A universal cycle (u-cycle) is a compact listing of a collection of combinatorial objects. In this paper, we use natural encodings of these objects to show the existence of u-cycles for collections of subsets, matroids, restricted multisets, chains of subsets, multichains, and lattice paths. For subsets, we show that a u-cycle exists for the \( k \)-subsets of an \( n \)-set if we let \( k \) vary in a non zero length interval. We use this result to construct a “covering” of length \((1 + o(1))\binom{n}{k}\) for all subsets of \([n]\) of size exactly \( k \) with a specific formula for the \( o(1) \) term. We also show that u-cycles exist for all \( n \)-length words over some alphabet \( \Sigma \), which contain all characters from \( R \subset \Sigma \). Using this result we provide u-cycles for encodings of Sperner families of size 2 and proper chains of subsets. (Received September 18, 2010)