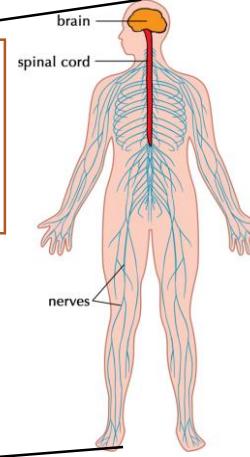


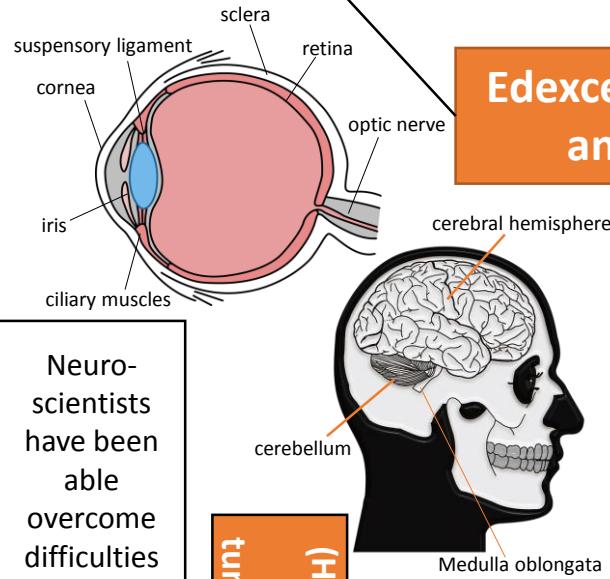
Sense organ containing receptors sensitive to light intensity and colour

The human nervous system

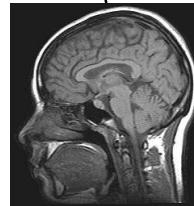


Edexcel GCSE Biology Cells and Control Part 2

The Eye



Neuro-scientists have been able to overcome difficulties of accessing brain tissue in the skull using CT and PET scanning

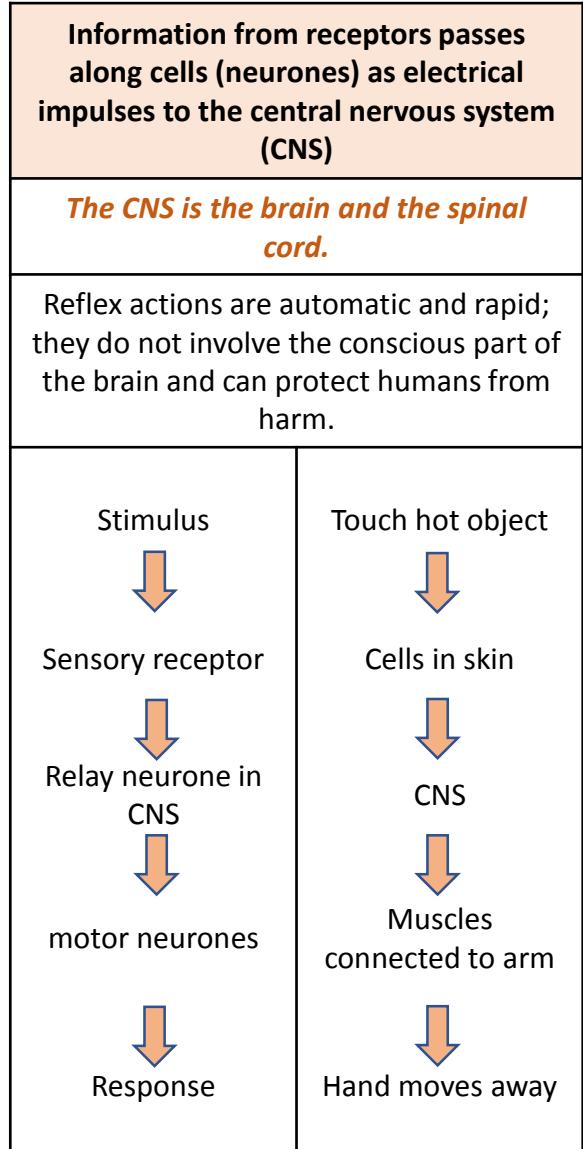


(HT) The complexity and delicacy of the brain makes treating brain tumours/spinal injuries very difficult

The brain controls complex behaviour. It is made of billions of interconnected neurones.

