

Nervous System Model or Report Rubric

Task

Students present a labelled model or report on the nervous system.

Curriculum alignment

Students are assessed on their understanding of the following outcomes:

- Neuron structure and function, including action potential formation and synaptic transmission ([Outcome](#))
- Principal structures of the central and peripheral nervous systems and their roles in voluntary and involuntary control ([Outcome](#))
- Organization of neurons into nerves and the composition and function of reflex arcs ([Outcome](#))
- How the nervous system controls physiological processes to maintain equilibrium ([Topic](#))

Rubric

Criterion	Beginning	Developing	Proficient	Exemplary
Neuron Structure and Function	Labels few neuron parts; minimal explanation of action potential or synaptic transmission.	Labels most neuron parts; describes action potential or synaptic transmission with gaps or inaccuracies.	Accurately labels neuron structure including myelin sheath; explains action potential formation and synaptic transmission with correct chemical transmitters.	Accurately labels all structures; explains action potential, all-or-none response, synaptic transmission, and role of norepinephrine and acetylcholine with precision.
Central and Peripheral Nervous System Organization	Identifies fewer than three major structures; functions unclear or incorrect.	Identifies most major structures (cerebral hemispheres, cerebellum, spinal cord, sympathetic/parasympathetic systems); explains some functions.	Identifies all major structures; explains their roles in voluntary and involuntary control; distinguishes central from peripheral systems.	Identifies all major structures with anatomical accuracy; explains how each contributes to homeostasis and physiological regulation; integrates somatic and autonomic function.
Reflex Arc Representation	Reflex arc missing or incomplete; minimal labelling of components.	Reflex arc present; labels most components (sensory neuron, spinal cord, motor neuron); pathway unclear.	Reflex arc clearly shown with all components labelled; explains sensory input, integration, and motor output; links to all-or-none response.	Reflex arc detailed and accurate; explains how it bypasses brain; connects to specific example (patellar or pupillary reflex); discusses intensity of response.

Clarity and Accuracy of Presentation	Labels illegible or missing; multiple factual errors; disorganized layout.	Most labels present and readable; few significant errors; layout somewhat organized.	All labels clear and accurate; information organized logically; appropriate use of colour or spatial arrangement.	Presentation is professional and visually effective; all labels accurate and precise; layout enhances understanding; demonstrates mastery of terminology.
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Scoring

Assign each criterion a level: Beginning (1), Developing (2), Proficient (3), or Exemplary (4). Add the four scores to obtain a total out of 16.

Identify the principal structures of the central and peripheral nervous systems and explain their functions in regulating the voluntary and involuntary systems of the human organism. A score of 12 to 16 typically indicates proficiency; 13 to 16 indicates strong proficiency; 14 to 16 indicates exemplary work.

Notes for the teacher

- **Consistency on labelling:** Require labels for all structures named in the outcomes. Check that labels are legible and positioned near or inside the structure they identify. Accept both written labels and a numbered key.
- **Accuracy of function descriptions:** Distinguish between structural identification (which is observable) and functional explanation (which requires reasoning). A student may label structures correctly but misstate their role; score the criterion based on both elements.
- **Reflex arc specificity:** Require students to identify the pathway (sensory neuron !' spinal cord !' motor neuron) and to name or describe a real reflex. Generic or incomplete pathways score lower; linking the arc to an example (e.g., "tapping the patellar tendon causes the quadriceps to contract without conscious thought") demonstrates understanding.
- **Presentation format:** Accept both physical models (with labels) and written reports (with diagrams). Evaluate clarity and organization using the same rubric; a model's spatial layout and a report's written organization both contribute to the Clarity criterion.