This study explored the effectiveness of an eight-week summer day camp that used applied behavior analysis (ABA) to decrease maladaptive behaviors and increase prosocial behaviors of children with autism spectrum disorders. Little is known about how children with autism spectrum disorders respond to ABA treatment in the camp setting. Using a multiple case study approach, behaviors were measured using direct observation techniques in a sample of 5 children ranging from 7 years, 5 months to 9 years, 1 month. Results were assessed using visual inspection of graphs and assessing trendlines of the data. Results of the study indicated that all five participants demonstrated at least two behaviors that changed in the intended direction (i.e., target behaviors decreased, replacement behaviors increased). Overall, for all five participants, 68% of behaviors changed in the intended direction. Among the behaviors that changed in the intended direction, 65% demonstrated a moderate rate of change within the eight weeks of camp. A number of possible explanations for these results, as well as for unfavorable findings, are discussed. Because this study was considered a preliminary investigation, these positive results support the need for future studies to further examine this relatively unexplored setting through replication.