

Name \_\_\_\_\_

## **Investigation 15: How Many Can You Expect to Have a Job?**

### **Worksheet 15.1 Data Collecting**

Many high school and college students have a job after school or on weekends. Many work in a fast food restaurant or as a clerk in a store.

Do you have a job? What kind of work do you do? Do you like your job?  
If you don't have a job, do you think this is unusual?

The youth labor force, 16- to 24-year-olds working or actively looking for work, increases sharply between April and July each year. During these months, large numbers of high school and college students search for or take summer jobs, and many graduates enter the labor market to look for or begin permanent employment.

According to the U.S. Bureau of Labor Statistics, the labor force participation rate for all youth was 60.6 percent in July of 2017. (The labor force participation rate is the proportion of the civilian non-institutional population that is working or looking and available for work. Civilian non-institutional are people 16 years and over residing in U.S. and are not inmates or on active military duty.) Source: <https://www.bls.gov/news.release/youth.nr0.htm>

Assume that the labor force participation rate for all youth in the United States is 60%.

1. If your class is to select a random sample of 20 16-to-24 year-olds from the community, how many of the randomly selected 16-to-24 year-olds would you expect to be part of the labor force?
2. If all the students in your class would each take a random sample of 20 16-to-24 year-olds from the city and ask each selected 16-to-24 year-olds if they were working, do you think each class member would get the same number of 16-to-24 year-olds in the sample who are part of the labor force?
3. Do you think it would be likely to find survey results of 13 out of the 20 16-to-24 year-olds or 65% reporting that they have a job? Explain your answer.
4. Do you think that it would be very unusual to find survey results of less than 7 of the 20 16-to-24 year-olds or 35% or less reporting that they have a job? Explain your answer.

## Statistical Question \_\_\_\_\_

### Collecting Data

Cut out the slips of paper on the template and place the slips in the bag. Thoroughly mix the slips in the bag.

Take a random sample of 20 slips and record the number of successes (number that said Job) on the class dot plot.

Repeat the simulation 4 more times. Remember to record the number of successes (number that said Job) on the class dot plot.

### Analyze the Data

5. What should the title of our graph be? What did we graph?
6. Estimate the mean and the standard deviation of the sampling distribution.
7. Describe the shape of the sampling distribution.
8. Are you surprised that the center of the distribution is close to 12? Explain.
9. If you took another random sample of 20 and found 10 said Job, would you call this a likely result? Explain.
10. If you took another random sample of 20 and found 15 said Job, would you call this a likely result? Explain.
11. If you took one more random sample of 20, give an interval that you think would constitute a likely result. Explain.

12. Estimate the mean of the sample proportions.

13. What proportion would you expect for the mean? Explain.

**Interpret the results in the context of the original question**

14. How many 16-to-24 year-olds out of 20 could have jobs if random samples of 20 are taken from a population where 60% of people have jobs?

15. What would be an unusual number to find through random sampling of 20 from a population where 60% of people have a job?

16. Complete the following sentence:

The mean of the sample proportions will be equal to the value of the \_\_\_\_\_.