

NAME OF AREA	POSITION	FUNCTION	NOTE
Motor area 4 (primary motor area)	corresponds to the precentral gyrus (area 4), anterior part of the paracentral lobule	Controls motor functions	<ul style="list-style-type: none"> - A body represented in upside down. - Head represented in lower part of precentral gyrus, leg and foot, represented on medial surface of hemisphere in paracentral lobule, size depends on skill -Lesion of the area 4 results in contra-lateral hemiplegia (UMNL).
Premotor area 6	<ul style="list-style-type: none"> -Located anterior to the precentral gyrus -It is the origin of extrapyramidal fibers 	Controls more complex movements Involved in the planning of movements and storage of the learned movements to bring them later on	
Fontal eye field (Brodmann area 8)	It lies anterior to the premotor cortex in the superior frontal gyrus	It controls movements of the eyes when eyes follow a moving target.	

<p>Motor speech (Broca's) area (areas 44, 45)</p>	<p>is located in inferior frontal gyrus between the anterior and ascending rami (triangular area) of the lateral sulcus of the dominant hemisphere (95%).</p>	<p>It brings about the formation of words by its connections with the adjacent primary motor areas; the muscles of the speech.</p>	<p>Lesion in this area produces motor aphasia (loss of speech)</p>
<p>Writing area (Exner's area)</p>	<p>It lies in the middle frontal gyrus.</p>	<p>The person able to express himself in written words</p>	<p>Lesion leading to Agraphia (loss of ability to write)</p>
<p>Prefrontal area (areas 9,10,11,& 12)</p>	<p>It lies in the most anterior part of the frontal lobe</p>	<p>It is responsible for:</p> <ul style="list-style-type: none"> A- Planning, thinking, remember and problem solving B- Motivating, emotions, good & sinful behavior, mood, psychological activities. C- Telling of lies and truth 	

<p>Somatosensory (Primary sensory) cortex (areas 1,2,3)</p>	<p>corresponds to postcentral gyrus, posterior part of paracentral lobule</p>	<p>It receives sensations from opposite side of body</p>	<p>- The body represented upside down - Lesion in this area leads to loss of sensation in opposite side of the body.</p>
<p>Secondary (Association) sensory area (area 5, 7)</p>	<p>It occupies the superior parietal gyrus</p>	<p>stereognosis (ability to identify the familiar objective manually in the absence of visual and auditory information) shape, roughness, size of objects</p>	<p>Lesion results in asteriognosis</p>
<p>Sensory speech area (Wernicke's-area 39, 40) N.B: (last lecture) <ul style="list-style-type: none"> • Supramarginal gyrus (area 40) is gyrus around the posterior end of the lateral sulcus into the parietal region • Angular gyrus (area 39): is gyrus around the posterior end of the superior temporal sulcus into the parietal region </p>	<p>- It lies in inferior parietal gyrus extending to superior temporal gyrus, angular and marginal gyri</p>	<p>- It is connected to motor speech area, auditory area and visual area. - It is responsible for understanding spoken and written words.</p>	<p>Lesion in this area produces sensory aphasia (can not understanding spoken and written words.).</p>

<p>Primary auditory area (areas 41, 42)</p>	<p>It is present in the floor of the posterior ramus of the lateral sulcus and the middle part of the superior temporal gyrus (Heschl's gyrus).</p>	<p>It receives auditory radiation from the medial geniculate body (MGB).</p>	<p>Lesion of this area leads to diminished hearing.</p>
<p>Auditory association area (Secondary) (area 22)</p>	<p>behind the primary auditory are</p>	<p>It is responsible for recognition and interpretation of the sounds.</p>	
<p>Gustatory area (area 43)</p>	<p>lies in the insula - Insula lies at the bottom of the deep lateral sulcus and cannot be seen from the surface unless the lips of the sulcus are separated.</p>	<p>It is concerned with the recognition of the taste sensation</p>	

Functional areas of the medial surface

NAME OF AREA	POSITION	FUNCTION	NOTE
<p>Paracentral lobule</p>		<p>It controls the micturition and defecation.</p>	<ul style="list-style-type: none"> - It is continues with the motor and sensory areas in the lateral surface. - It gives motor fibres and receives sensation from the leg, foot and perineum of the opposite side.
<p>primary Visual area (area 17)</p>	<p>It lies on the depth of calcarine sulcus</p>		<p>It receives visual sensation from the lateral geniculate body (LGB) via the optic radiation.</p> <ul style="list-style-type: none"> - Damage of the primary visual area causes blindness.
<p>secondary Visual (association) area (area 18, 19)</p>	<p>- It lies in the occipital lobe surrounding the primary visual area.</p>		<p>Damage of this area causes visual agnosia (people can not identify the objects).</p>