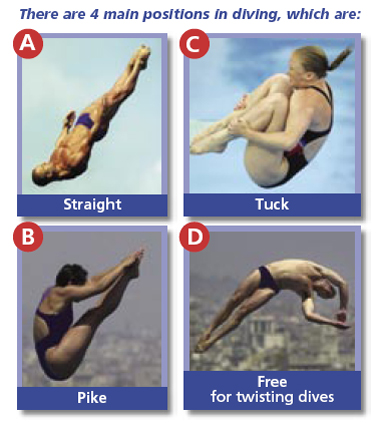
Using the following picture and description, use your understanding of angular momentum to explain what purposes different diving techniques and positions might serve in the context of attempting to achieve the most impressive dive in a competition. Write a short paragraph on this topic, making sure that you explain each thought clearly and thoroughly and that you utilize angular kinematics relationships to mathematically justify your explanation.

During the flight of the dive, one of four positions is assumed:

* straight – with no bend at the knees or hips (the hardest of the four)
* pike – with knees straight but a tight bend at the hips (the median in difficulty of the four.) The open pike is a variant where the arms are reached to the side, and the legs are brought straight out with a bend in the hips.
* tuck – body folded up in a tight ball, hands holding the shins and toes pointed (the easiest of the four.)
* free – indicates a twisting dive, and a combination of other positions. In the transition between two positions the diver may for example bend their legs or curve at the waist, and points will not be deducted for doing so.

These positions are referred to by the letters A, B, C and D respectively.

Additionally, some dives can be started in a flying position. The body is kept straight with the arms extended to the side, and the regular dive position is assumed at about half the dive.

Difficulty is rated according to the Degree of Difficulty of the dives. Some divers may find pike easier in a flip than tuck, and most find straight the easiest in a front/back dive, although it is still rated the most difficult because of the risk of overrotation.