

Explorit Science Center
"Move It! Science In Action "
Tops for the Spin-Table

General Principles of Finger-top Design.

1. If you want the tops to spin fast, then keep the main weight close to the shaft
2. If you want the top to spin for a longer time then keep the most weight on the perimeter of the whorl.
3. The heavier the top the longer it will spin.
4. The greater diameter of the whorl the longer the top will spin.
5. The greater the diameter then the more stable the top will be.
6. The more weight on the perimeter the more difficult it will be to finger spin
7. The more weight you have on the perimeter the more thought you have to put into the design of the finger spin shaft. i.e. the more weight the larger the diameter of the finger spin area of the shaft and also the great need for "grip" being built into the design (i.e. knurling) (Of course you can make it a "palm spin" shaft if you like!)
8. The position of the whorl on the shaft has an effect on the stability and the processing of the top. The lower the whorl the more stable. Higher than one third of the shaft length begins to make the top more difficult to spin. Though palm spin (faster spinning) tops will work OK at above this height. Sure it will still spin ok but better if the proportional position is lower than one third.
9. Whorl and weight principles can be stated more scientifically by talking about centre of gravity, instead of where the main weight is positioned.
10. Design your top shape for streamline effect. Air friction does have an effect, though only really noticeable on a very "whiskery" top.
11. Reduce friction at the contact point also., A sharp, but not penetratingly sharp point will be better than an blunt point. Metal is better than most woods as a spinning point.

Taken from the web:

<http://www.sandstrum.com/brian/articles/PRINCIPLES.HTML>