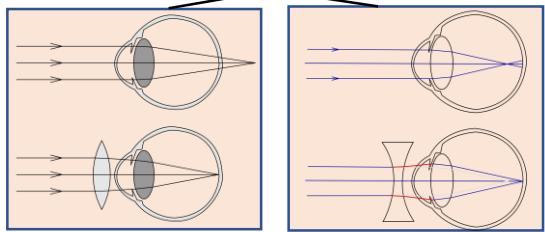
(HT) Adult stem cells cannot be differentiated to form neurones in the spinal cord and brain to repair damage/disease

Structure and functions	
Sensory receptor	Detect stimuli e.g. Pressure cells in skin
Sensory neurone	Long axon carries impulse from receptor to spinal cord.
Synapse	Gap where neurones meet. Chemical message using neurotransmitter.
Relay neurone in CNS	Allows impulses to travel between sensory and motor neurones in the spinal cord.
Motor neurone	Long axon carries impulse from receptor to effector.
Effector	Muscle or gland that carries out response.



Structures of the eye	
Retina	Light sensitive cell layer made of rod (light intensity) and cone (red, green, blue colour perception) cells.
Optic nerve	Carries impulse to brain.
Cornea	Transparent layer that covers the pupil and iris.
Iris	Controls size of pupil and the amount of light let in the eyes
Lens	Changes thickness to refract and focus light onto the retina.

Hyperopia (long sightedness)	Myopia (short sightedness)
Lens can not be made thick enough. Treated using a convex lens so the light is focused on the retina.	Lens too thick. Treated using a concave lens so light is focused on the retina.

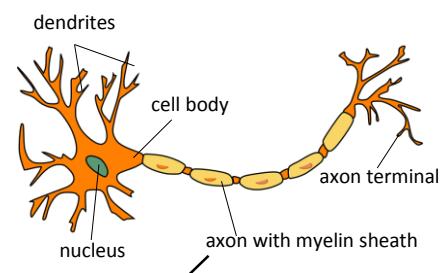


Colour blindness is when cones in the retina do not work properly and some colours cannot be detected.

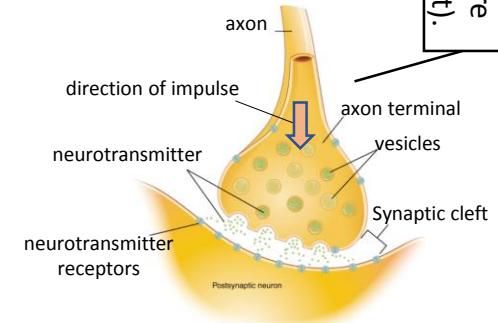
Cataracts are caused by protein build up in the lens blocking light entering the eye. They can be removed with surgery and an artificial lens inserted.

The brain has different regions that carry out different functions.	
Cerebral hemispheres	Largest part of the human brain. Higher thinking skills e.g. speech, decision making.
Cerebellum	Balance and voluntary muscle function e.g. walking, lifting.
Medulla oblongata	Involuntary (automatic) body functions e.g. breathing, heart rate.

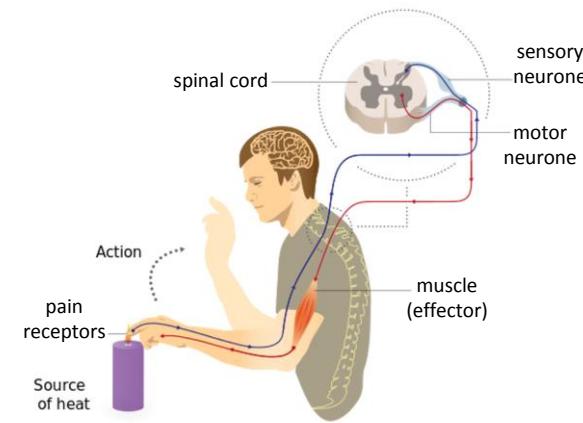
Neurone structure	
Axon	Carries electrical impulse to axon terminals.
Dendron	Carries electrical impulse from receptor cells in sensory neurones.
Myelin sheath	Insulates the electrical impulse in the neurone.



