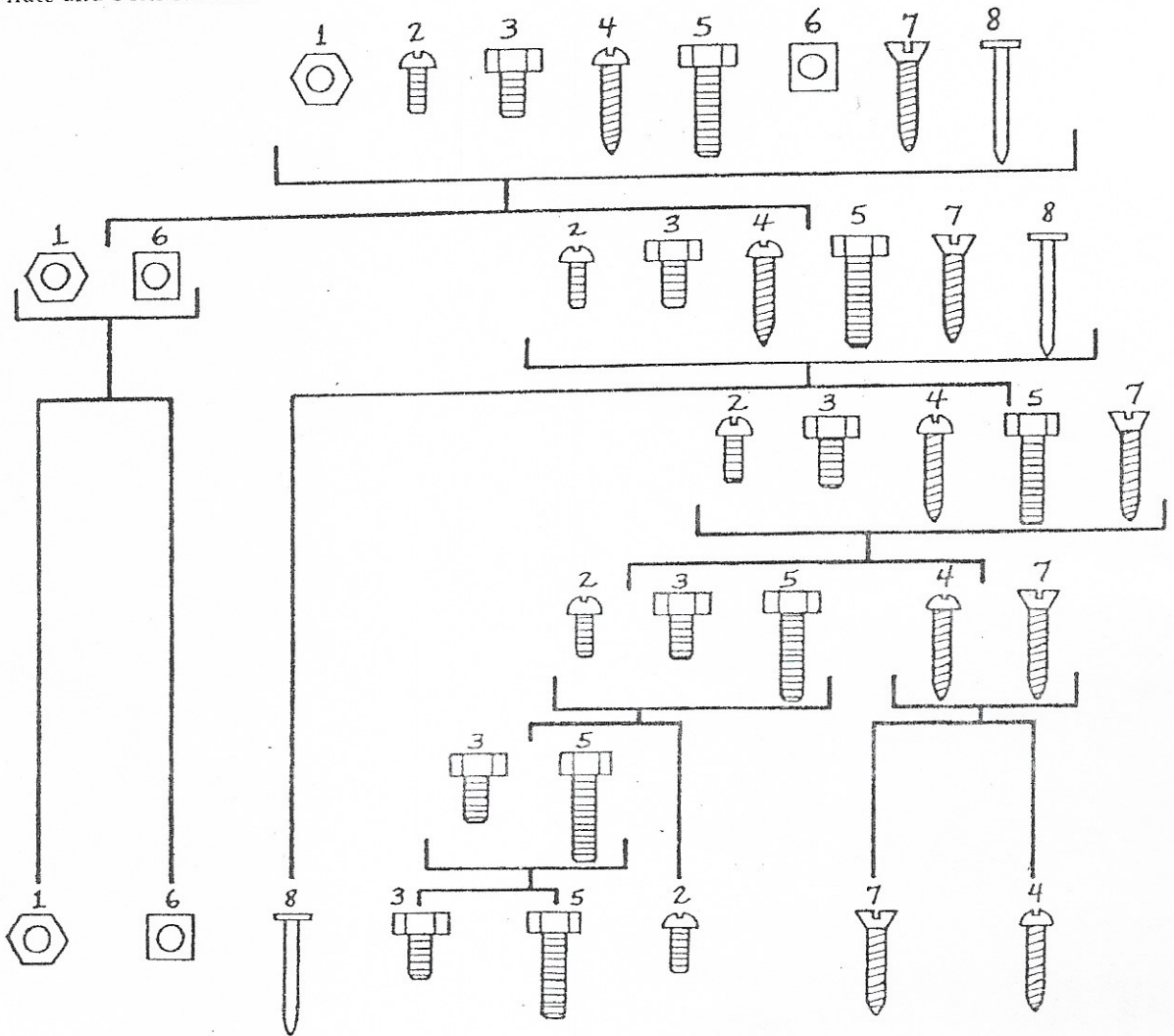


Nuts & Bolts: An Example of Taxonomy

When creating a classification scheme for a group of species, taxonomists begin by dividing the group into two subgroups based on an obvious distinction. From there, each subgroup is divided in two until each species is isolated. A classification tree created in this manner is called a *dichotomous tree*. Give students pictures of the nuts and bolts on page 3 (or real matching nuts and bolts), and guide them in creating a dichotomous classification tree. One possible tree for these nuts and bolts follows.



The first division is made between the “species” with bodies and those without. (Those with bodies include species 2, 3, 4, 5, 7, and 8; those without include species 1 and 6.) Those without bodies are then divided into species with six sides (species 1) and species with four sides (species 6). Those with bodies are divided into species with threads (2, 3, 4, 5, and 7) and those without (8). At this point, species 1, 6, and 8 have been isolated. Next, the threaded species are divided into those with pointed tips (4 and 7) and those without (2, 3, and 5). The unpointed-tip species are then divided into round heads (2) and flat heads (3 and 5). The species with pointed tips are also divided into flat heads (7) and round heads (4). Finally, the flat-headed, unpointed-tip species are divided into those with long bodies (5) and those with short bodies (3). At this point, all eight species have been isolated. After guiding students through creating this tree, challenge them to create a new classification scheme for these same “species”, or give them a new group of “species” to classify independently.