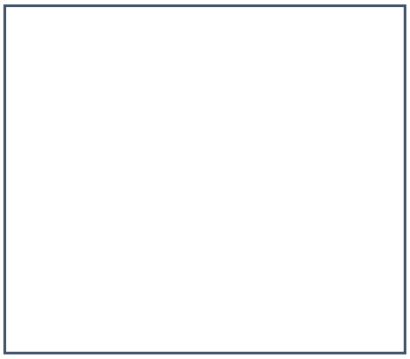
Alkanes and Cycloalkanes

1. Molecular Structure

a) structural formula



b) condensed structural formula

c) skeletal formula

2. Molecular formula

_____

3. Bond lengths and bond angles

_____

4. 3D structures of molecule:

a) balls and sticks

b) spacefill

5. Application in everyday life

_____

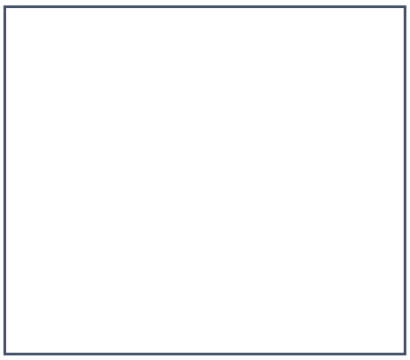
_____

_____

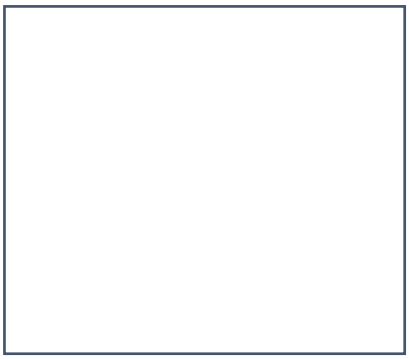
Alkenes and Alkynes

1. Molecular Structure

a) structural formula



b) condensed structural formula



c) skeletal formula

2. Molecular formula

_____

3. Bond lengths and bond angles

_____

4. 3D structures of molecule:

a) balls and sticks

b) spacefill

5. Application in everyday life

_____

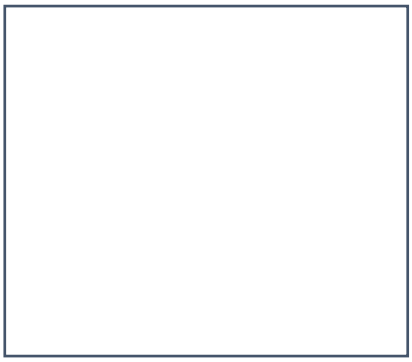
_____

_____

Arenes

1. Molecular Structure

a) structural formula



b) condensed structural formula

c) skeletal formula

2. Molecular formula

_____

3. Bond lengths and bond angles

_____

4. 3D structures of molecule:

a) balls and sticks

b) spacefill

5. Application in everyday life

_____

_____

_____

Lewis structures

1. Molecular structure

a) Lewis structural formula of ammonia molecule

b) 3D structure of ammonia molecule

The shape of the ammonia molecule according to VSEPR theory _____

Covalent angle value _____

2. Ion structure

a) Lewis structural formula phosphate ion

b) 3D structure of the phosphate ion

The shape of the ammonia molecule according to VSEPR theory _____

Covalent angle value _____

Chirality and optical activity

1. Draw the lactic acid structural formula

a) structural formula

b) skeletal formula

2. The structure name

3. The bond length and bond angle

4. Label the chiral carbon atom

5. Molecular formula

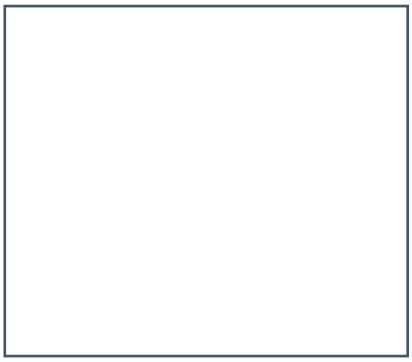
6. The molecule 3D structure occurrence

7. The chiral compounds nature

Alcohols

1. Molecular Structure

a) structural formula



b) condensed structural formula

c) skeletal formula

2. Molecular formula

_____

3. Bond lengths and bond angles

_____

4. 3D structures of molecule:

a) balls and sticks

b) spacefill

5. Application in everyday life

_____

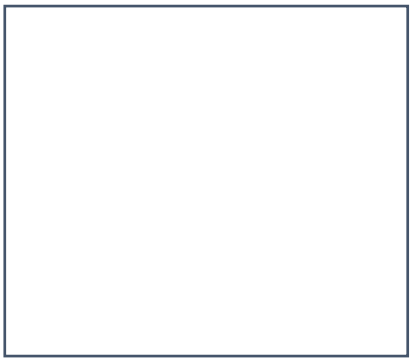
_____

_____

Aldehydes and ketones

1. Molecular Structure

a) structural formula



b) condensed structural formula

c) skeletal formula

2. Molecular formula

_____

3. Bond lengths and bond angles

_____

4. 3D structures of molecule:

a) balls and sticks

b) spacefill

5. Application in everyday life

_____

_____

_____

Biomolecules

1. Draw Fischer and Haworth formulas of galactose in the ChemSketch program.

Fischer formula

Haworth formula

2. What is the systematic structure of galactose?

3. Display the molecule of galactose in the 3D Viewer.

4. Research on the Internet

a) biological significance of galactose

b) sources (occurrence) of galactose

Coordination compounds

1. Draw selected coordination ion or compound which has coordination number 4 and planar geometry:

2. Draw isomer of that compound/ion:

3. Type of isomerism shown: _____

4. 3D structure of compound:

a) balls and sticks

b) spacefill

5. Application in everyday life:

_____

Apparatus Drawing

1. Insert and edit the size and the color of the distillation flask.

Distillation flask (default state) Distillation flask (decoloured) Distillation flask

(margin width 1.25 pt)

2. Draw a water bath and a beaker with a red solution inside it.

3. Insert the three types of condensers and align them in the frame (1 – Graham, 2 – West, 3 – Allihn)

4. Write where the distillation could be used in everyday life.

_____

_____