2.3 Worksheet - - - Collecting Samples

MDM4U
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1) Identify the type of random sampling in each of the following scenarios.

- **a)** The principal randomly selects four classes and surveys each student in those classes
- **b)** William picks names out of a hat
- **c)** A hockey card collector opens a drawer of sorted cards and, after selecting a random starting point, takes out every fifth card.
- **d)** The Ministry of Education randomly selects your school for testing, and 40 student names are randomly selected from a student list.
- **e)** Your class submits solutions to a problem and your teacher divides the work into four piles by achievement levels. She then randomly picks three examples from each.
- **f)** A farmer brings a juice company several crates of oranges each week. A company inspector looks at 10 oranges from the top of each crate before deciding whether to buy all the oranges.
- **g)** The ABC program Nightline once asked whether the United Nations should continue to have its headquarters in the United States. Viewers were invited to call one telephone number to respond 'yes' and another for 'no.' More than 186 000 callers responded.

2) A textbook has 600 pages and 6 chapters. Describe how to you could design and carry out the following samples of its pages.

- **a)** Select 6 pages from the textbook using simple random sampling
- **b)** Select 10 pages using systematic random sampling
- **c)** Select 12 pages using stratified random sampling
- **d)** Select 10 pages using multi-stage random sampling.

3) Based on the following groups of names, identify a sampling method that may have been used to collect the samples listed in parts (a) through (e).

Shaggy	Paul	Joey	Susan
Fred	John	Monica	Elmo
Scooby	George	Rachel	Ernie
Thelma	Ringo	Ross	Oscar
Daphne		Chandler	Zoe
		Phoebe	Maria

- **a)** Joey, Monica, Fred, Paul, Daphne
- **b)** Susan, Elmo, Ernie, Oscar, Zoe, Maria
- **c)** Shaggy Scooby, Daphne
- **d)** John, George, Ringo
- **e)** Shaggy, Fred, George, John, Joey, Chandler, Susan, Ernie

4) Student council wants to conduct a survey during the first five minutes of an assembly. There are 800 students at the assembly. A map of the auditorium is shown below. Note that the students are seated by grade level and the seats are numbered from 1 to 800. Describe how you would use your calculatr to select 80 students to complete the survey with each of the following methods:

- **a)** Simple Random Sample
- **b)** Stratified Random Sample
- **c)** Cluster Random Sample
- **d)** Systematic Random Sample