Typical motor neurone

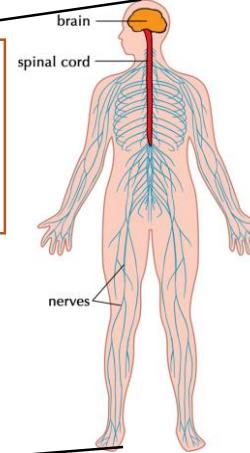


Synapse (gap where two neurones meet).



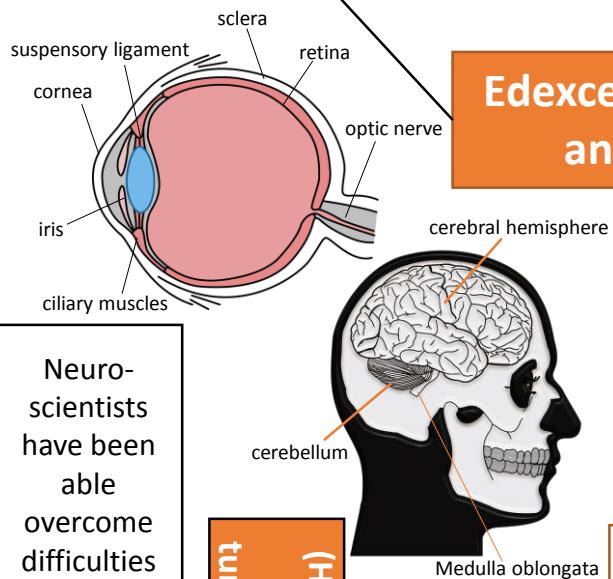
Sense organ containing receptors sensitive to light intensity and colour

The human nervous system



Edexcel GCSE Biology Cells and Control Part 2

The Eye



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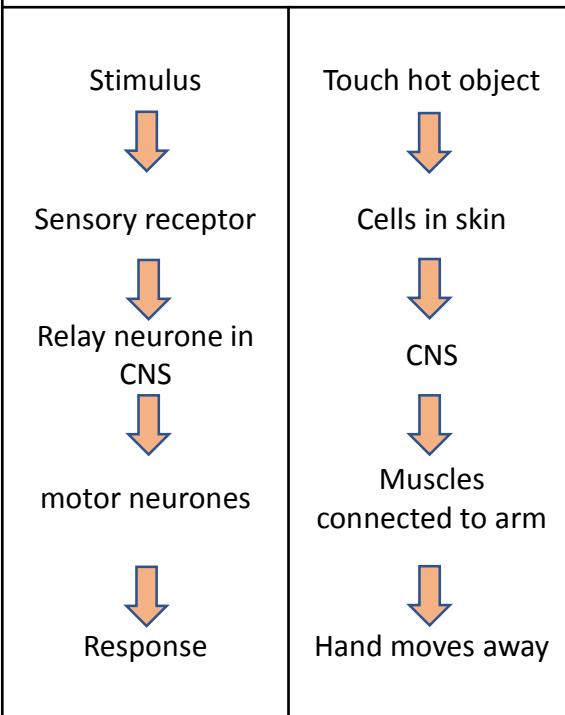
The Brain

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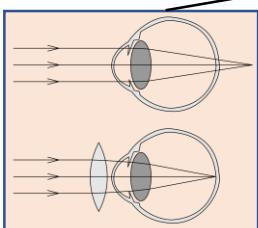
The CNS is the brain and the spinal cord.

Reflex actions are automatic and rapid; they do not involve the conscious part of the brain and can protect humans from harm.



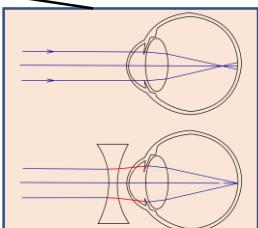
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Cerebral hemispheres

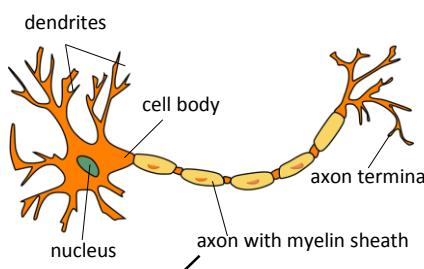
Largest part of the human brain. Higher thinking skills e.g. speech, decision making.

