


## Chapter 15: "Electrophilic Aromatic Substitution" (EAS) Worksheet

1. Complete the sentences:

"It is not surprising that in its typical reactions the benzene rings serves as a source of electrons, that is, as a base .

"Just as the typical reactions of the alkenes are electrophilic addition reactions, so the typical reactions of the benzene ring are electrophilic substitution reactions .

1. Complete the Table:

Strongly Activating o,p Directors	Moderately Activating o,p Directors	Weakly Activating o,p Directors	Deactivating m Directors	Deactivating o,p Directors
$-NH_2$	$-OCH_3$		$-NO_2$	F
$-NHR$	$-OC_2H_5$	$-CH_3$	$-N^+(CH_3)_3$	Cl
$-NR_2$	$-OR$	Alkyl Groups	$-CN$	Br
$-OH$			$-C(=O)OH$	I
			$-C(=O)OR$	
			$-SO_3H$	
			$-C(=O)H$	
			$-C(=O)R$	

2. Draw all of the resonance structures for  $^+C_6H_6NO_2$

