Within baseball analytics, there is substantial interest in comprehensive statistics intended to capture overall player performance. One such measure is Wins Above Replacement (WAR), which aggregates the contributions of a player in each facet of the game: hitting, pitching, baserunning and fielding. However, current versions of WAR depend upon proprietary data, ad hoc methodology, and opaque calculations. We propose a competitive aggregate measure, openWAR, using public data, more rigorous methodology, and transparent calculations. We discuss a principled baseline compared to the nebulous concept of a "replacement" player. Finally, we use simulation-based techniques to provide variance estimates for our openWAR measure. (Received September 13, 2013)