Cerebellum

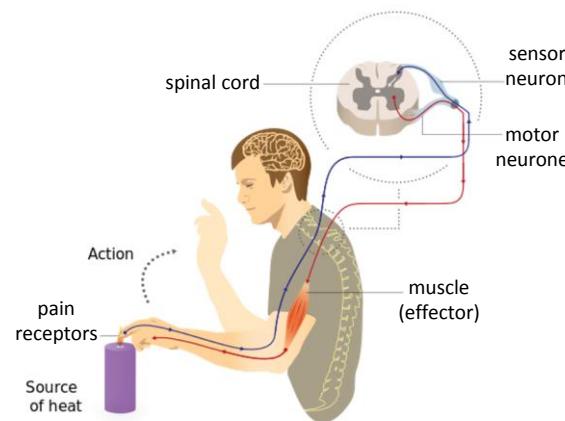
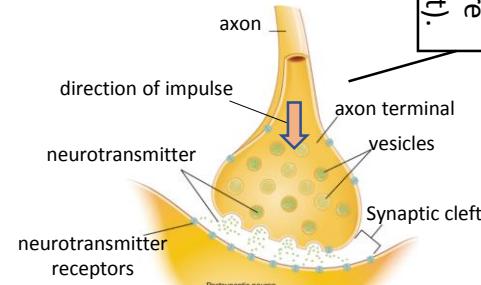
Balance and voluntary muscle function e.g. walking, lifting.

Medulla oblongata

Involuntary (automatic) body functions e.g. breathing, heart rate.

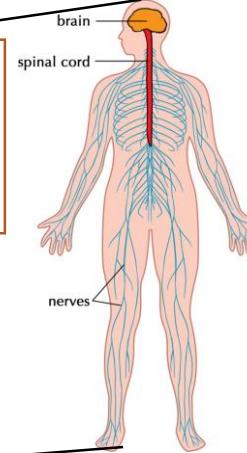


Typical motor neurone



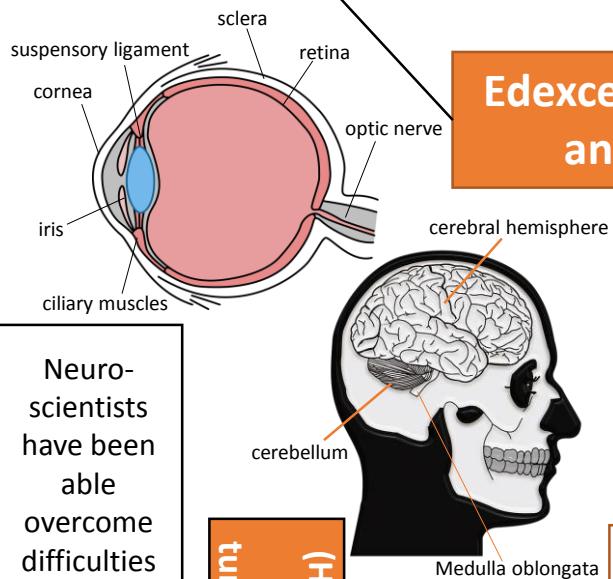
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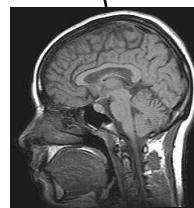
Edexcel GCSE Biology Cells and Control Part 2

