Modern sieve methods began with the work of Brun in 1915 on twin primes. In the years since, sieves have developed into a large subject with many important applications to the distribution of primes. Sieve constructions can be very complicated and involve extensive notation. However, the underlying principle is simple, for a sieve problem is an inclusion-exclusion problem with incomplete information.

In the usual formulation of the sieve, one starts with a set of integers and removes all multiples of a set of sifting primes up to a certain limit \( z^\beta \). In this talk, we consider a simplified sieving problem in which all the sifting primes \( p \) lie in an interval \( z^{1/(R+1)} < p \leq z^{1/R} \). In particular, we discuss an iteration procedure that allows one to use a lower bound sieve for \( z^{1/(R+1)} < p \leq z^{1/R} \) to derive an upper bound sieve for \( z^{1/(R+2)} < p \leq z^{1/(R+1)} \), and vice versa. (Received September 25, 2017)