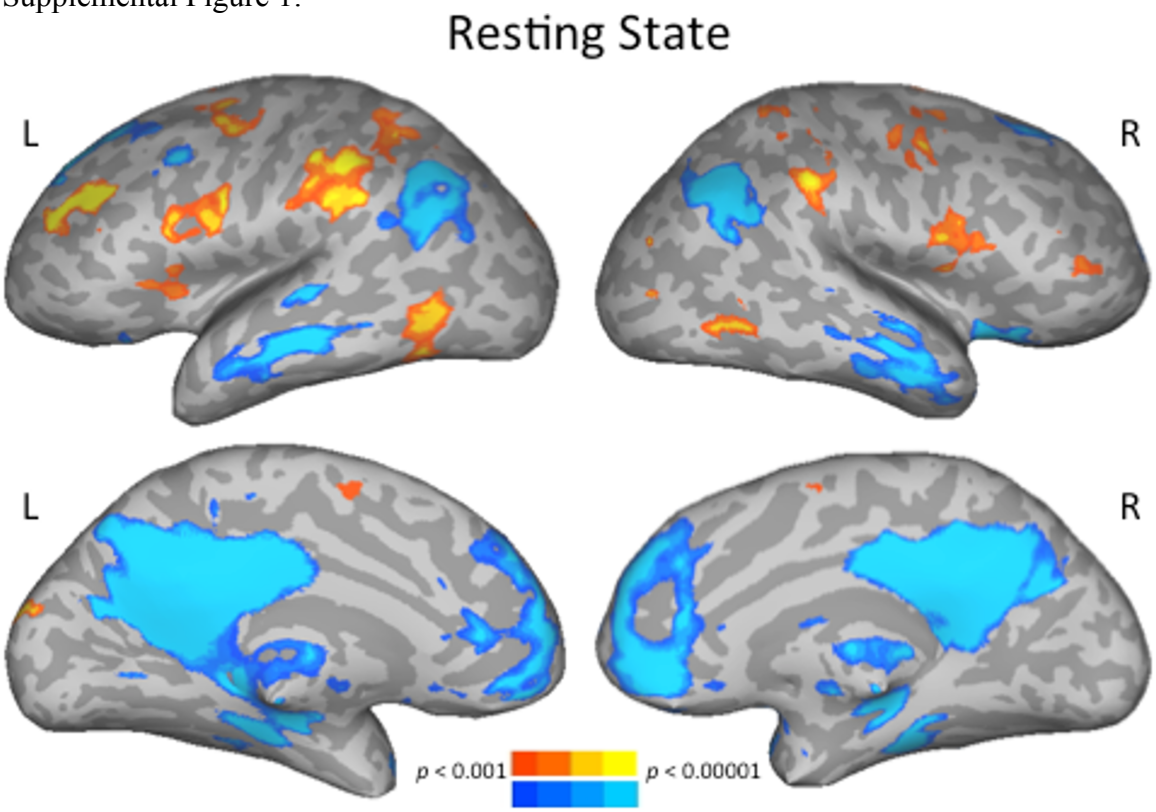
Supplemental Methods: Functional Connectivity Analysis of Experiment 1 Data

Functional connectivity analyses were performed on data acquired while participants were at "rest." Specifically, participants were instructed to maintain fixation but otherwise let their minds wander. Data analysis consisted of the following steps: (1) a field map, collected in the same dimensions as the resting-state functional data, was used for B-field un-warping as carried out in the FSL program FUGUE; (2) data were motion-corrected as described for the task-based time series above, and (3) band-pass filtered between 0.01 and 0.1 Hz, smoothed using a 6 mm FWHM Gaussian kernel. A residual time series was then created by sequentially regressing out effects due to the six motion parameters, signal from the ventricles, signal from white matter, and global signal. This residualized time series was tested at every voxel for correlation with the seed region in the bilateral posterior cingulate gyrus, as defined in the Talairach atlas (file TT_N27_EZ_ML) included in the AFNI software (Lancaster et al., 2000). Maps of individual participant results were then transformed to atlas space for group-level statistical testing, as described in the Methods section for the main experiments.

