



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Philip C. Wright</b>	<b>Project Number</b> <b>J1326</b>
<b>Project Title</b> <b>Flip Turn vs. Open Turn: Win or Lose at the Wall in Competitive Swimming</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My goal was to find out if a flip turn is truly faster than an open turn in competitive freestyle races and whether the extra breath you get in an open turn makes a difference for the race. <b>Methods/Materials</b> My sister and I were the test subjects. The location for the tests was our association swimming pool. In the different sets, we swam either two or four laps freestyle with flip turns or open turns at the opposite wall. There were ten trials per set for each type of turn, alternating between the two types of turns. Each race started in the water on one wall with a given start signal and finished on the same wall. The time for each race was taken with a stop watch. Rest time was 2 minutes between races. The pool is 12 yards long, so in these experiments a freestyle race is either 24 yards or 48 yards long. <b>Results</b> My results show that on average the flip turn is faster than the open turn. When I swam the 24 yard freestyle races my flip turn races were an average of 0.4 seconds faster than the open turn races. When my sister did the same races her flip turns made her an average of 0.9 seconds faster. In the 48 yard races with three turns the flip turn races were on average 1.4 seconds faster than the open turn races. <b>Conclusions/Discussion</b> Based on my data the time advantage of a flip turn versus an open turn is different for different people and varies with the experience a swimmer has with each type of turn. The data also shows that the time advantage of a flip turn appears to add up in a longer race and that the additional oxygen you get in an open turn does not make up for the advantage of performing flip turns. This, however, could be different in very long races with many turns or in swimmers that are not well trained to hold their breath and budget their oxygen.	
<b>Summary Statement</b> This project is about the comparison of two different types of turns commonly seen in competitive swimming.	
<b>Help Received</b> Guidance from my Science teacher Mrs. Martin. Helpful discussions with my swim coach Rod Hansen. My Mom helped as the stop watch timer.	