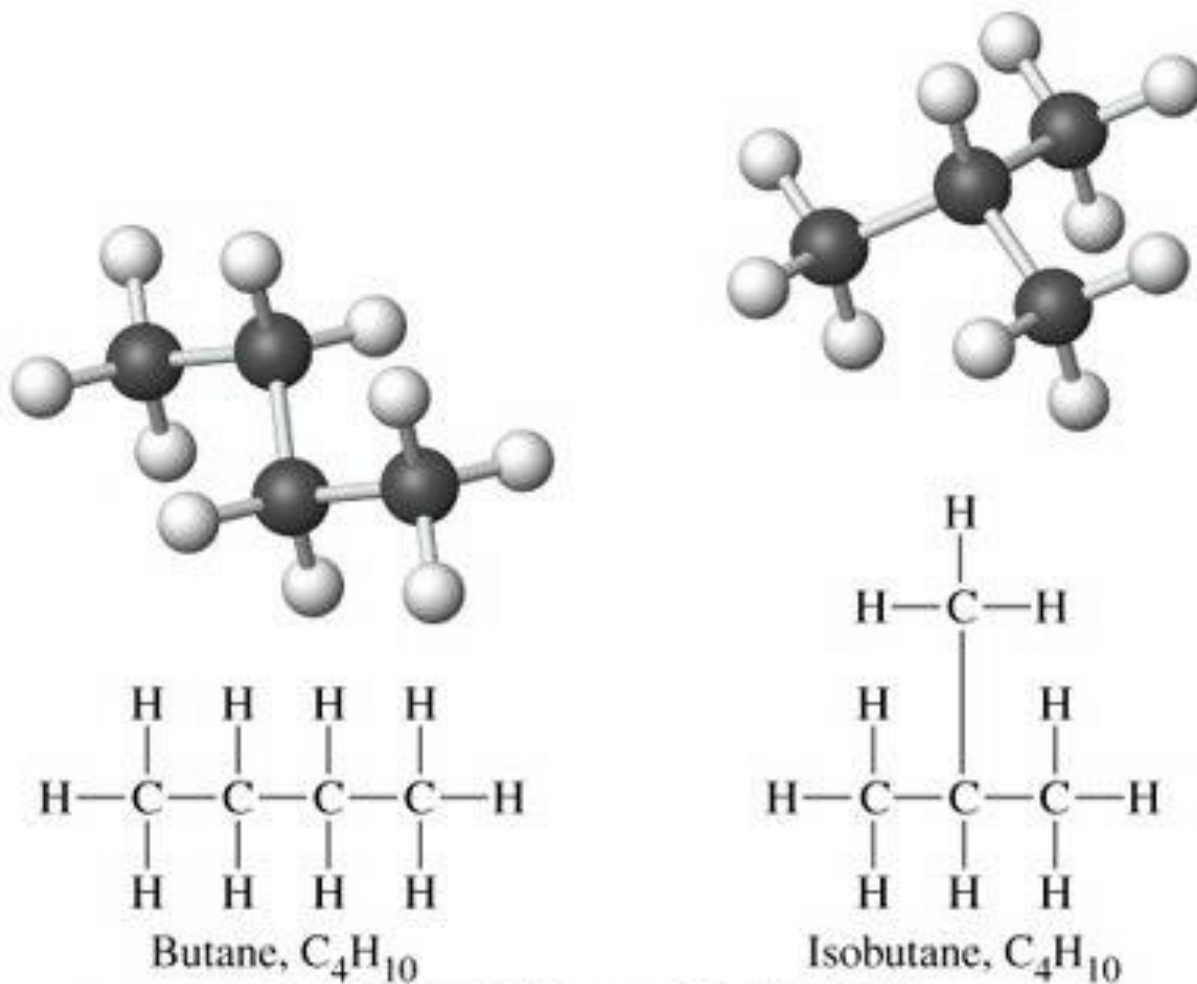


Station 2

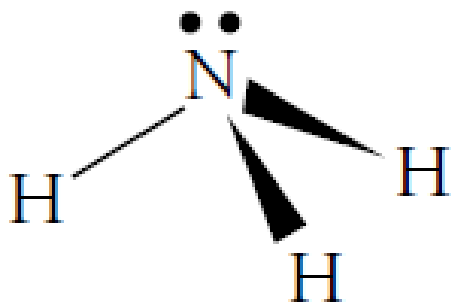
The compound butane, C_4H_{10} , occurs in two isomeric forms, *n*-butane and isobutane. **Isomers** are compounds that have the same molecular formula, but different arrangement of atoms. Both *n*-butane and isobutane exist as gases at 25°C and 1.0 atm. Examine the Lewis structures and molecular models below. Explain why *n*-butane (−0.5°C) has a higher boiling point than isobutane (−11.5°C).



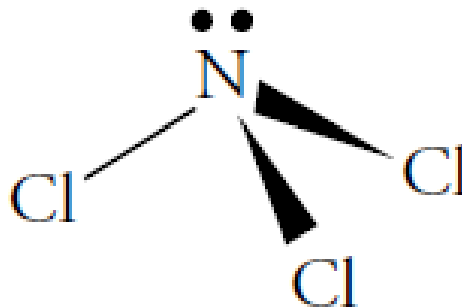
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Station 3

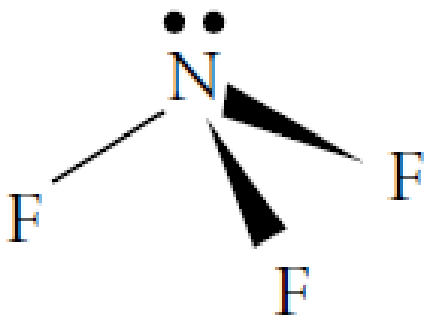
1. The polarity of a molecule can be quantified as the dipole moment. The dipole moment is measured in debyes (D). The more polar a molecule, the larger its dipole moment. Examine the dipole moment values of the three molecules. Considering that dipole moments can result from bond polarities or lone electron pairs, propose some possible explanations for the dipole moment differences between the three molecules.
2. Which substance would you expect to have the highest boiling point? Explain your reasoning.



1.42 D



0.60 D



0.23 D

Station 4

1. Examine the molecules. Rank the compounds in order of increasing boiling point. Explain your reasoning.

