

SUPPLEMENTARY MATERIAL

Figure S1: Box maze used in experiment 1.

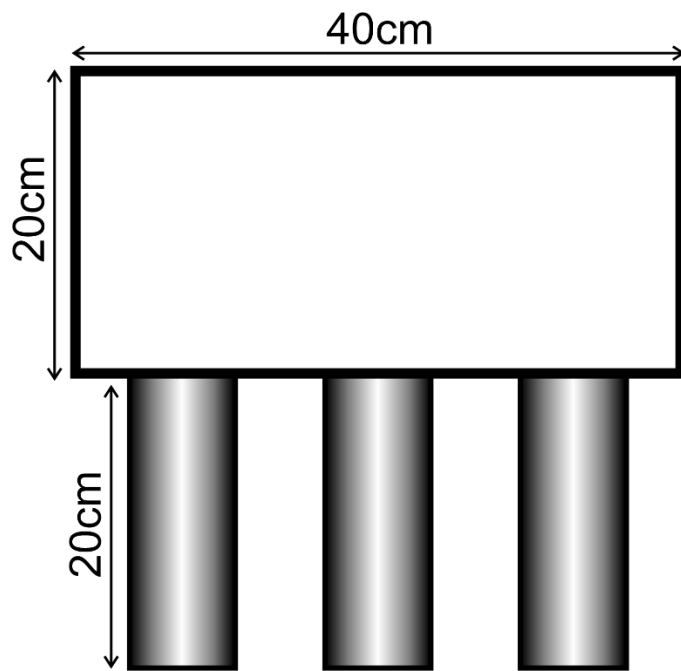


Figure S2: Y-maze used in experiment 2.