References

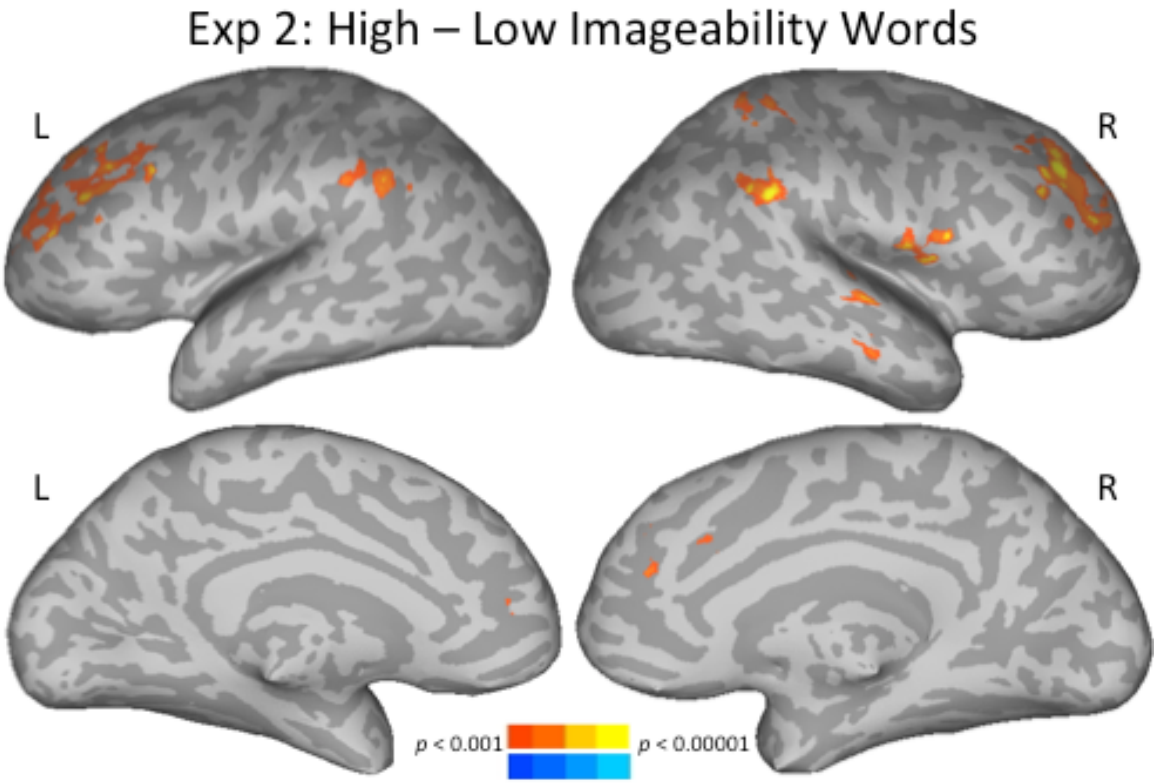
Lancaster, J. L., Woldorff, M. G., Parsons, L. M., Liotti, M., Freitas, C. S., Rainey, L., et al. (2000). Automated Talairach atlas labels for functional brain mapping. *Human Brain Mapping, 10*, 120-131.

Supplemental Figure 1:



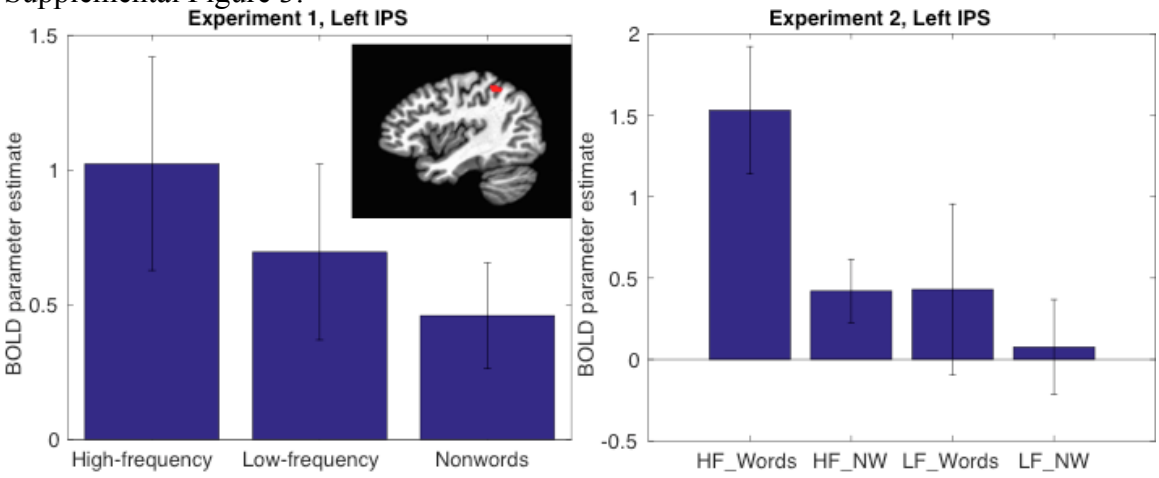
Supplemental Figure 1: Results of resting state functional connectivity analysis using a bilateral posterior cingulate seed.

