|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Functional Group** | **Properties** | **Structural Formula** | **Example** | **Found in** |
| **Hydroxyl** | **Polar** |  | [http://cornellbiochem.wikispaces.com/file/view/Ethanol/172801857/694x442/Ethanol](http://www.google.ca/url?sa=i&rct=j&q=ethanol&source=images&cd=&cad=rja&docid=uMebvvwCpcl7sM&tbnid=uLKdeAYXJpUESM:&ved=0CAUQjRw&url=http://cornellbiochem.wikispaces.com/Ethanol&ei=aiINUd_UGqnryAHUrYC4Aw&bvm=bv.41867550,d.aWc&psig=AFQjCNFn-3PcMdrEhBjUPdL9AUAYZ_bqew&ust=1359901659790250)  **Ethanol** | **Carbohydrates, proteins, nucleic acids, lipids** |
| **Carbonyl** | **Polar** |  | [http://upload.wikimedia.org/wikipedia/commons/7/79/Acetaldehyde-2D-flat.png](http://www.google.ca/url?sa=i&rct=j&q=acetaldehyde&source=images&cd=&docid=ms1R1Rgah71VvM&tbnid=zfrgllFNK1FWcM:&ved=0CAUQjRw&url=http://en.wikipedia.org/wiki/File:Acetaldehyde-2D-flat.png&ei=CCMNUbuWDPOEygGez4DgCA&bvm=bv.41867550,d.aWc&psig=AFQjCNFYp2PI4CADd1W-Ny0oTR6d5tYEPw&ust=1359901755060998)  **Acetaldehyde** | **Carbohydrates, nucleic acids** |
| **Carboxyl** | **Polar, acidic** |  | [http://upload.wikimedia.org/wikipedia/commons/f/fd/Acetic-acid-2D-flat.png](http://www.google.ca/url?sa=i&rct=j&q=aceitc+acid&source=images&cd=&cad=rja&docid=35Bfu2KATi2thM&tbnid=qV16LDp3RC2sKM:&ved=0CAUQjRw&url=http://en.wikipedia.org/wiki/File:Acetic-acid-2D-flat.png&ei=byMNUdyBAY-vygHoioDYAQ&psig=AFQjCNEBDY08yfnCjm97kxTC2jDChtqxTw&ust=1359901916175209)  **Acetic Acid** | **Proteins, lipids** |
| **Amino** | **Polar, basic** |  | [http://upload.wikimedia.org/wikipedia/commons/6/62/Alanine.png](http://www.google.ca/url?sa=i&rct=j&q=alanine&source=images&cd=&cad=rja&docid=ynVVC6JtiRO1AM&tbnid=LL2WfKMkCiMSxM:&ved=0CAUQjRw&url=http://ro.wikipedia.org/wiki/Fi%C8%99ier:Alanine.png&ei=_CMNUbD7I8qVygGZ_4GABA&psig=AFQjCNGOcyzuE2qdmcqs_uxrrhyqJZ6SIg&ust=1359902067400029)  **Alanine** | **Proteins, nucleic acids** |
| **Sulfhydryl** | **Slightly plolar** |  | [http://upload.wikimedia.org/wikipedia/commons/5/5e/L-Cysteine.png](http://www.google.ca/url?sa=i&rct=j&q=cysteine+structural+formula&source=images&cd=&cad=rja&docid=WMRlaoOT7CRTGM&tbnid=jPa48Ov2GMHGMM:&ved=0CAUQjRw&url=http://commons.wikimedia.org/wiki/File:L-Cysteine.png?useFormat=mobile&ei=nyQNUe8Xw-bKAcj8gcAG&psig=AFQjCNFSIdyfuWRDTcKIXtwBO5LbQnYVJg&ust=1359902170319980)  **Cysteine** | **Proteins** |
| **Phosphate** | **Polar** |  | [http://0.tqn.com/d/chemistry/1/0/R/t/phosphatefunctionalgroup.jpg](http://www.google.ca/url?sa=i&rct=j&q=glycerol+phosphate+structural+diagram&source=images&cd=&cad=rja&docid=R47BT976h63elM&tbnid=xgmec5gOFprX7M:&ved=0CAUQjRw&url=http://chemistry.about.com/od/organicchemistry/ig/Functional-Groups/Phosphate-Functional-Group.htm&ei=hCYNUdSEE-WwygGp74DQBw&bvm=bv.41867550,d.aWc&psig=AFQjCNGg9tv5nYdIXUK-SLCtNv6phnh0Pw&ust=1359902594805681)  **Glycerol Phosphate** | **Nucleic acids** |

**Identification Strategies**

1. Look for OXYGEN – if absent go to step 2
2. Single bonded OH HYDROXYL
3. Double bonded
4. If 2 oxygen CARBOXYL
5. If 1 oxygen CARBONYL
6. N present AMINO
7. S present SULFYDRYL
8. P present PHOSPHATE

# Identify the functional groups in the following compounds:

