terminal endings	
transmissive segment	

❷ Man Versus Machine

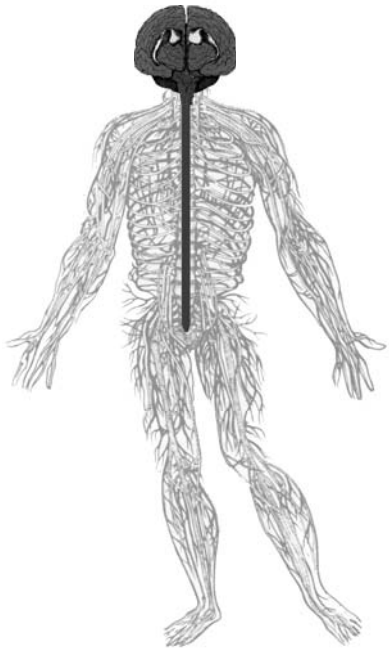
Read the story in the textbook (page 416) about the chess match between world chess champion Garry Kasparov and supercomputer Deep Blue. Although the world of advanced technology has obviously enhanced the speed and efficiency of processing information for many applications, the capacity, speed, and precision of the human brain is equally impressive. It was the human mind that created this technology in the first place.

Divide the class into two groups: (1) pro-technology and (2) anti-technology. Debate the role technology has played and continues to play in our daily lives. Group 1 should consider specific examples that show how technology has improved certain aspects of our lives, while group 2 should refer to instances where technology has perhaps gone too far and overstepped its bounds.

What should remain in the realm of human control, and what might be better left to computers? Did the opposing group change your mind? Include recent introductions of technology in the arena of sport in your discussions.

❸ The Nervous Systems

Label and differentiate between the CNS and the PNS in the space below.



Copyright © 2010

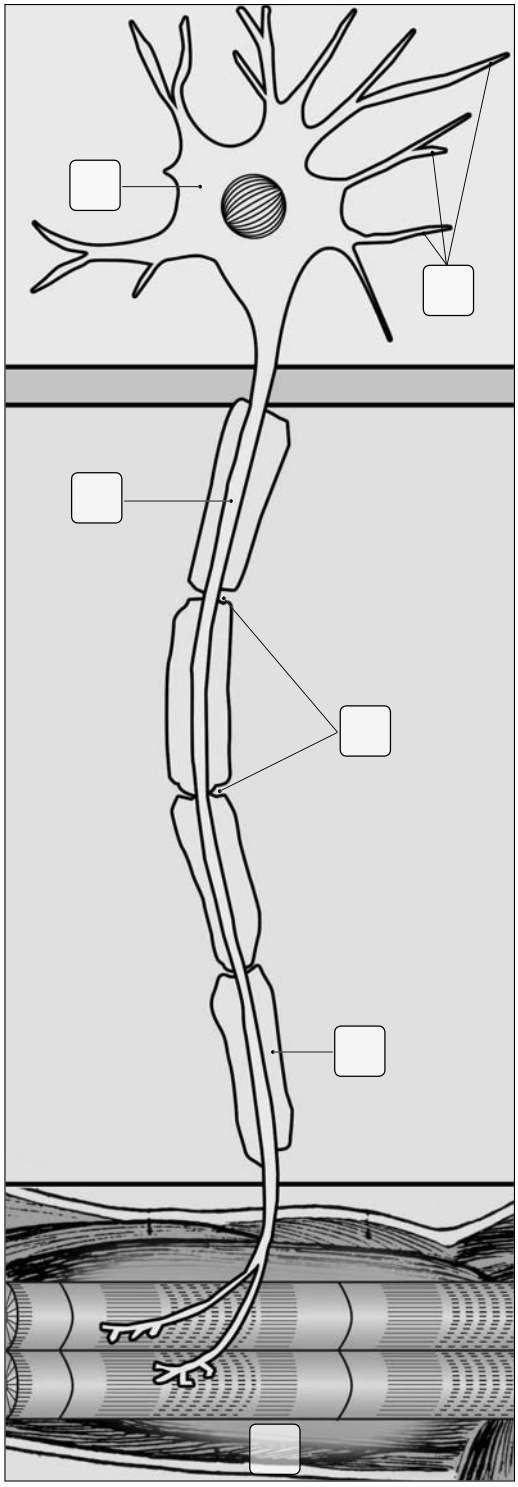
❹ Neurons: The Functional Units of the Nervous System

Label the diagram using the **word bank** provided. Then outline and describe the three functional regions of a neuron, including a list of the structures that are included in each segment.

Word Bank

1 axon **3** dendrites **5** myelin sheath

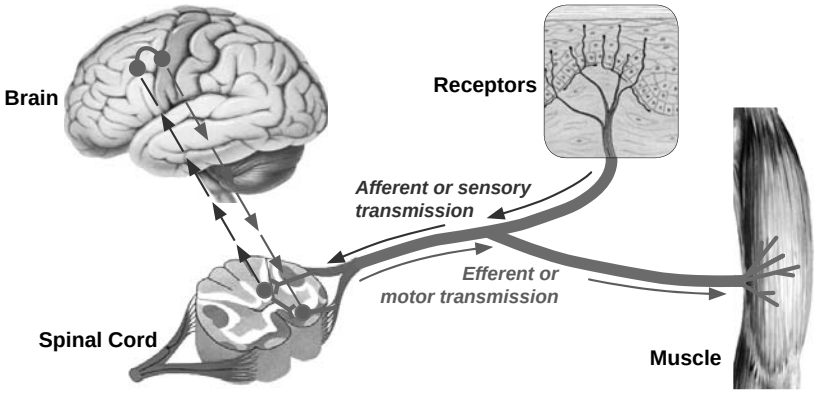
2 cell body **4** motor end plate **6** nodes of Ranvier



Copyright © 2010

❺ Transmission of Information

A vast network of neurons allows information to travel throughout the body to control the actions of the entire body. Using the diagram below as a guide, explain how afferent and efferent neurons work to transmit information from sensation to movement execution.



❻ Go Hard or Go Home: The All-or-none Law

Explain how an action potential can be compared to firing a gun according to the all-or-none law. What effect would a stronger stimulus have on the resulting action potential? Use the terms *synaptic transmission*, *action potential*, and *threshold* in your answer. Can you think of another analogy that would help explain the mechanisms involved in this process?

Copyright © 2010