Supplemental Figure 2:



Supplemental Figure 2: Experiment 2, results from the contrast of high minus low imageability words.

Supplemental Figure 3:



Supplemental Figure 3: Interaction graphs from left IPS in Experiments 1 and 2. The same mask (pictured in inset) is used for both plots. The interaction in this area is only significant for Experiment 2.

Supplemental Tables

Table S1. Experiment 1 fMRI contrasts (coordinates of maximum intensity)

Location of extreme point	Cluster size (µl)	X	Y	Z	z-score
Words > Nonwords					
Bilateral frontal and subcortical	31576				
L Inferior frontal gyrus		-46	6	20	4.44
L Caudate		-12	-12	24	4.11
R Caudate		19	7	20	3.93
L Middle frontal gyrus		-48	34	19	3.65
Cerebellum (medial and right lateral)	21979				
R Postero-medial cerebellum		5	-73	-25	4.91
R Lateral cerebellum		27	-60	-24	4.44
R Medial cerebellum		5	-44	-23	3.54
L Occipito-cerebellar	7461				
L Lateral cerebellum		-28	-59	-24	4.20
L Lateral occipital		-45	-77	-14	3.70
L Occipital	3121				
		-22	-95	-3	3.78
R Medial Occipital	2714	29	-59	5	4.20
L Supplementary Motor Area	2316	-3	1	52	3.60

R Occipital Pole	1894	25	-99	-5	3.38
Nonwords > Words					
Bilateral parieto-temporal	114974				
R precuneus		9	-63	23	5.63
L parahippocampal gyrus		-20	-51	-7	4.66
R angular gyrus		38	-75	24	4.06
R parahippocampal gyrus		24	-49	-6	4.03
R middle temporal gyrus		45	-52	16	3.89
R posterior cingulate gyrus		4	-27	38	3.85
R precuneus		4	-56	65	3.84
R middle temporal gyrus		57	-52	-6	3.01
Medial prefrontal and anterior temporal	46252				
L anterior cingulate gyrus		-13	41	9	5.19
R anterior cingulate		15	41	7	5.03
R anterior superior temporal		59	8	-10	4.47
R middle frontal gyrus		24	25	35	4.46
R medial temporal pole		22	11	-32	3.59
L middle frontal	7870				
L middle frontal gyrus		-29	22	51	4.21
L anterior superior temporal gyrus	5785	-49	4	-15	3.84
Peri-Rolandic	4810				
R postcentral gyrus		37	-28	34	3.79

R precentral gyrus		48	-16	55	3.45
L posterior middle temporal gyrus	3049	-56	-56	17	3.61
L supramarginal gyrus	1062	-59	-38	34	3.71
L lateral cerebellum	980	-44	-39	-37	4.02
High > Low Frequency Words					
Bilateral temporo-parietal	67209				
R precuneus		10	-62	36	5.34
R supramarginal gyrus		54	-40	26	4.09
R angular gyrus		42	-75	20	3.82
R inferior frontal gyrus		44	10	11	3.74
R inferior temporal gyrus		57	-33	-17	3.69
L mid-cingulate gyrus		-11	-6	46	3.35
R intraparietal sulcus		29	-42	40	3.35
R posterior insula		35	-16	0	3.12
L precuneus		-6	-82	35	3.07
R prefrontal	13494				
R middle frontal gyrus		33	29	31	4.84
R superior frontal gyrus		17	55	36	3.80
R precentral sulcus		40	-3	43	3.63
L temporo-parietal	6113				
L supramarginal gyrus		-59	-39	40	4.03
L posterior superior temporal gyrus		-58	-58	19	3.21
R anterior temporal lobe	3925				

