Template for biochemical pathways Cheat Sheet

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How the template works

The template for studying biochemical pathways works in real, physical paper: you get to use a pencil, rubber, and a ruler, and start sketching the pathway/s you need to study in the format provided here. When you analyze what you have and rebuild it in a different format, you're learning it.

Interpretation of the format provided

This is just a template for studying metabolic pathways, which uses the Krebs cycle to illustrate itself as an example. It uses alternate rows, as well as columns of input and columns of output. In the colored background rows we have the product of the previous reaction (which is the reactive of the following reaction), next to the elements that are joined in the following reaction (INPUT), or those that are derived from the previous reaction (OUTPUT). The white rows contain the enzyme catalysing each reaction (with a number). These rows leave some space to the right to extra information, such as optimal conditions (pH, temperature, pressure ...), cofactors, the alpha of a reversible reaction (α), or whatever we want to study. As most biochemical reactions are reversible, those that are irreversible (in this case: 1, 3 and 4) are being put between brackets, because they are decisive.

Krebs Cycle - Template Example

Product/Reactive	INPUT	OUTPUT
Step	Enzyme	Extra Info
Oxalacetate	Acetyl-CoA + H_2O	*BLANK*
(**1**)	Citrate synthase	
Citrate		HS-CoA + H^+
2	Aconitase	
Isocitrate	NAD^+	
(**3**)	Isocitrate dehydrogenase	
alpha-ketoglutarate	HS-CoA + NAD^+	NADH + CO_2
(**4**)	Alpha-ketoglutarate dehydrogenase	
Succinyl-Coenzyme A	ADP + Pi	CO_2 + NADH
5	Succinyl coenzyme A synthetase	
Succinate	Ubiquinone (Q)	ATP + HS-CoA
6	Succinate dehydrogenase	
Fumarate	H_2O	QH_2
7	Fumarase	
Malate	NAD^+	
8	Malate dehydrogenase	
Oxalacetate	*BLANK*	NADH + H^+



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