

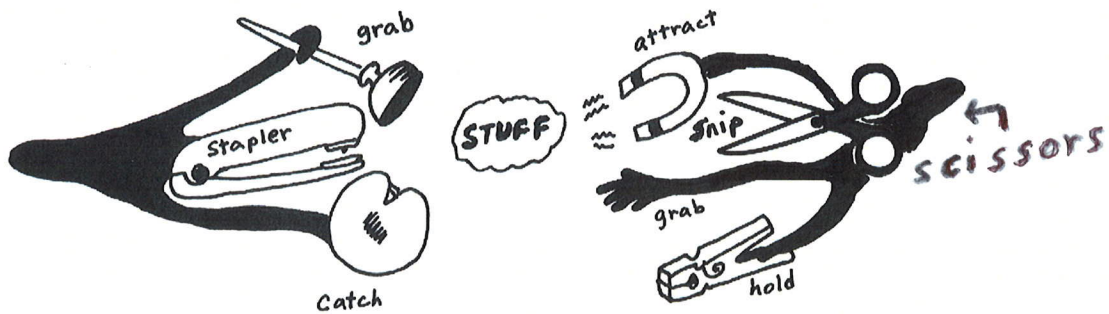
Enzymes and Cofactors



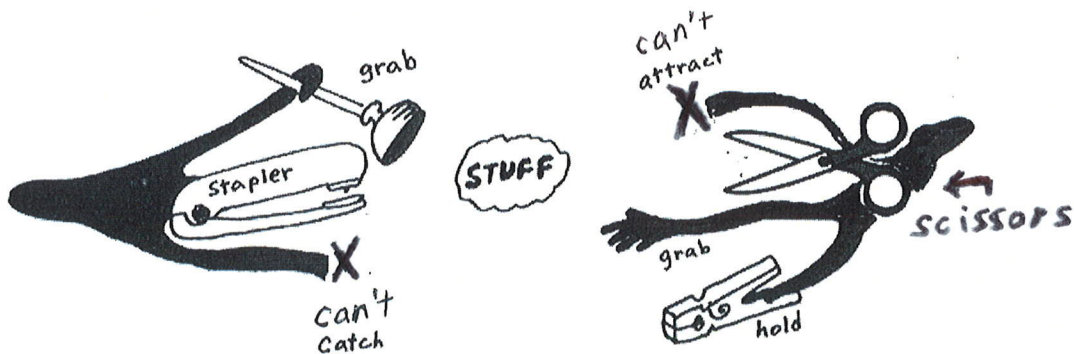
Aunt Cathy

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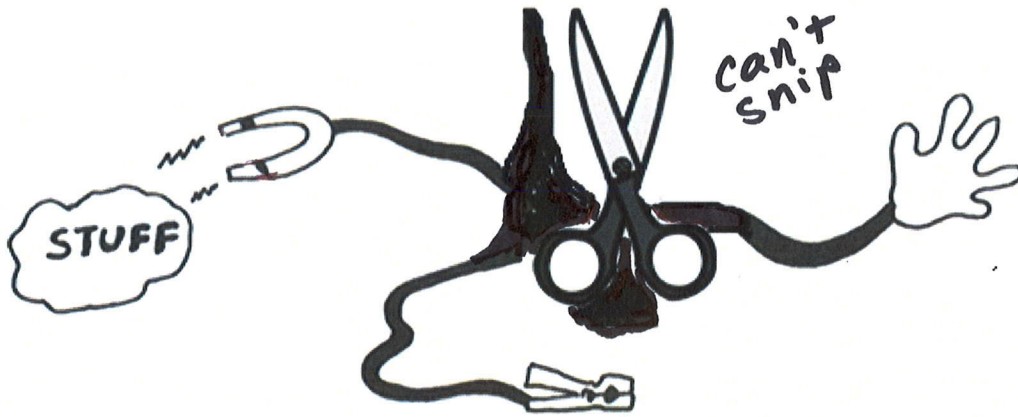
- All enzymes are either scissors or staplers ... they cut something off or they staple something on.



- Vitamin and mineral “cofactors” are the tools needed for the enzyme to attract the stuff it wants to work on (the “substrate,”) and to hold it in position for the stapler part or the scissors part to do the job. The scissors and stapler parts are the “active sites” of the enzyme
- Inadequacy of a necessary vitamin or mineral cofactor also can seriously impair the enzymes function because it can't attract and position the substrate at the active site.



- All enzymes are made of protein and the shape is very important.
- “Denaturing” protein changes its shape, so the attracters and grabbers and holders and catchers are no longer positioned in the right place for the active site to get a chance to cut or staple.



- “Denaturing” is anything that makes the protein unable to do its job. Acid and heat can denature protein. The best example is egg protein ... if you cook it or pickle it you will denature its protein so the egg will NEVER become a chicken no matter what.



- Pickling with acid is also a technique we use in the stomach to denature the proteins of dangerous organisms. It is an important part of the immune system. It also explains why medicinal substances made of protein (like insulin) cannot be taken orally. It gets pickled and won't work.