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| M.L. Goosey, M.L.King High school, Detrtoit Michigan |
| Constructed Response C4.4b |
| Identify a molecule as polar or non-polar, given the structural formula of the compound. |
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| **Goosey, Marco** |
| **7/15/2008** |

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Constructed Response Items for Introduction to Bonding

**C4.4b:** Identify a molecule as polar or non-polar given a structural formula for the compound.

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1. The organic molecule methane, CH4, has the structural formula H-C-H, determine if it is polar or non-polar.

H

Cl

1. The organic molecule dichloromethane, CH2Cl2, has the structural formula Cl-C-H, determine if it is polar or non-polar. H  
    **..**
2. The structural formula for ammonia, NH3, is H-N-H, determine if it is polar or non-polar.

H

1. Use Lewis structures and VSEPR to determine the polarity of carbon dioxide.
2. Use Lewis structures and VSEPR to determine the geometry and polarity of xenon pentafluoride.

Teacher Companion Notes for Constructed Response Items for Introduction to Bonding

**High School Chemistry**

**Note:** It may be helpful to supply students with a table of electronegativities for these questions.

**Question 1:**

**Difficulty:** Low, all students should be able to answer this question correctly.

**Correct answer:** non-polar.

**Question 2:**

**Difficulty:** Low, all students should be able to answer this question correctly.

**Correct answer:** polar.

**Question 3:**

**Difficulty:** Low, all students should be able to answer this question correctly.

**Correct answer:** polar.

**Question 4:**

**Difficulty:** Average, a well prepared student should be able to answer this question.

**Correct answer:** non-polar.

**Question 5:**

**Difficulty:** High, this question may challenge the above average student.

**Correct answer:** Geometry is trigonal bipyramidal, non-polar.