

$$\sum_{k=0}^n k \binom{n}{k} = n 2^{n-1}$$

if $k=1$

$$\Rightarrow \sum_{k=1}^n k \binom{n}{k} = n \sum_{k=1}^n \binom{n-1}{k-1}$$

Also let $k=Q$

$$\Rightarrow n \sum_{Q=0}^{n-1} \binom{n-1}{Q} = n 2^{n-1}$$