ABSTRACT. Let $\Gamma = \mathrm{PSL}_2(\mathbb{Z})$ be the classical modular group. It has been shown by Stothers (Proc. Royal Soc. Edinburgh **78A**, 105–112) that s_n, the number of index n subgroups in Γ, is odd if and only if $n + 3$ or $n + 6$ is a 2-power. Moreover, Stothers (loc. cit.) also showed that f_λ, the number of free subgroups of index 6λ in Γ, is odd if and only if $\lambda + 1$ is a 2-power. Here, these divisibility results for f_λ and s_n are generalized to congruences modulo higher powers of 2. We also determine the behaviour modulo 3 of f_λ. Our results are naturally expressed in terms of the binary respectively ternary expansion of the index.