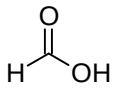
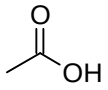
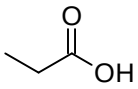
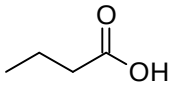
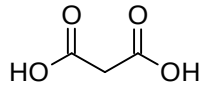
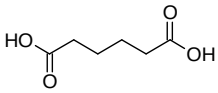
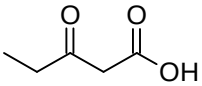
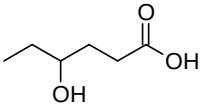
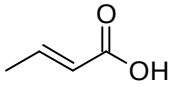
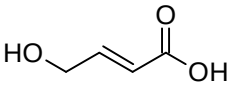
Chem 2062

Carboxylic acid and derivative nomenclature worksheet

Write the names for the carboxylic acids shown, as well as the related acid chloride (R-COCl), ethyl ester ($R\text{-}CO_2Et$), and primary amide ($R\text{-}CONH_2$). Use IUPAC names for all, but also include common names for formic, acetic, and malonic acid.

Structure	Carboxylic acid	Acid chloride	Ethyl ester	Primary amide
Suffix:	-oic acid (IUPAC) -ic acid (common)	-oyl chloride (I) -yl chloride (C)	-oate (I) -ate (C)	-amide
	methanoic acid (I) formic acid (C)	methanoyl chloride (I) formyl chloride (C)	ethyl methanoate (I) ethyl formate (C)	methanamide (I) formamide (C)
	ethanoic acid (I) acetic acid (C)	ethanoyl chloride (I) acetyl chloride (C)	ethyl ethanoate (I) ethyl acetate (C)	ethanamide (I) acetamide (C)
	propanoic acid	propanoyl chloride	ethyl propanoate	propanamide
	butanoic aicd	butanoyl chloride	ethyl butanoate	butanamide
	propanedioic acid (I) malonic acid (C)	propanedioyl dichloride (I) malonyl dichloride (C)	diethyl propanedioate (I) diethyl malonate (C)	propanediamide
	hexanedioic acid	hexanedioyl dichloride	diethyl hexanedioate	hexanediamide
	3-oxopentanoic acid	3-oxopentanoyl chloride	ethyl 3-oxopentanoate	3-oxopentanamide
	4-hydroxyhexanoic acid	4-hydroxyhexanoyl chloride	ethyl 4-hydroxyhexanoate	4-hydroxyhexanamide
	but-2-enoic acid	but-2-enoyl chloride	ethyl but-2-enoate	but-2-enamide
	4-hydroxybut-2-enoic acid	4-hydroxybut-2-enoyl chloride	ethyl 4-hydroxybut-3-enoate	4-hydroxybut-2-enamide

Note: secondary and tertiary amides have *N*-alkyl prefix(es). E.g. *N*-ethyl-4-hydroxy-*N*-methylbut-2-enamide