February 12, 2009 marked the 200th anniversary of Charles Darwin’s birth. Gallup, a national polling organization, surveyed 1018 Americans about their education level and their beliefs about evolution.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **High School or Less** | **Some College** | **College Graduate** | **Postgraduate** | **Total** |
| **Believe** | 80 | 133 | 121 | 63 | 397 |
| **Do Not Believe** | 103 | 94 | 48 | 9 | 254 |
| **No Opinion** | 197 | 98 | 59 | 13 | 367 |
| **Total** | 380 | 325 | 228 | 85 | 1018 |

1. Identify the variables of interest in this study. Identify each as numerical or categorical (and if categorical identify the number of “levels” in the variable).
2. What percent of respondents believed in evolution? Did not believe? Had no opinion?
3. *If* there is no relationship between belief in evolution and education level, what should happen?

1. If there was no relationship between education level and belief, how many individuals would we *expect* to see in each belief category (for each education level)?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **High School or Less** | **Some College** | **College Graduate** | **Postgraduate** | **Total** |
| **Believe** |  |  |  |  | 397 |
| **Do Not Believe** |  |  |  |  | 254 |
| **No Opinion** |  |  |  |  | 367 |
| **Total** | 380 | 325 | 228 | 85 | 1018 |

1. Is there evidence that the beliefs about evolution are related to education level?
2. Which cells contribute the most to the test statistic in this problem?
3. Briefly describe the “story” that is going on here. You should use the cells you identified above to help form and justify your conclusions.