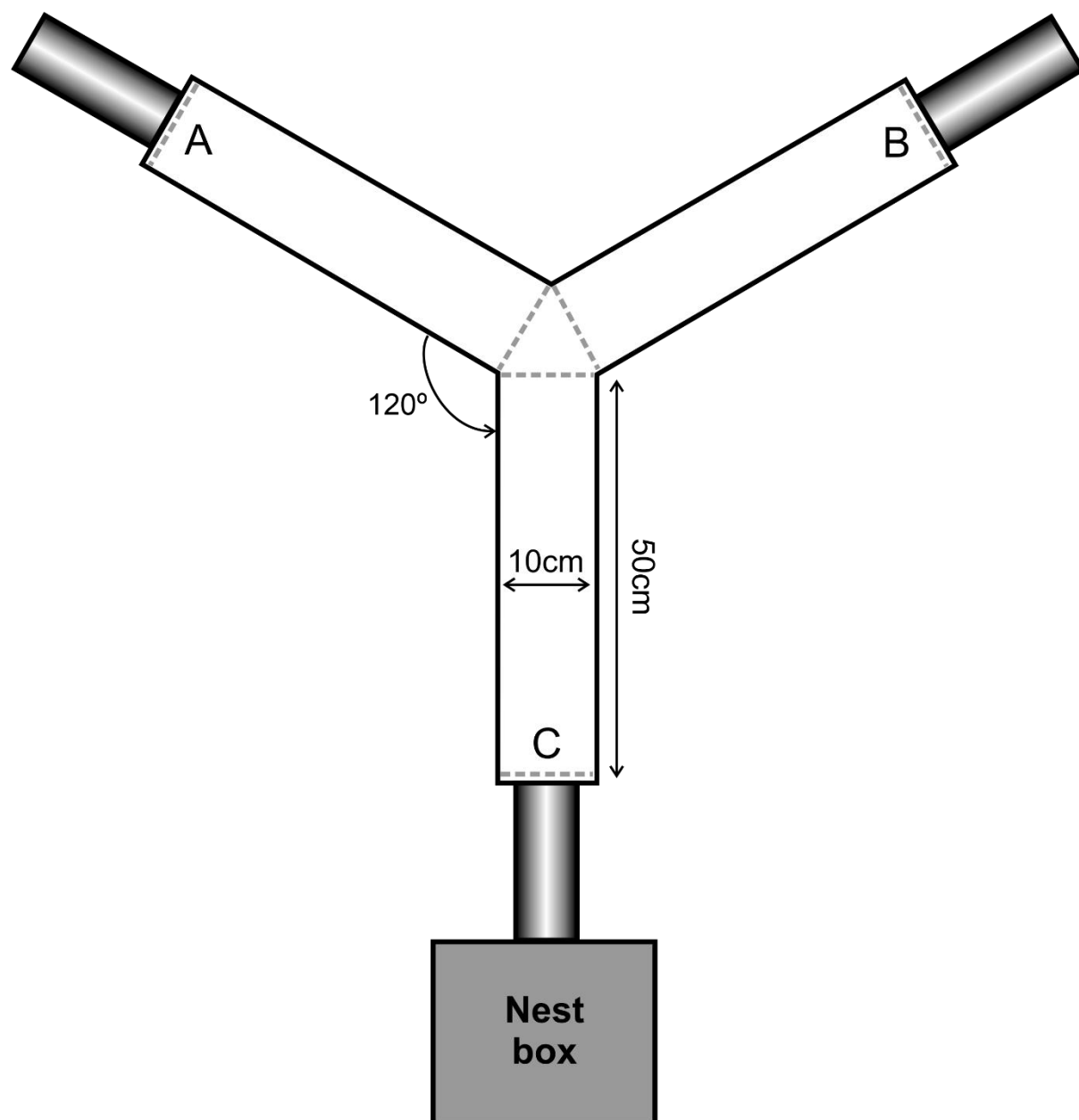


Table S1: Colony and body weight information for animals used in this study. Where available, body weights for all members of the colonies, also the animals not used, are included (colonies 1-7).

colony	id	class	sex	weight
colony 1	1	queen	F	114.6
			F	73.05
	2	worker	F	75.64
			M	40.38
			F	43.53
colony 2	3	queen	F	141.2
			4	disperser
	5	worker	M	64.74
			F	87.47
			M	72.17
	5	worker	M	103.2
			F	58.65
colony 3	6	queen	F	108.2
			7	disperser
	8	worker	M	137.43
			M	131.73
			F	85.31
	9	worker	M	76.51
F			57.94	
colony 4	10	disperser	M	153.62
			M	117.32
			M	135.61
			M	121.26
	11	juvenile	M	85.43
colony 5	12	disperser	F	124.5
	13	worker	F	101.2
colony 6	14	disperser	M	187.5
	15	disperser	M	152.2
	16	disperser	F	135.1
	17	disperser	M	123
	18	worker	M	103.8
			M	206.6
	M	203		
	M	218.23		
	F	120.8		
	M	174.62		
	M	206.89		
F	103.89			
F	125.24			
F	94.91			

<b>colony</b>	<b>id</b>	<b>class</b>	<b>sex</b>	<b>weight</b>
colony 6 continue			F	116.29
			M	139.34
			M	134.23
			F	91.45
			F	82.89
			F	84.17
colony 7	19	worker	F	84.3
			M	183.13
			M	115.23
			M	90.68
			F	109.17
			M	129.04
			F	94.44
			M	132.48
			M	68.61
			F	84.37
			F	44.16
colony 8	20	queen	F	112.2
colony 9	21	worker	F	70.6
	22	worker	M	70.8
	23	worker	F	89.01
	24	disperser	M	122.2
	25	queen	F	107.3
colony 10	26	disperser	M	116.14
	27	queen	F	108.5
	28	worker	M	85.6
	29	worker	F	88.6
	30	worker	M	75.9
	31	worker	F	70.2
colony 11	32	disperser	F	139.89
colony 12	33	disperser	F	130.34
colony 13	34	disperser	F	121.68
colony 14	35	disperser	F	121.03
	36	queen	F	134.41

Table S2: A comparison of exploratory measurements between the three different caste groups. Data are presented as mean  $\pm$  standard error.

