Supplementary Table 1. Regional profile of individual neurons that are selective for specific task features and theta modulated during context exploration or object sampling

Region	Context Exploration	Object Sampling		
	Context n/N (%)	Context n/N (%)	Object n/N (%)	Valence n/N (%)
dHPC	78/98 (80)	43/58 (74)	42/57 (74)	35/56 (63)
vHPC	32/38 (84)	14/19 (74)	7/13 (54)	7/11 (64)
mPFC	46/89 (52)	26/68 (38)	31/71 (44)	35/98 (36)

For each brain region, n = number of cells selective for a specific feature that are theta-modulated, N = total number of cells that are selective for that feature, and % = percentage of feature selective cells that are theta modulated.

Supplementary Table 2 | PFC-HPC lag/lead of maximal correlation during accurate performance by individual subjects

Subject	Context exploration (ms)	Object sampling (ms)
1 - VH	-36	24
1 - DH	-41	59
2 - VH	-8	38
2 - DH	-23	39
3 - VH	-11	19
3 - DH	-28	23
4 - DH	-40	43
5 - DH	-24	33
6 - DH	-33	28
7 - VH	-33	36

Negative values indicate HPC leads; vs. positive values indicate PFC leads.

Supplementary Table 3 | PFC-HPC lag/lead of maximal correlation during correct trials and errors during learning in individual subjects

	Correct trials		Errors	
	Context exploration	Object sampling	Context exploration	Object sampling
Subject	(ms)	(ms)	(ms)	(ms)
1	-60	29	-2	37
2	-2	30	-51	18
3	-12	32	0	71
4	-93	32	49	100
5	-33	20	0	70
6	-16	26	-15	49
7	-6	37	-16	-1

Negative values indicate HPC leads; vs. positive values indicate PFC leads.