1. Draw an energy diagram for a reaction between methanol and 2-bromo-2-methylpropane. Draw a structure for each maximum and minimum energy point along the diagram.

The energy of activation is determined by which structures?

How will the rate change if 2-chloro-2-methylpropane was used instead? How will the structures along the energy diagram change?

How will the rate change if methanethiol was used instead of methanol? How will the structures along the energy diagram change?

Draw an energy diagram for a reaction between sodium methoxide and 2-bromo-2-methylpropane.

2. Draw the product obtained if the following carbocations react with methanol in a substitution reaction.

3. Draw the product with proper regio- and/or stereochemistry for the following reactions.