

### Partner Counterexample

Standard: Students can create counterexamples to contradict false conjectures.  
Students will remain on-task while working with others.  
Students will effectively critique the reasoning of others.

Task: At the end of this task you will turn in three sheets of paper. The first will have 4 false conjectures you will create that to some may seem true. The second will have a counterexample you will provide for each of your partner's 4 false conjectures. Along with each counterexample, provide an explanation of why it is an effective counterexample. Be sure you relate your explanation to what a counterexample is. The third will have a critique your partner's counterexamples and explanation. Be sure that your 4 conjectures seem true but are really false. For example:

- Good: All birds fly. Bad: All mammals fly.

The first example is good because, although many birds fly, there are a few counterexamples that can be referenced. The second example is bad because almost all mammals are flightless. A counterexample would not be necessary to see what it is false.

Your critique of your partner's counterexamples should answer the following questions:

- Was your partner accurate?
- Was his or her thought process logical?
- Did he or she do anything that surprised you?
- What would you suggest to your partner so he or she could improve?

As you are working, I will walk around to answer questions and observe whether you are remaining on-task or not.

Your work will be graded using the following rubric:

|                                 | Unsatisfactory 0-1pt.                                                                    | Fair. 2 pts.                                                             | Satisfactory 3 pts.                                                        | Excellent 4 pts.                                                              |
|---------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| False Conjectures               | Less than four total conjectures, less than two seem true, or less than three are false. | Of the four conjectures, only two seem true, or only three are false.    | Of four conjectures, only three seem true, , but all are false.            | Four conjectures seem true but actually false.                                |
| Counterexamples and Explanation | One or none of partner's conjectures have valid, well explained counterexamples.         | Two of partner's conjectures have valid, well explained counterexamples. | Three of partner's conjectures have valid, well explained counterexamples. | All four of partner's conjectures have valid, well explained counterexamples. |
| Critique                        | Critique is missing or only one question is answered effectively                         | Two questions are answered effectively .                                 | Three questions are answered effectively .                                 | All four questions are answered effectively .                                 |
| on-task                         | Student was seen off-task 4+ times.                                                      | Student was seen off-task 2 – 3 times.                                   | Student was seen off-task 1 time.                                          | Student was on task entire time.                                              |

### Conditional Statements Creation

Standard: Students can transform everyday sentences into conditional statements.  
Students can change conditional statements into inverse, converse, and contrapositive.