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| **What will we be learning?****Year 13 Nerves and Muscle** | **Why this? Why now?**Previous Learning Future Learning Enquiry ProcessesAnalyse Patterns, Draw conclusions, Present data, Justify opinions, Collect data, Present data, Plan variables | **Key Words:****A band****Acetylcholine****Acetylcholinesterase****Actin****Actin-myosin crossbridge****Action potential****Autonomic nervous system** **Axon****Central nervous system****Cholinergic synapse****Creatine phosphate****Dendrite****Depolarisation****Effector****Fast twitch fibre****H zone****Hyperpolarisation****Hyperpolarisation****I band****Impulse****Ion channel****Lactate****M line****Medulla oblongata:** **Membrane potential** **Motor neurone****Muscle fibre****Myelin****Myofibril****Myosin****Neuromuscular junction****Neurone****Neurotransmitter****Node of Ranvier****Noradrenaline****Parasympathetic nervous system****Peripheral nervous system****Postsynaptic membrane****Presynaptic membrane****Reflex action****Reflex arc****Refractory period****Relay neurone** **Repolarisation****Resting potential****Saltatory conduction****Sarcolemma****Sarcomere****Sarcoplasm****Sarcoplasmic reticulum****Schwann cell** **Sensory neurone** **Skeletal muscle****Slow twitch fibre****Sodium-potassium pump****Spatial summation****Sympathetic nervous system****Synapse****Synaptic cleft****Synaptic knob** **Synaptic vesicles****Temporal summation****Threshold potential****Tropomyosin****T-tubules****Voltage-gated channel****Z line / Z disc** |
| **What will we learn?*** The roles of mammalian sensory receptors in converting different types of stimuli into nerve impulses
* The structure and functions of sensory, relay and motor neurones
* The generation and transmission of nerve impulses in mammals
* The structure and roles of synapses in neurotransmission
* The organisation of the mammalian nervous system
* The structure of the human brain and the functions of its parts
* The mechanism of reflex actions
* The structure of mammalian muscle and the mechanism of muscular contraction
* The examination of stained sections or photomicrographs of skeletal muscle

**Misconceptions in this topic*** Troponin and tropomyosin are often mistaken for each other in incorrect answers!
* Students will need to be confident in identifying the correct sequence of sodium channel, potassium channel and sodium-potassium pump action during an action potential. Linking these activities to specific points on an action potential graph is often challenging.
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| **What opportunities are there for wider study?**CareersBiochemistry Biotechnology Forensics Laboratory Work Marine Biology Medicine Nursing Occupational Therapy Opthalmics and Orthoptics Paramedical Science Pharmacology Physiotherapy Prosthetics and Orthotics Psychiatry Radiography Speech Therapy Sports Science Teaching Veterinary Work ZoologySTE(A)M https://highcliffe.sharepoint.com/sites/LearnSTEM |
| **How will I be assessed?**End of topic assessment  |