2, 4, 8, 16, 32, 64, 128
 Halve (Divide by 2)
 $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$

Algorithms/Diagrams/Visuals

Tally Chart

| Name | # of books |
|------|------------|
| John | |
| Anna | |
| Tom | |
| Sam | |

Bar Graph

Picture Graph

| Name | # of books |
|------|------------|
| John | |
| Anna | |
| Tom | |
| Sam | |

□ represents 2 books

Frequency Table

| length of surf feet | # of students |
|---------------------|---------------|
| 10 | |
| 12 | |
| 14 | |
| 16 | |

line plot

Connections (Real World Applications)

- * mental arithmetic helps you solve problems faster. Your brain can focus on learning new math concepts.
- * Reading/Understanding data helps us understand our world and how to represent large amounts of data.
- * most careers use charts and tables.

Language Functions/Structures

Describe
 Compare
 Sequence
 Explain
 Predict

There are more ___ than ___ because ___,
 The next number is ___ because ___
 ___ (object) measure ___ (inches/cm.)
 The (note, remainder ..) is ___ because ___,
 I think

Vocabulary

double
 half
 sequence count
 rule
 pattern
 data

line plot
 bar graph
 picture graph
 tally chart
 frequency table

Maximum
 minimum
 mode
 median
 middle value

Sort

Focus and Motivation

Literature - Lemonade for Sale by Stuart J. Murphy
 Giraffe Graphs by Melissa Stewart
 Let's make a Tally Chart by Robin Nelson
 (series)

Sequence counting in a circle
 Chants - Median, Mode, Pattern Time

Study Jams - bar graphs
 www.brainiac.com - pictographs video + quizzes, tally charts and bar graphs (free)
 EDM games