

## Teacher Answer Key to Pathways in Homunculus Role Play

### **#1 Stimulus-cold ice water on right foot/Response-right foot moves**

Sensory neuron in right foot-sensory neuron in right leg-right sensory neuron in spinal cord-sensory neuron in left brain-motor neuron in left brain-right motor neuron in spinal cord-motor neuron in right leg-motor neuron in right foot.

### **#2 Stimulus-left hand touches a tack/Response-left index finger shakes**

Sensory neuron in left hand-sensory neuron in left arm-left sensory neuron in spinal cord-sensory neuron in right brain-motor neuron in right brain-left motor neuron in spinal cord-motor neuron in left arm-motor neuron in left hand.

### **#3 Stimulus-right arm is pinched/Response-right arm moves**

Sensory neuron in right arm-right sensory neuron in spinal cord-left sensory neuron in brain-right motor neuron in spinal cord-motor neuron in right arm.

### **#4 Stimulus-motor area of brain/Response-left foot taps 10 times**

Motor neuron in right brain-left motor neuron in spinal cord-motor neuron in left leg-motor neuron in left foot.

### **#5 Stimulus-motor area of brain/Response-left and right hands shake**

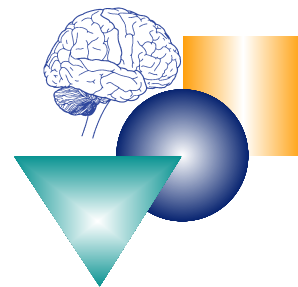
Right and left motor neuron in brain-right and left motor neurons of spinal cord-right and left motor neurons of arms-right and left motor neurons of hands.

### **#6 Stimulus-motor area of brain/Response-right ear lobe is pulled**

Left motor neuron of brain-right motor neuron of spinal cord-motor neuron of right arm-motor neuron of right hand.

### **#7 Stimulus-spider crawling on left foot/Response-left foot moves**

Sensory neuron in left foot-sensory neuron in left leg-left sensory neuron in spinal cord-right sensory neuron in brain-right motor neuron in brain-left motor neuron in spinal cord-motor neuron in left leg-motor neuron in left foot.



# Activity Overview Continued



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**#8 Stimulus-dog licks left arm/Response-left hand pats dog**

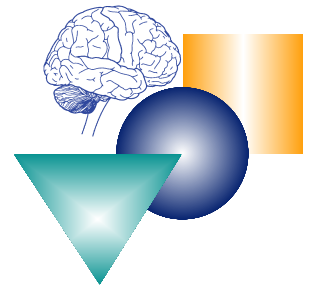
Sensory neuron in left arm-left sensory neuron in spinal cord-sensory neuron in right brain-motor neuron in right brain-left motor neuron of spinal cord-motor neuron in left arm-motor neuron in left hand.

**#9 Stimulus-bumblebee stings left leg/Response-left leg shakes**

Sensory neuron in left leg-left sensory neuron in spinal cord-sensory neuron in right brain-motor neuron in right brain-left motor neuron in spinal cord-motor neuron in left leg.

**#10 Stimulus-motor area of the brain/Response-right and left arms, hands, legs, and feet move**

Left and right motor neuron of brain-right and left motor neurons of spinal cord-right and left motor neurons of legs-right and left motor neurons of hands-right and left motor neurons of legs-right and left motor neurons of feet.