R medial temporal pole		27	21	-26	3.50
R anterior middle temporal gyrus		51	10	-17	3.33
L middle frontal gyrus	3055	-35	27	42	4.45
R anterior cingulate cortex	2234	4	44	8	3.72
L anterior middle temporal gyrus	1096	-54	2	-23	3.29
R inferior frontal gyrus	909	44	37	5	3.72
Low > High Frequency Words					
L inferior frontal gyrus	7142	-45	19	28	4.37
R mid-cingulate gyrus	1484	4	-7	23	4.11
R medial cerebellum	1244	9	-71	-26	4.04
High > Low Imageability Words					
Bilateral parieto-occipital	18044				
L precuneus		-2	-61	54	4.93
R lingual gyrus		7	-54	4	4.68
L cuneus		-1	-73	22	2.94
L parahippocampal gyrus	1104	-30	-28	-18	3.21
R middle frontal gyrus	1086	31	23	43	3.91
L cerebellum	1040	-31	-72	-20	3.59
Low > High Imageability Words					
L inferior frontal gyrus	1098	-39	37	-2	3.62

Table S2. Experiment 1 functional connectivity of posterior cingulate (coordinates of maximum intensity)

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
Areas anti-correlated with PC					
L lateral parietal	10299				
L supramarginal gyrus		-51	-32	43	4.79
L intraparietal sulcus		-31	-50	49	3.99
R lateral frontal	6601				
R precentral gyrus		43	-7	48	4.02
R IFG pars opercularis		43	2	10	3.99
R superior frontal gyrus		22	-5	51	3.88
L precentral gyrus	4971	-60	3	31	4.51
L middle frontal gyrus	2834	-35	35	34	5.37
R supramarginal gyrus	2305	55	-30	37	4.44
L posterior middle temporal gyrus	2108	-44	-55	-1	4.07
L precentral sulcus	2058	-22	-7	51	4.14
L cuneus	1415	-12	-89	21	4.32
R posterior inferior temporal gyrus	1096	43	-54	-6	4.02
R middle frontal gyrus	910	50	43	12	3.74
L insula	840	-32	16	11	3.79
R intraparietal sulcus	638	28	-45	48	3.75

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
R lateral occipital cortex	471	44	-85	9	4.15
R supplementary motor area	378	1	-5	55	3.56
Areas correlated with PC					
Parieto-temporal and subcortical	77919				
Bilateral posterior cingulate		0	-41	19	6.78
R posterior cingulate		17	-46	29	5.86
L parahippocampal gyrus		-23	-25	-10	5.61
R thalamus		17	-17	-1	5.31
R angular gyrus		45	-62	34	5.25
R parahippocampal gyrus		25	-27	-22	5.18
R midbrain		3	-25	-21	4.86
R insula		29	13	-11	4.68
R thalamus		2	-10	11	4.28
Bilateral frontal	36281				
R medial superior frontal gyrus		3	47	-2	5.04
L superior frontal gyrus		-18	37	39	4.67
R medial superior frontal gyrus		2	48	35	4.58
R superior frontal gyrus		18	30	45	4.54
L middle frontal gyrus		-31	9	43	4.41
R superior frontal gyrus		20	56	14	4.07
L angular gyrus	10188	-42	-60	40	5.78

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
R middle temporal gyrus	6219				
R middle temporal gyrus		56	-9	-13	4.96
R anterior middle temporal gyrus		41	1	-24	3.94
R middle temporal gyrus		61	-32	-7	3.68
L middle temporal gyrus	5575	-62	-18	-6	5.43
L medial cerebellum	2331	-11	-48	-29	4.52
L IFG, pars orbitalis	1184	-29	23	-17	4.32
R subgenual cingulate	519	3	17	-10	3.57

Table S3. Experiment 2 fMRI results (coordinates of maximum intensity)

