nding questions in algebraic geometry are concerned with higher-dimensional varieties. Because of the Lefschetz theorem from Chapter 0 and 1, the "new" – i.e., not coming from a lower-dimensional subvariety – cohomology of a smooth n-dimensional algebraic variety M lies in $H^{[n/2]}(M)$, so that going to dimension $n \geq 3$ or studying subvarieties of codimenson $k \geq 2$ are closely related, while divisors pertain to cohomology in degrees 1 and 2. So in this chapter we shall present a modest introduction to some of the methods for dealing with general higher-codimensional problems, both local and global, and in the last chapter we shall investigate a three-dimensional variety.

As in the divisorial case we will develop the theory around the concept of residue. The local residue, given by a variant of the n-variable Cauchy formula has been present since the early days of several complex variables. It has recently come into focus in an algebraic context in connection with Grothendieck's general duality theorem, which in fact isolated the functorial aspects of the local analytic residue. The subsequent global residue theorem expresses the duality characteristic of a closed variety and should yield many specific applications.

In Section 1 we give an analytic definition of the residue as an integral. It may be alternatively interpreted as a cohomology class, and many of