# Activity Overview Continued

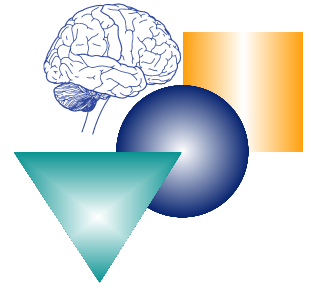


LESSON 1  
ACTIVITY 1F

## The Brain: It's All In Your Mind

# Homunculus or the “Little Man” Role Play

## Teacher Answer Sheet

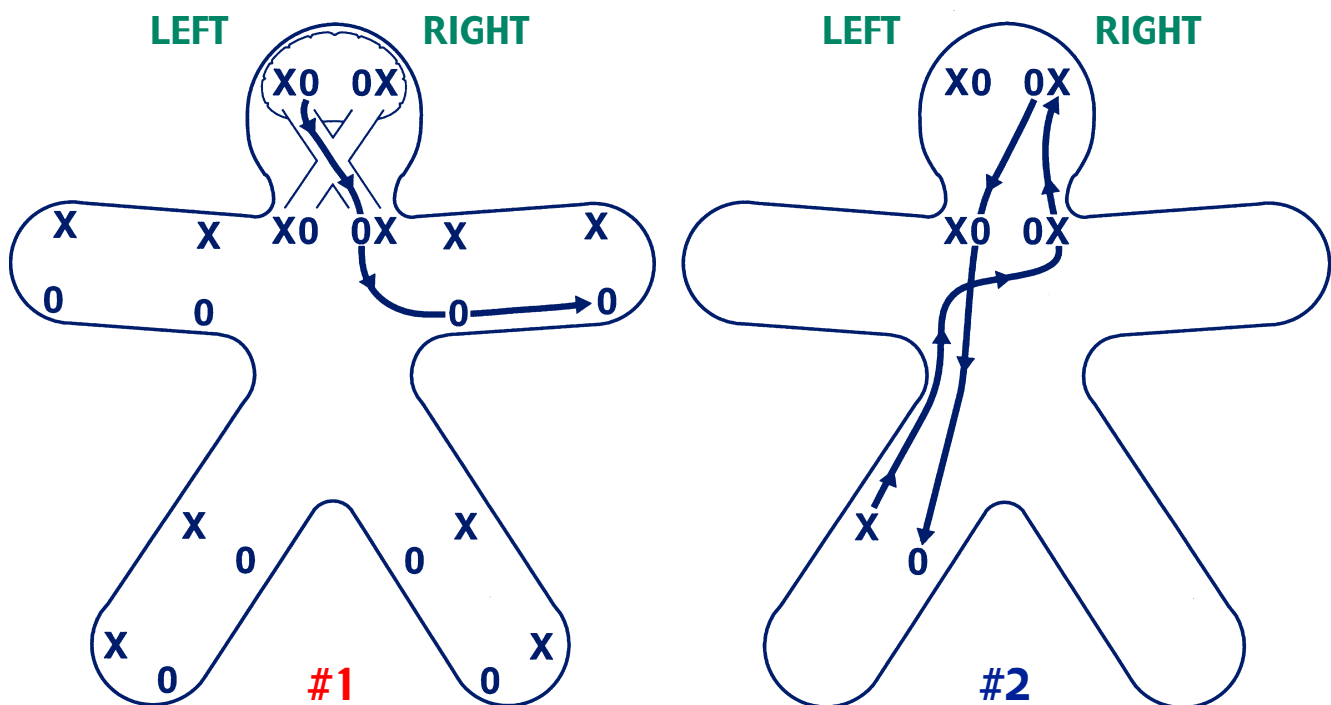


Trace the neuronal pathways involved in the two sample actions that follow. Show arrows to indicate the direction of the pathways. Use a **red** line for **Action Pathway #1**. Use a **blue** line for **Action Pathway #2**.

**Action Pathway #1** — Pick up a pencil with your right hand.

**Action Pathway #2** — A soccer ball hit your left leg. You kicked the ball away from you with your left foot.

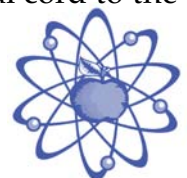
### Dorsal (back) View



### Key-Answers

**#1**– Travels from the left motor neuron in the brain, passing through the spinal cord, to the motor neuron in the right arm to the motor neuron in the right hand.

**#2** – Travels from the sensory neuron in the left leg to left sensory neuron in spinal cord. It then crosses over to the right sensory neuron in the brain and then to the right motor neuron in the brain, from here it goes to the left motor neuron in the spinal cord to the left motor neuron in the leg and finally to the left motor neuron in the foot.



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