The lesson documents provide information about using the calculator provided with the lessons. The purpose of this supplement is to supply information about another possible technology, namely the StatCrunch computer software product.

CAUTION: You should note that the interface for StatCrunch has changed in the past and may well change in the future – accordingly, some of the information given here may prove to be out of date.

Starting StatCrunch – see Lesson 2 document

Lesson 10

We will use the data from Exercise 1, reproduced below, to illustrate the process. We have labeled this the table of ***observed counts*** – it contains the counts that were observed in the sample.

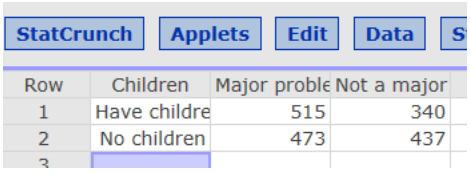
Observed counts	Major concern	Not a major concern	Totals
Have children	515	340	855
No children	473	437	910
Totals	988	777	1765

Here are the steps you use to carry out the chi-square hypothesis test using your StatCrunch.

Note: The table as shown above contains a row of totals and a column of totals. However, these values will not be entered into your calculator. You will instead enter only the actual counts observed by the researchers, as shown in this version of the contingency table:

Observed counts	Major concern	Not a major concern
Have children	515	340
No children	473	437

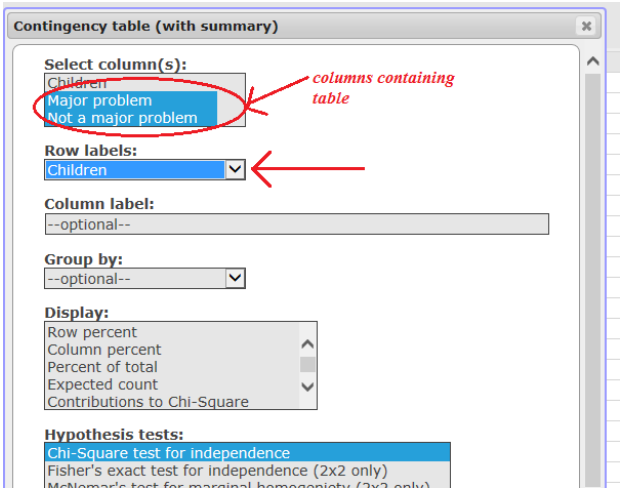
1. Begin by entering the observed counts into StatCrunch, as shown here. **Reminder: do not enter the totals.**



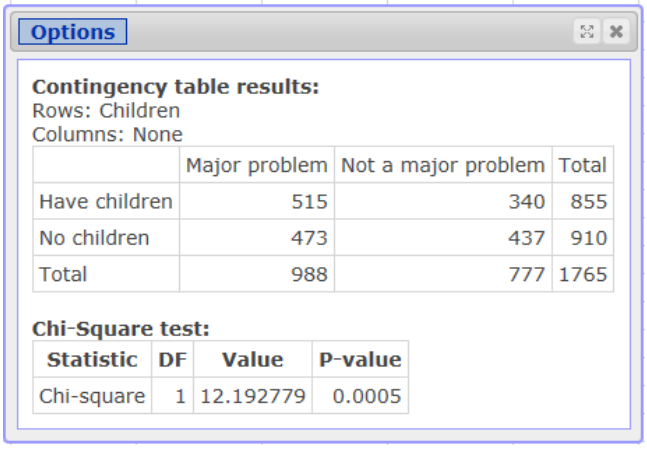
2. Run the test, as follows.

   a. Use the **Stat > Tables > Contingency > With summary** menu option.

   b. By using control-click, we select the two columns that contain the table's data. We also indicate that the row labels (the values of the explanatory variable) are in the "Children" column.



c. Choose **Compute**! to get the results shown below.



Options

Contingency table results:
Rows: Children
Columns: None

	Major problem	Not a major problem	Total
Have children	515	340	855
No children	473	437	910
Total	988	777	1765

Chi-Square test:

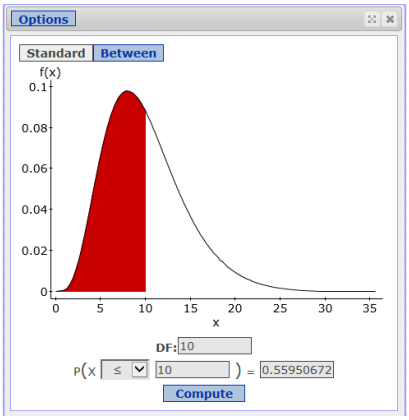
Statistic	DF	Value	P-value
Chi-square	1	12.192779	0.0005

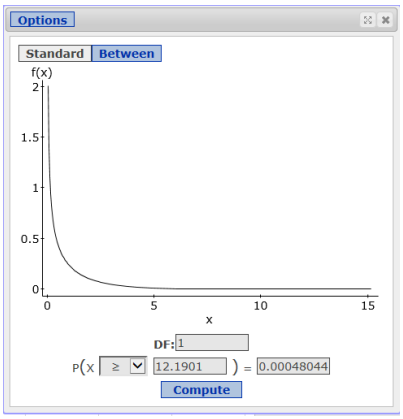
Using technology, the test statistic is $\chi^2 = 12.1928$, with a corresponding *p*-value of 0.0005. At either significance level (0.05 or 0.01) we reach the same conclusion: reject the null hypothesis.

Additional information for the calculations "by hand" section.

Calculating the *p*-value

Use menu option **Stat > Calculators > Chi-square** to obtain the screen shown on the left. Enter the degrees of freedom, change the ≤ to ≥, enter the χ^2 value, and press the Compute button. This gives the result shown in the screen on the right (0.00048044).





Comment on expected counts

When you do the calculations "by hand," the first step is to find the table of expected counts. When you perform the calculations using StatCrunch, it always shows the table of observed counts in its results. If you wish, you can ask it to also calculate any of the information listed in the **Display** list, including the table of expected counts