Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table #:\_\_\_\_\_\_ Period: \_\_\_\_ Date: \_\_\_\_\_\_\_

**10.6B Samples and Populations \_Classwork**

CC.SS.7.SP.1 and CC.SS.7.SP.2 \_MP3 Construct Viable Arguments and Critique the Reasoning of Others

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| **Random Sample:**  When a sample is selected at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, each member of the population is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| *Example: You want to know the favorite extracurricular activity of students at your school. Determine whether each method will result in a random sample. Explain.*   1. You ask members of the school band. Random or not? 2. You publish a survey in the school newspaper. Random or not? 3. You ask every eight student who enters the school in the morning. Random or not? 4. You ask students in your class. Random or not? |
| **Representative Sample:** |
| **Inference:** |
| **Determining Whether Conclusions are Valid:**  *Example: You want to know how the residents of your town feel about adding a new stop sign. Determine whether each conclusion is valid.*   1. You survey the 20 residents who live closest to the new sign. Fifteen support the sign and five do not. So you conclude that 75% of the residents of your town support the new sign. 2. You survey 100 residents at random. Forty support the new sign, and sixty do not. So, you conclude that 40% of the residents of your town support the new sign. |

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| **Predicting Proportion:**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **=**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Example 1:**  A university has 30,600 students. In a random sample of 240 students, 20 speak 3 or more languages. Predict the number of students at the university that speak 3 or more languages. |
| **Example 2:**  There are 4500 elk located on a preserve in Colorado. A biologist thinks that the herd may be infected with parasite. She does a random sample of 50 elk. If she discovers that 8 of the sample is infected. Predict how many elk the biologist can expect to be infected. |
| **Example 3:**  A factory produces 150,000 light bulbs per day. The manager estimates that less than 1,000 defective bulbs are produced each day. In a random sample of 250 light bulbs, there are 2 defective bulbs. Determine if the manager's estimate is likely to be accurate. Explain. |
| **Example 4:**  *A middle school has 2,500 students. Morgan interviewed 75 students about their library habits. She found that 45 of the students checked out a book weekly. Predict the number of students likely to check out books weekly.* |
| **Example 5:**  Zack chooses a random sample of 50 out of 400 students. He finds that 7 of them have traveled to a foreign country. Zack claims that more than 50 of the 400 students have traveled to a foreign country. Do you agree with his answer? Explain. |