Chapter 14

Lesson 4

Name _____ Date _____

Another Sampling Experiment

NCTM Standards 5, 7, 8, 9

All 100 people in Littletown were asked to choose their favorite TV show (A, B, C, D, or N for "none"). You will use the Littletown data (on AM148: Littletown Data) to see how accurate an estimate you can get from a much smaller sample.

1. The Littletown data are arranged in a list to make it easy to choose a sample randomly. You will use a numbered decahedron to generate 20 sets of data points at random.

- ☑ Toss the decahedron to determine the tens digit of the data point you will choose.
- ☑ Toss the decahedron to determine the ones digit of the data point you will choose.
- ☑ Find this number in the data bank and note that participant's TV show preference.
- ☑ Record the list number and that person's preferred show in the table below.
- ☑ Repeat until you have recorded 20 different people and their shows. (If you get the same list number again, repeat the three steps above.)

Person	1	2	3	4	5	6	7	8	9	10
List Number										
TV Show										

Person	11	12	13	14	15	16	17	18	19	20
List Number										
TV Show										

2 Record the fraction of the sample that watched each show.

Show A: $\frac{\square}{20}$ Show B: $\frac{\square}{\square}$ Show C: $\frac{\square}{\square}$

Show D: $\frac{\square}{\square}$ N (none): $\frac{\square}{\square}$

3 Because your sample was chosen randomly, it is reasonable to assume that your proportions are similar to those of the total population.

Why should you not expect the fractions for each show to be exactly the same in the sample as in the total population?

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4 Now use the entire population of Littletown and find the fractions that watched each show.

Show A: $\frac{\square}{100}$ Show B: $\frac{\square}{\square}$ Show C: $\frac{\square}{\square}$

Show D: $\frac{\square}{\square}$ N (none): $\frac{\square}{\square}$

5 **Challenge** Why are samples surveyed? Why not survey the total population every time?

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