	Queen n=8	Disperser N=21	Worker N=15
Latency	39.25 $\pm$ 13.23	43.09 $\pm$ 8.97	13.64 $\pm$ 3.43
Time in tunnels	63.75 $\pm$ 19.27	65.09 $\pm$ 12.16	119.28 $\pm$ 26.87
Mean time/entry	21.96 $\pm$ 7.65	33.28 $\pm$ 7.17	75.78 $\pm$ 19.69
Tunnel entries	3.12 $\pm$ 86	2.61 $\pm$ 45	2.63 $\pm$ 54
# of tunnels	1.88 $\pm$ 0.44	1.54 $\pm$ 0.22	1.86 $\pm$ 0.33

Table S3: Values for each respective caste group over the four consecutive days for the four parameters assessed during the reference memory experiment. Data are presented as mean  $\pm$  standard error.

Caste	Sex	Day	Time to escape hole	# of wrong turns	Velocity (cm/s)	Distance (cm)
Queen	Female	1	21.51 $\pm$ 1.91	0.36 $\pm$ 0.07	14.79 $\pm$ 3.0	181.46 $\pm$ 20.48
		2	12.09 $\pm$ 0.86	0.43 $\pm$ 0.09	21.11 $\pm$ 3.21	211.06 $\pm$ 35.82
		3	12.10 $\pm$ 0.98	0.37 $\pm$ 0.06	15.14 $\pm$ 0.80	137.88 $\pm$ 6.95
		4	15.91 $\pm$ 1.56	0.53 $\pm$ 0.12	14.72 $\pm$ 0.83	165.51 $\pm$ 12.75
Disperser	Male	1	22.71 $\pm$ 1.86	0.43 $\pm$ 0.10	12.66 $\pm$ 2.07	212.21 $\pm$ 24.71
		2	16.03 $\pm$ 1.27	0.59 $\pm$ 0.12	21.55 $\pm$ 3.85	291.40 $\pm$ 56.50
		3	13.25 $\pm$ 0.77	0.46 $\pm$ 0.09	15.14 $\pm$ 0.40	150.72 $\pm$ 8.78
		4	12.44 $\pm$ 0.83	0.52 $\pm$ 0.10	14.72 $\pm$ 0.66	152.12 $\pm$ 9.29
Worker	Female	1	22.80 $\pm$ 2.23	0.47 $\pm$ 0.09	11.87 $\pm$ 0.76	207.21 $\pm$ 35.80
		2	25.75 $\pm$ 2.43	0.85 $\pm$ 0.14	16.26 $\pm$ 2.25	284.93 $\pm$ 55.66
		3	22.43 $\pm$ 2.18	0.90 $\pm$ 0.14	14.67 $\pm$ 1.43	214.18 $\pm$ 26.80
		4	25.55 $\pm$ 2.44	0.93 $\pm$ 0.16	14.86 $\pm$ 1.20	216.89 $\pm$ 16.99
	Male	1	29.30 $\pm$ 2.60	0.40 $\pm$ 0.10	13.51 $\pm$ 2.60	231.06 $\pm$ 30.07
		2	14.28 $\pm$ 1.08	0.43 $\pm$ 0.09	17.29 $\pm$ 2.71	219.95 $\pm$ 55.83
		3	14.97 $\pm$ 1.60	0.50 $\pm$ 0.12	13.44 $\pm$ 0.69	145.63 $\pm$ 11.54
		4	12.07 $\pm$ 0.97	0.30 $\pm$ 0.07	13.51 $\pm$ 0.65	128.60 $\pm$ 7.90
Female	1	22.31 $\pm$ 1.92	0.22 $\pm$ 0.06	16.93 $\pm$ 2.87	208.31 $\pm$ 23.27	
	2	14.59 $\pm$ 1.21	0.33 $\pm$ 0.10	19.77 $\pm$ 3.43	182.47 $\pm$ 25.23	
	3	15.64 $\pm$ 1.56	0.61 $\pm$ 0.15	13.25 $\pm$ 0.53	138.83 $\pm$ 11.25	
	4	16.93 $\pm$ 1.52	0.61 $\pm$ 0.11	13.64 $\pm$ 0.63	175.50 $\pm$ 12.46	