**ANSWERS: Amines**

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| **2018** | **Evidence** | **Achieve** | **Merit** | **Excellence** |
|  | Reagent 1: SOCl2 / PCl3 / PCl5  Reagent 2: NH3(*alc*) or conc or Lucas Reagent  Both reactions are substitution reactions because one atom or  group of atoms is substituted by another.  In the first step, the OH group on the alcohol, pentan-2-ol is substituted by a Cl atom to make a chloroalkane, 2-chloropentane. The reagent used is SOCl2.  To convert the chloroalkane to an amine requires conc NH3 (alc). This causes the Cl to be substituted by an NH2 to form the amine. (This is so that the OH group in aqueous ammonia does not get substituted onto the chloroalkane.) | • Draws pentan-2-amine.  • Identifies the substitution reaction for both steps. | • Both reaction types.  **AND**  • Both reagents  **OR**  • Both structures. | • **Names** and **draws** all molecules linking to the reaction type and reagents with condition(s). |

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