

Contents

1	About the Author	1
2	Prerequisites	3
3	What is a Mental Model?	5
	Other Names for a Mental Model	6
	Example Mental Models	6
4	Rapid Learning Primer	15
	What Does Rapid Learning Have To Do With Mental Model Creation?	21
	How to Use This Chapter	22
5	Your Mindset	24
	Mindset is the Key	25

You Can Do It	27
Rapid Learning is Your Friend	27
The Mental Model Maker's Mantra	28
Pictures Are Good	29
Terminology Is Your Friend	32
Mental Model Creation is a High Value Activity	36
Your Mindset Toward This Book	37
Your Mental Model Needn't Be Perfect	37
Mental Model Creation and Teamwork Go Hand in Hand	39
6 Mental Models in this Book are Small	41
7 What's So Great About CREATING Mental Models?	43
Everyone on the Same Page	44
Uses of Mental Models	46
8 Example: One Speed Bicycle	53
9 Mental Model Symbols	61
10 How to Actually Draw Your Mental	

Model	65
Hand Drawn or Computer Drawn?	66
Tips For Hand Drawn	67
Tips For Online Collaboration . .	70
11 Example: Rotary Lawn Mower	77
Basics of the Motor	81
Details of the Motor	97
Parts List For the Motor System	107
Box Based Mental Model of the Motor System	114
Putting It All Together	120
Is This Three Level Mental Model Enough to Fix a Lawn Mower? . .	124
12 Lessons Learned: Lawn Mower Ex- ample	126
Going It Alone With the In- cremental/Differential Learning Process	131
13 Example: Runit Init System	134
Definitions	136
A Brief Init System Overview . .	139
The Simplest Remotely Practical Init System	141

How One Linux/Unix/BSD Process Starts Another	142
Process Configuration on Init Systems	146
Mental Model of the Runit Init System	147
14 Drilling Down: Mental Model of the runsv Box	153
15 Lessons Learned: Runit Example	177
Using System Utilities	179
Mental Model Creation as an Archaeological Dig	182
From the Familiar to the Unknown	183
My Advantages	184
Experimentation	186
Substitute Shellscript	190
Asking For Help	191
My Advantages	196
16 Modularity is Essential	199
Few and simple inputs, few and simple outputs	200
No feedback loops unless absolutely ready.	206

Use bus designs only when they really help.	208
Wrapup	210
17 System Design Via Mental Model Construction	214
Robot Mental Model	216
Software Mental Models	221
Software Bus Designs	229
Wrapup	230
18 Manager's Guide to Mental Model Construction Training	232
19 Mental Model Making as a Hiring Tool	237
20 Wrapup	240
A Extra Information and Optional Reading: C Code	246
Listing For the One-Instance- Only File Locking Program . . .	247
Trivial Fork Operation Investiga- tor Program	249

A Inkscape For Mental Model Construction	251
Cheat Sheet	252
Inkscape Tips	257
Simple Bezier Operations	263
Use a Ready Made icon/symbol/shape Template	266
Inkscape Landmines	272
Index	275