2 Frequency Tables, Histograms, & Frequency Polygons

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FOM 11 **5.2 Frequency Tables, Histograms and Frequency Polygons**

A **frequency distribution** is a set of intervals (table or graph) into which raw data is organized; each interval is associated with a frequency that indicates the number of measurements in this interval.

A **histogram** is the graph of a frequency distribution, in which equal intervals of values are marked on the horizontal axis and the frequencies associated with these intervals are indicated by the areas of the rectangles drawn for these intervals. (like a bar chart but bars touch)

A **frequency polygon** is the graph of a frequency distribution, produced by joining the midpoints of the intervals using straight lines.

Example 1: The following is a set of test scores out of 100.

~~45~~	68	94	76	89	99
~~53~~	79	61	61	98	72
61	80	98	59	91	68
72	32	57	69	42	78
48	87	78	74	93	71

a. Create a frequency table.

Score	Tally	Frequency
0-10		0
10-20		0
20-30		0
30-40	1	1
40-50	111	3
50-60	111	3
60-70	𝍸 1	6
70-80	𝍸 1111	9
80-90	11	2
90-100	𝍸 1	6
		Total: 30

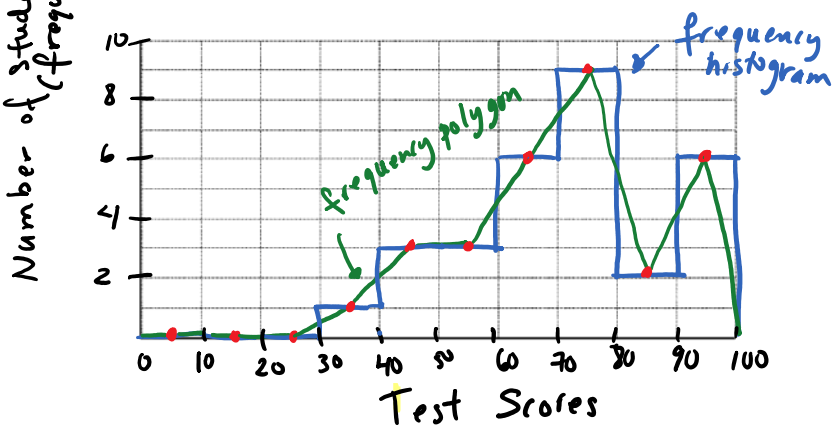
Intervals
Ex. 10-20
↳ includes 20 but not 10.
Put 10 in the interval 0-10

Midpoint interval upper limit lower limit
5
15 $\frac{20+10}{2} = 15$

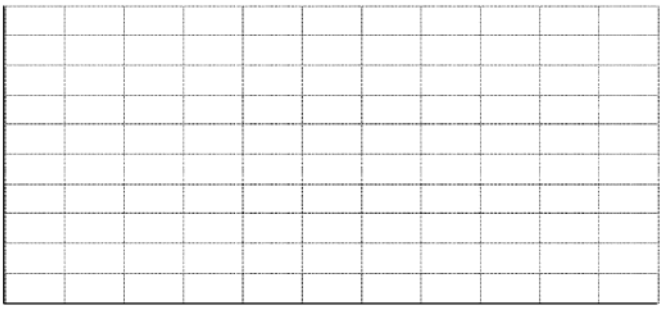
frequency

Create a histogram for this data.

(bars)

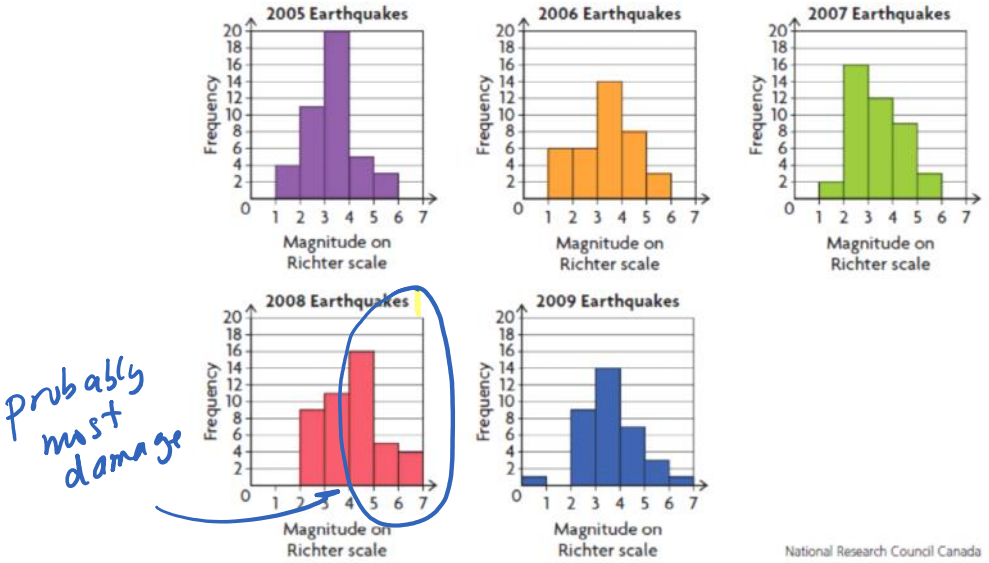


c. Create a frequency polygon of this data.



Example 2: pg. 218

The magnitude of an earthquake is measured using the Richter scale. Examine the histograms for the frequency of earthquake magnitudes in Canada from 2005 to 2009. Which of these years could have had the most damage from earthquakes?



Understanding the Richter Scale*	
Magnitude	**Effects**
less than 3.0	recorded by seismographs; not felt
3.0–3.9	feels like a passing truck; no damage
4.0–4.9	felt by nearly everyone; movement of unstable objects
5.0–5.9	felt by all; considerable damage to weak buildings
6.0–6.9	difficult to stand; partial collapse of ordinary buildings
7.0–7.9	loss of life; destruction of ordinary buildings
more than 7.9	widespread loss of life and destruction

*Every unit increase on the Richter scale represents an earthquake 10 times more powerful. For example, an earthquake measuring 5.6 is 10 times more powerful than an earthquake measuring 4.6.

Assignment: Pg. 222 #3-6, 9