**1. Knowledge and conceptual understanding learning goal:**

Students will be able to explain the differences between two common research designs:  independent-samples (or between subjects) and related-samples (e.g. within-subjects, paired-samples, or repeated-measures).  Students will also be able to correctly recognize examples of both designs and generate original examples.

**2. Thinking and other skills learning goal:**

Students will be able to calculate both the independent t-test and related-sample t-test by hand (calculators are allowed) and using data analytic software.  Given data and a study description, they will apply the proper t-test, and do the calculations by hand or run the analysis on the computer.  They will be able to explain why that particular t-test was chosen for the example.

**3. Attitudes, values, dispositions and habits of mind learning goal:**

Students will be able to interpret results of these two statistical tests and write conclusions about what they mean in simple English.  Conclusions will include whether or not the IV had a statistical significant effect on the DV and also describe the direction of the difference and the size of the effect.  Finally, students will be asked to explain whether they believe that the results of the specific study suggest a “real” and reliable relationship between the independent and dependent variables.