

Chem!stry

Name: ()

Class:

Date: / /

Classification of Organic Compounds: Homologous Series – Macro-concept: Systems

Instructions:

- 1) Cut out the compounds on the cards numbered 1 to 36.
- 2) By identifying suitable similarities and differences between them, organise the 36 compounds into appropriate groups.
- 3) Answer the questions below.

Questions:

- 1) Is each compound unique? Do you expect each compound to have the same:
 - a) Chemical properties from the other compounds? Justify your answer with examples.
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.....
 - b) Physical properties from the other compounds? Justify your answer with examples.
.....
.....
- 2) What are the main criteria that you used to differentiate between the compounds and arrange them into groups?
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.....
.....
- 3) For compounds that you have placed together in the same group:
 - a) In what ways are they similar?
.....
.....
 - b) In what ways are they different?
.....
.....

4) Depending upon how successful your method of classification is, you should have arranged the 36 different compounds into several different *homologous series*.

a) What do you understand by the term *homologous series*?

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.....

b) Assign a name each homologous series that you have identified.

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.....

5) Somewhere in the region of *seven million* different organic compounds are known to exist. Outline *five* different reasons why is it convenient for chemists to arrange organic compounds together in a homologous series.

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6) In this activity you have been thinking like a Chemist, trying to identify similarities and differences between organic compounds in order to classify them. Which *Habits of Mind* did you use to complete this activity? Which *one* do you feel was most important? Visit <http://www.habits-of-mind.net> for further information.

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7) a) Rationalise why it is important for Chemists to identify similarities and differences between the chemical and physical properties of compounds and use this information to develop a *system* for classifying the compounds. In what way is the same true for chemical *elements*?

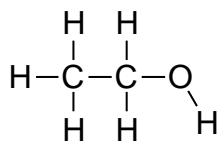
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b) Identify three other classification *systems* that are important within the field of science:

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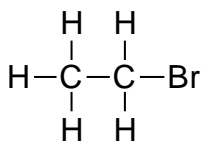
Optional Activity:

• Later on in the organic chemistry unit you will learn how to name compounds that belong to each homologous series. You can then return to this activity and try to name the 36 different compounds as practice or revision.



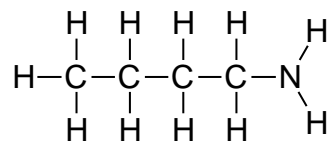
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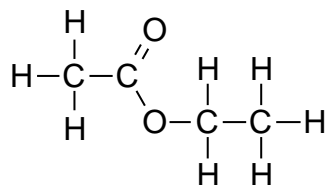
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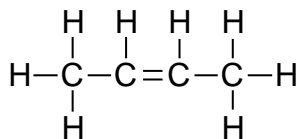
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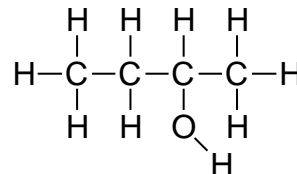
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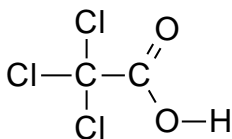
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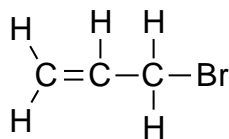
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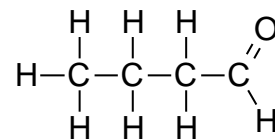
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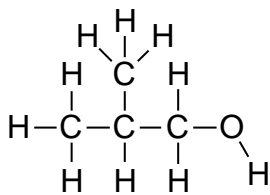
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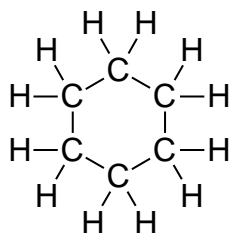
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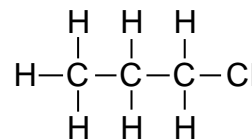
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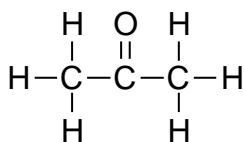
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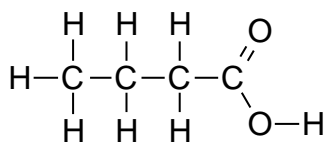
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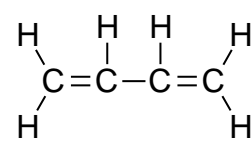
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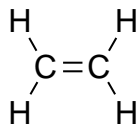
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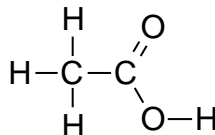
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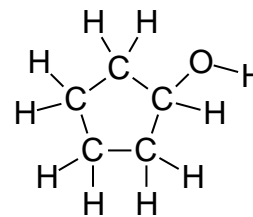
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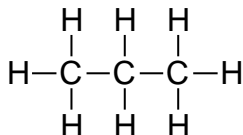
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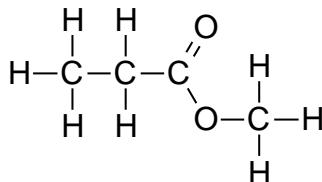
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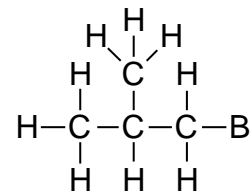
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35.

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36.

Name:

8) Now it is your turn to design some organic compounds and challenge the other groups to classify them! In the spaces provided below, draw the structural formulae of six different organic compounds. *Do not draw anything too complicated, only draw organic compounds that you can classify yourself!* Next, cut out the six organic compounds and give them to another group to classify. When the other group has finished classifying the six organic compounds, check their method of classification and comment on it.

Your Compound:

Name:

Your Compound:

Name:

Your Compound:

Name:

Your Compound:

Name:

Your Compound:

Name:

Your Compound:

Name:

- Scan the QR code given below to view the answers to this assignment.



http://www.chemist.sg/organic_chem/worksheets/homologous_series_ans.pdf