<table>
<thead>
<tr>
<th>Topic</th>
<th>Learning Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Basic structures and functions of the nervous system.</td>
</tr>
<tr>
<td></td>
<td>2. Nervous communication using electrical and chemical signals.</td>
</tr>
<tr>
<td></td>
<td>3. Essential interneurons and their role in the nervous system.</td>
</tr>
<tr>
<td></td>
<td>4. Life experiences change the nervous system.</td>
</tr>
<tr>
<td></td>
<td>5. Intelligence arises as the brain reasons, plans, and communicates.</td>
</tr>
<tr>
<td></td>
<td>6. The brain makes it possible to understand for therapies.</td>
</tr>
<tr>
<td></td>
<td>7. Fundamental discoveries promote healthy living and treatment of disease.</td>
</tr>
<tr>
<td></td>
<td>8. Understanding for therapies.</td>
</tr>
</tbody>
</table>

### Nuclear System Controls & Responds To Body Functions & Directs Behavior

2. Neurons communicate using electrical and chemical signals.
3. Genetically determined circuits are the foundation of the nervous system.
4. Life experiences change the nervous system.
5. Intelligence arises as the brain reasons, plans, and communicates.
6. The brain makes it possible to understand for therapies.
7. Fundamental discoveries promote healthy living and treatment of disease.
8. Understanding for therapies.
There are a hundred billion neurons in the human brain, all of which are in use.

Peripheral neurons have greater ability to regrow after injury than neurons in the brain and spinal cord.

The brain is organized to recognize sensations, initiate behaviors, and store and access memories that can last a lifetime.

Sensory circuits (sight, touch, hearing, smell, taste) bring information to the nervous system, whereas motor circuits send sensory stimuli are converted to electrical signals.

The simplest circuit is a reflex, in which sensory stimulus directly triggers an immediate motor response.

Finding cures for disorders of the nervous system is a social imperative.

Each neuron communicates with many other neurons to form circuits and share information.

The nervous system influences and is influenced by all other body systems (e.g., cardiovascular, endocrine, gastrointestinal, and immune systems).

This complex organ can malfunction in many ways, leading to disorders that have an enormous social and economic impact.

Consciousness depends on normal activity of the brain.

Research can ultimately inform us about mind, intelligence, imagination, and consciousness.

Neuroscience research has formed the basis for significant progress in treating a large number of disorders.

The brain learns from experiences and makes predictions about best actions in response to present and future challenges.

Action potentials are electrical signals carried along neurons.

Proper nervous system function involves coordinated action of neurons in many brain regions.

Neuronal death is a natural part of development and aging.

Some neurons continue to be generated throughout life and their production is regulated by hormones and experience.

Continuous challenging the brain with physical and mental activity helps maintain its structure and function - "use it or lose it."

Experiments on animals play a central role in providing insights about the human brain and in helping to make healthy lifestyle choices, prevent disease, and find cures for disorders.

Communication between neurons is strengthened or weakened by an individual’s activities, such as exercise, stress, and drug use.

Neuropeptide signaling between neurons is the result of molecular interactions that occur at synapses.

Communication can create and solve many of the most pressing problems humankind faces.

Languages are acquired early in development and facilitate information exchange and creative thought.

The brain learns through feedback on perceptions, thoughts, and behaviors as a result of interactions with the internal and external environment.

The brain is the body's most complex organ.

Neurons communicate using electrical and chemical signals.

The nervous system controls and responds to body functions and directs behavior.

Genetically determined circuits are foundation of the nervous system.

Life experiences change the nervous system.

Research leads to essential understanding for therapies.

The brain is the foundation of the mind.

Differences in genes and environments make the brain of each animal unique.

Most neurons are generated early in development and survive for life.

Changes in the amount of activity at a synapse can enhance or reduce its function.

Communication between neurons is strengthened or weakened by an individual's activities, such as exercise, stress, and drug use.

Simple and complex interactions among neurons take place on time scales ranging from milliseconds to months.

Differences in genes and environments make the brain of each animal unique.

3. Genetically determined circuits are foundation of the nervous system.

4. Life experiences change the nervous system.

5. Intelligence arises as brain reasons, plans, and solves problems.

6. The brain makes it possible to communicate knowledge through language.

7. The human brain endows us with a natural curiosity to understand how the world works.

The nervous system can be studied at many levels, from complex behaviors such as speech or learning, to the interactions among individual molecules.

Communication can create and solve many of the most pressing problems humankind faces.

The brain makes sense of the world by using all available information, including senses, emotions, instincts, and remembered experiences.

The brain learns from experiences and makes predictions about best actions in response to present and future challenges.

The brain makes it possible to communicate knowledge through language.

The brain is the body's most complex organ.

Neurons communicate using electrical and chemical signals.

The nervous system controls and responds to body functions and directs behavior.

Genetically determined circuits are foundation of the nervous system.

Life experiences change the nervous system.

Research leads to essential understanding for therapies.

The brain is the foundation of the mind.

Differences in genes and environments make the brain of each animal unique.

Most neurons are generated early in development and survive for life.

Changes in the amount of activity at a synapse can enhance or reduce its function.

Communication between neurons is strengthened or weakened by an individual's activities, such as exercise, stress, and drug use.

Simple and complex interactions among neurons take place on time scales ranging from milliseconds to months.

Differences in genes and environments make the brain of each animal unique.

3. Genetically determined circuits are foundation of the nervous system.

4. Life experiences change the nervous system.

5. Intelligence arises as brain reasons, plans, and solves problems.

6. The brain makes it possible to communicate knowledge through language.

7. The human brain endows us with a natural curiosity to understand how the world works.