The worksheets are available in the tutorials and form an integral part of the learning outcomes and experience for this unit.

**Model 1: Elimination Reactions**

1. See below.

2. H₂O is a better leaving group than OH⁻.

3. Catalyst.

4. See below.

5. See above.

6. See below.

   1 = one molecule involved in key reaction step. 2 = two molecules involved in key reaction step.

**Model 2: Enantiomers and Diastereomers**

1. 

   - trans 
   - cis 
   - (E) 
   - (Z)

2. See class.
3. Same as each other.
5. The molecules are the same.
6. 4 different groups around a tetrahedral carbon atom. In general, lack of an internal reflection plane or centre of symmetry.
7. Chiral, achiral, achiral, chiral and achiral.
8. \((R), (S), (S)\) and \((R)\).
9. See below.

\[
\begin{array}{cccc}
A & B & C & D \\
\begin{tikzpicture}
\end{tikzpicture} & \begin{tikzpicture}
\end{tikzpicture} & \begin{tikzpicture}
\end{tikzpicture} & \begin{tikzpicture}
\end{tikzpicture}
\end{array}
\]

10. \(A\) and \(B\) are identical. This is the meso form. \(C\) and \(D\) are enantiomers. \(\{C, D\}\) and \(A \equiv B\) are diastereomers.

11. No. Two pairs of enantiomers result.

**Model 3: Stereochemistry and Reactions**


2. From above: From below:

\[
\begin{array}{ll}
(S) & (R) \\
\begin{tikzpicture}
\end{tikzpicture} & \begin{tikzpicture}
\end{tikzpicture}
\end{array}
\]

3. Either is equally likely.

4. Product will be chiral, with the same \((R)\) configuration as the reactant. The reaction does not involve the chiral centre so its configuration is maintained.

5. The configuration is inverted: