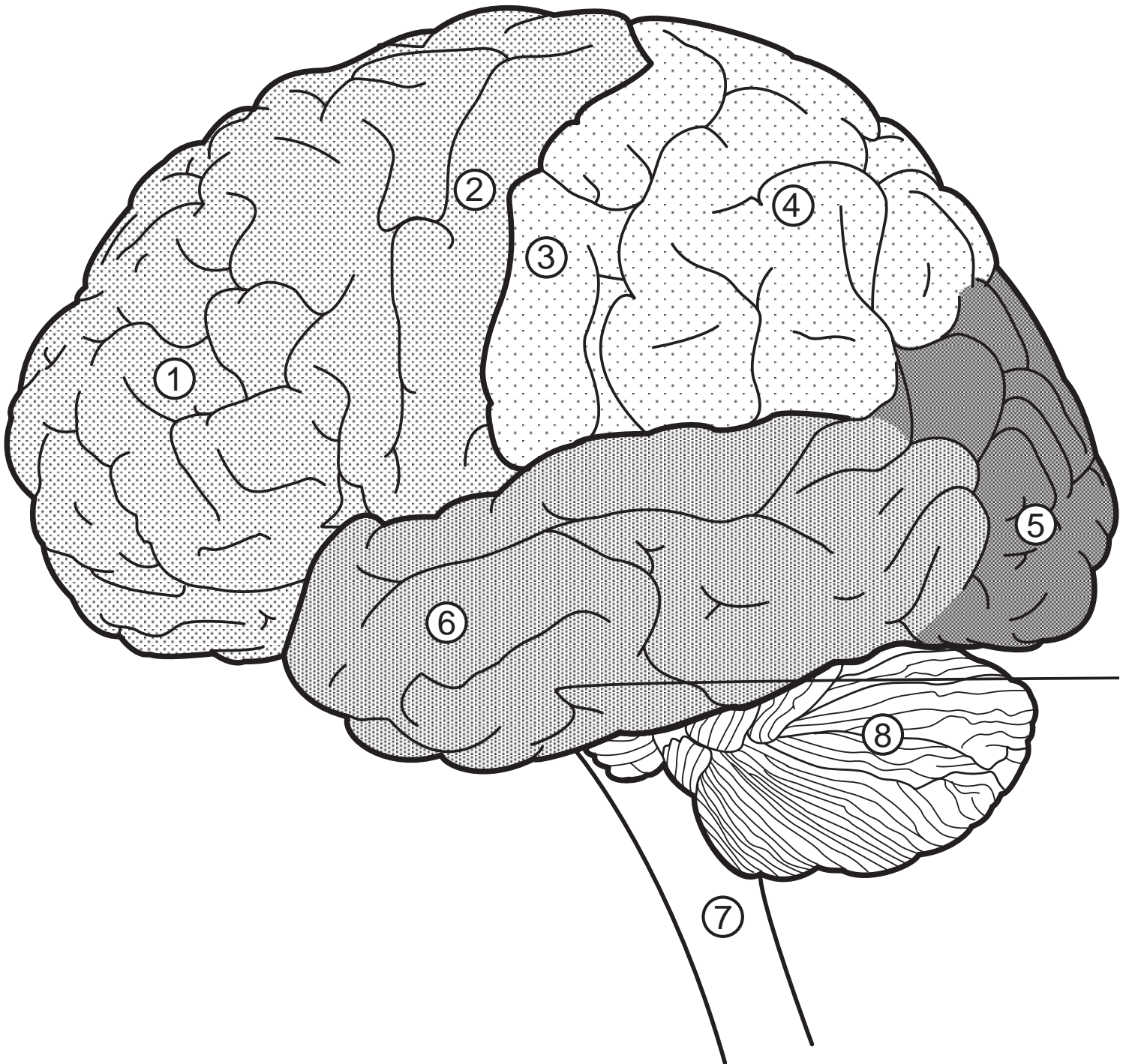


ACTIVITY 1A EXTERNAL ANATOMY OF THE BRAIN TEACHER HANDOUT



STUDENT HANDOUT

BRAIN ANATOMY—ACTIVITY 1A

THE BRAIN AND ITS PARTS

The brain is a very complex organ made up of millions of cells. This three-pound organ fills most of the top half of your head and is roughly the size of a coconut fruit. The brain is divided into three main parts. They are referred to as the cerebrum, cerebellum, and brain stem. Even though they are one organ they do different things. The cerebrum makes the decisions that require conscious thought, sensation, and voluntary movement, while the cerebellum controls balance and coordination. The brain stem involves involuntary actions such as breathing and heartbeat. We will look at these three parts of the brain more closely.

THE CEREBRUM

Scientists call the upper brain the **cerebrum** (*including parts numbered 1–6*). It makes up two-thirds of our brain. The cerebrum has a crumpled surface which provides more surface area, so that more cells can fit into a small space. If we were to unfold the cerebrum the area would be about half a square yard (*half a square meter*). The cerebrum is divided into two halves, or **hemispheres**, by a deep split or fissure. Even though there is a split, the two hemispheres communicate with each other through a tract of nerve fibers. Another interesting fact about the hemispheres is that they control the opposite sides of the body. The left hemisphere controls the right side of the body and the right hemisphere controls the left side of the body. The outside of the cerebrum is covered by the **cerebral cortex**, analogous to the bark covering the tree. This is known as our thinking cap because we use it to interpret information, respond to problems, access our memory, experience sensations, and control conscious movements. The cortex is less than one-fourth of an inch thick.

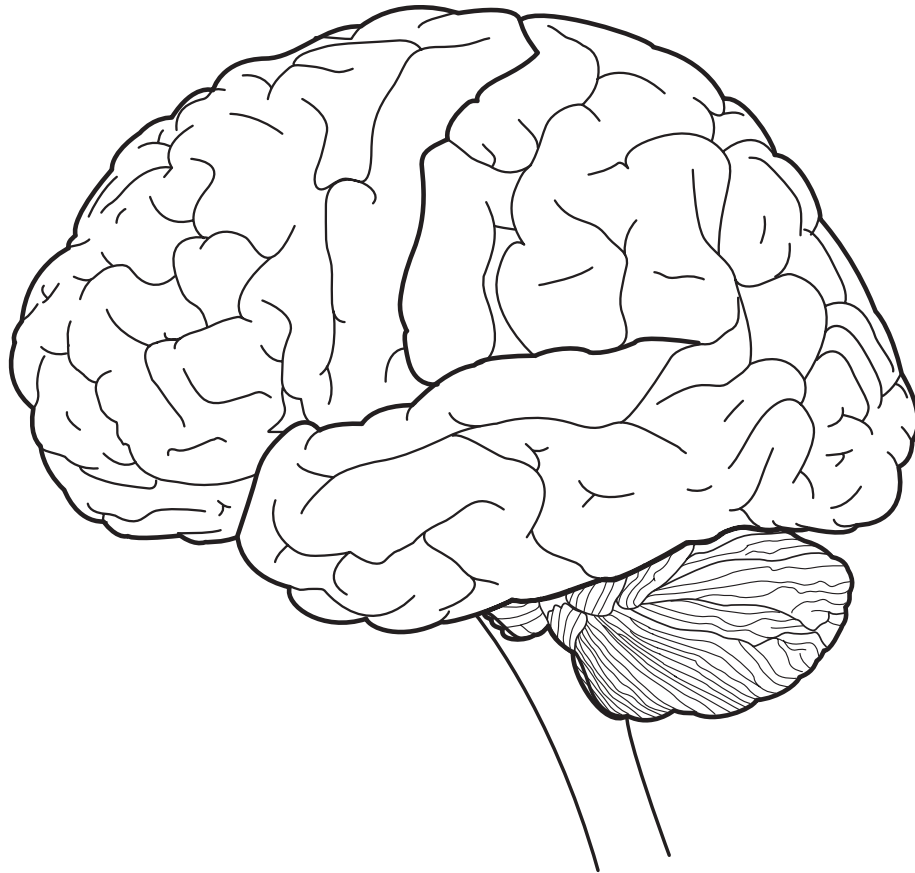
We are now going to look more closely at the cortex. The cortex of each half of your brain is arranged into four areas or lobes. These lobes each have a specific function to help our body and brain communicate. The **frontal lobes** (*#1 in diagram*) think and create. At the back of the frontal lobe lies the **motor area**, (*#2 in diagram*) which is responsible for controlling the body's movement. The **parietal lobes** (*#4 in diagram*) help us find our way and recognize objects and their uses. Located in the front part of the parietal lobes lies most of the **sensory area**, (*#3 in diagram*) which transfers sensory stimuli that the body receives to the brain. (*We will discuss the motor and sensory areas in activity 2C*). Next to our ears are the **temporal lobes** (*#6 in diagram*), which regulate our hearing, speech, and memory. At the back of the head are **occipital lobes** (*#5 in diagram*), where messages from the eyes are received and interpreted.

THE CEREBELLUM AND BRAIN STEM

The brain stem (*# 7 in diagram*) and cerebellum (*# 8 in diagram*) are located below the cerebrum. The **brain stem** neurons connect the rest of the brain to the spinal cord. It controls our heartbeat, blood pressure, breathing, and other automatic functions. Behind the brain stem is the **cerebellum**. It contains nearly as many neurons as the cortex, and functions in coordination and balance.

STUDENT WORKSHEET

"BRAIN ANATOMY" — ACTIVITY 1A



1. This part of the brain is a lobe found at the front of the brain and controls thinking and creating. _____ Color this part of the brain blue.
2. The _____ lobe helps us find our way and recognize objects and their uses, and experiences sensations (such as pain, pressure, touch, and temperature). Color this part of the brain green.
3. This part of the brain is a lobe found at the back of the head. It is here that messages from the eyes are interpreted. _____ Color this part of the brain red.
4. This lobe is found next to our ears. It helps us hear, plan our speech, and remember. _____ Color this yellow.
5. This part of the brain coordinates our physical skills and balance. _____ Color this part of the brain orange.
6. This part of the brain connects the rest of the brain to the spinal cord. _____ Color this part of the brain purple.