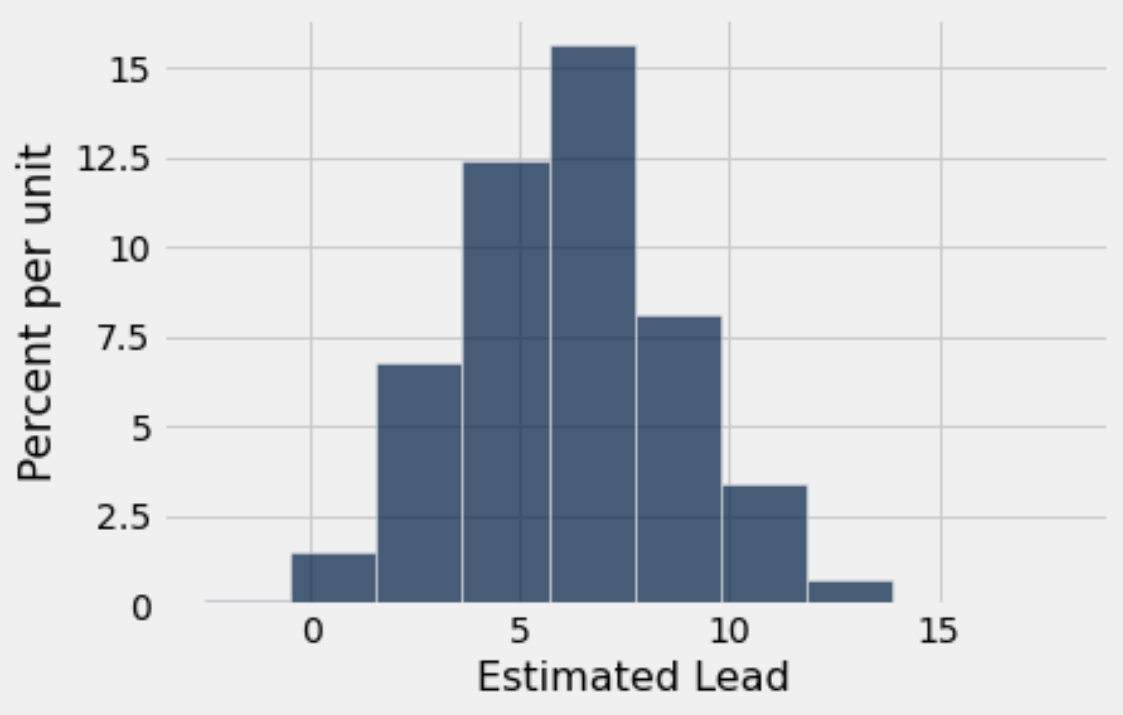
Question 1.5. Write a function called `leads_in_resamples` that returns an array of 2022 elements representing the bootstrapped estimates (the result of calling `one_resampled_difference`) of Imm Thai's lead over Lucky House, Thai Temple, and Thai Basil combined. Afterwards, run the cell to plot a histogram of the resulting samples. **(9 Points)**

Hint: If you see an error involving `NoneType`, consider what components a function needs to have!

```
In [19]: def leads_in_resamples():
             # BEGIN SOLUTION
             leads = make_array()
             for i in np.arange(2022):
                 bootstrap_lead = one_resampled_difference(votes)
                 leads = np.append(leads, bootstrap_lead)
             return leads
             # END SOLUTION

         sampled_leads = leads_in_resamples()
         Table().with_column('Estimated Lead', sampled_leads).hist("Estimated Lead")
```



Question 2.1. The staff also created 70%, 90%, and 99% confidence intervals from the same sample, but we forgot to label which confidence interval represented which percentages! **First**, match each confidence level (70%, 90%, 99%) with its corresponding interval in the cell below (e.g. ___ % CI: [52.1, 54] → replace the blank with one of the three confidence levels). **Then**, explain your thought process and how you came up with your answers. **(10 Points)**

The intervals are below:

- [50.03, 55.94]
- [52.1, 54]
- [50.97, 54.99]

Type your answer here, replacing this text.

SOLUTION:

70% CI: [52.1, 54]

90% CI: [50.97, 54.99]

99% CI: [50.03, 55.94]

We compute these intervals by taking the middle $X\%$ of a bunch of bootstrap statistics. As the confidence level increases, we are including more and more of the statistics, so the interval widens. Intuitively, we might be very confident that the population parameter is within in some giant interval, but only moderately confident that it's within some smaller interval.