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
Words > Nonwords					
L occipito-temporal	14074				
L lateral occipital		-39	-77	-10	4.36
L inferior temporal		-43	-52	-23	4.15
L middle temporal gyrus		-46	-29	-10	3.34
R occipito-temporal and cerebellar	9462				
R lateral occipital		34	-84	-3	3.80
R fusiform gyrus		44	-59	-19	3.78
Bilateral supplementary motor area	5268	-10	7	45	4.56
Bilateral cerebellum and brainstem	4501				
L brainstem		-4	-36	-37	4.94
L medial cerebellum		-8	-64	-19	4.12
R medial cerebellum		11	-66	-36	4.12
R caudate	4262	5	15	5	4.48
L caudate	1961	-6	8	7	4.41
L anterior insula	1732	-32	15	13	3.50
Nonwords > Words					
Bilateral posterior cortices	64417				
R posterior cingulate gyrus		7	-48	29	5.05

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
L angular gyrus		-48	-63	23	4.96
R mid-cingulate gyrus		6	-6	37	4.47
L parahippocampal gyrus		-25	-37	-5	4.39
R precuneus		-6	-50	51	4.26
L precuneus		-16	-73	36	4.18
R cuneus		19	-80	20	4.06
R posterior insula		34	-29	15	3.86
L lingual gyrus		-24	-67	-3	3.35
R temporal lobe	17614				
R hippocampus		34	-25	-12	4.81
R middle temporal gyrus		58	-10	-14	4.76
R amygdala		30	6	-13	4.05
Bilateral medial frontal	14673				
L anterior cingulate gyrus		-8	40	2	4.53
R frontal pole		4	64	7	4.14
L medial superior frontal gyrus		-11	57	27	2.88
R angular gyrus	5100	38	-57	22	3.71
L anterior superior temporal gyrus	3491	-45	4	-16	4.42
L superior temporal gyrus	2178	-67	-25	6	3.83
L hippocampal	2079				
L parahippocampal gyrus		-16	-18	-23	4.42

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
L hippocampus		-24	-12	-13	4.17
L mid-cingulate gyrus	1113	-13	-20	37	4.21
L middle frontal	805				
L middle frontal gyrus		-28	25	35	4.11
L middle frontal gyrus		-27	20	42	3.18
High > Low Frequency Words					
Bilateral posterior cortices	28994				
L cuneus		-16	-91	18	4.67
L lingual gyrus		-10	-68	-3	4.59
R cuneus		18	-73	17	3.99
L intraparietal sulcus		-33	-51	50	3.97
R medial cerebellum		14	-64	-17	3.95
L supramarginal gyrus		-59	-45	28	3.95
L postcentral gyrus		-47	-26	43	3.50
R fronto-parietal	10127				
R precentral gyrus		48	-14	52	3.96
R intraparietal sulcus		29	-49	52	3.87
R fronto-temporo-insular	7181				
R superior temporal gyrus		54	-38	17	4.04
R insula		44	3	8	3.50
R precentral gyrus		56	5	37	3.15

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
L dorso-lateral prefrontal	5245				
L middle frontal gyrus		-33	32	35	4.21
L superior frontal gyrus		-19	57	27	3.09
R mid-cingulate gyrus	5165	5	-11	33	4.55
L middle temporal gyrus	4178	-65	-27	1	4.28
R anterior temporal	3488				
R middle temporal gyrus		56	-17	-10	4.03
R hippocampus		29	-9	-12	3.90
R frontal	3104				
R middle frontal gyrus		22	22	29	4.53
R middle frontal gyrus		33	45	26	3.56
L medial temporal pole	1859	-38	10	-12	4.27
R lateral occipital	1487	38	-64	3	3.36
L parahippocampal gyrus	818	-15	-15	-18	4.09
R inferior temporal gyrus	810	55	-31	-29	4.17
Low > High Frequency Words					
None					
High > Low Imageability Words					
L frontal	6364				
L middle frontal gyrus		-21	42	13	4.10
L middle frontal gyrus		-36	12	36	3.85

Location of extreme point	Cluster size (μl)	X	Y	Z	z-score
R middle frontal gyrus	6079	25	29	27	4.87
R parietal	3300				
R supramarginal gyrus		59	-45	33	4.38
R intraparietal sulcus		32	-44	48	3.50
L supramarginal gyrus	1791	-57	-51	38	3.56
R insula	1374	44	3	8	4.28
R superior temporal gyrus	947	66	-9	-3	3.60
Low > High Imageability Words					
None					