The Eye



	Light sensitive cell layer made of rod (light intensity) and cone (red, green, blue colour perception) cells.
	Carries impulse to brain.
	Transparent layer that covers the pupil and iris.
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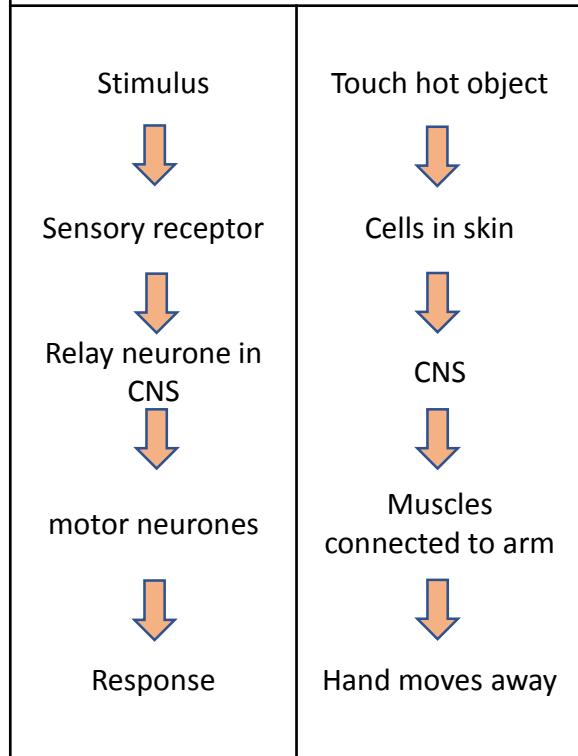
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The Brain

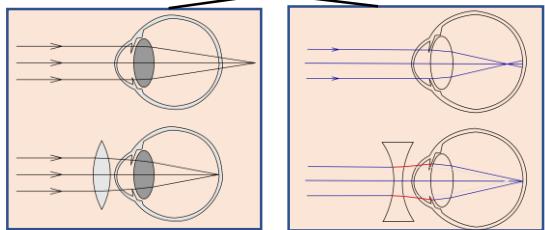
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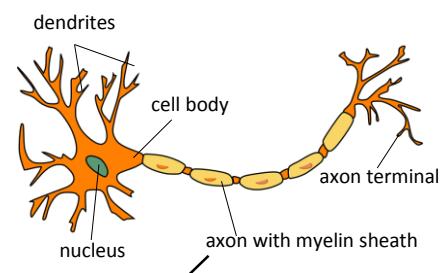
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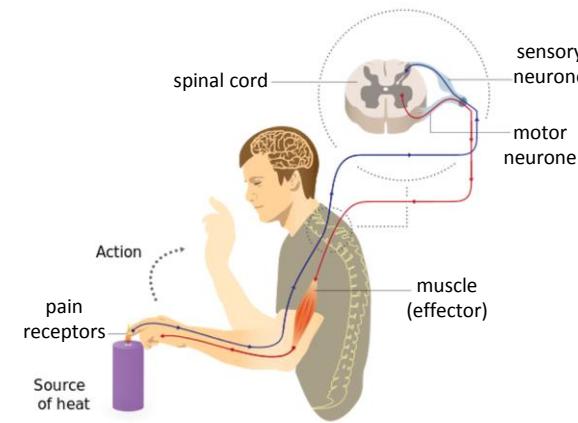
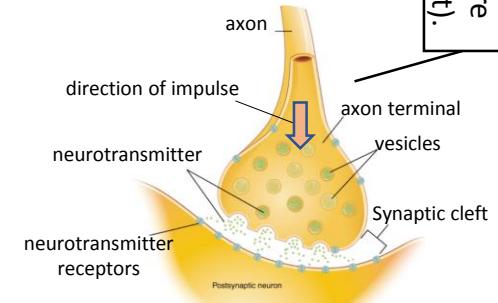
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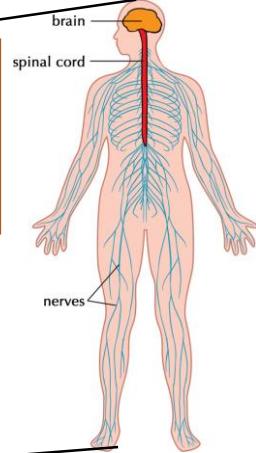


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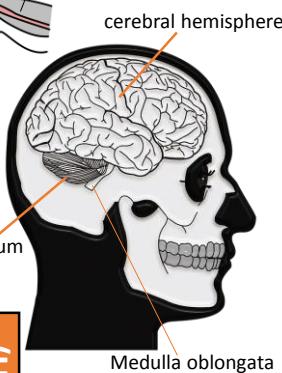
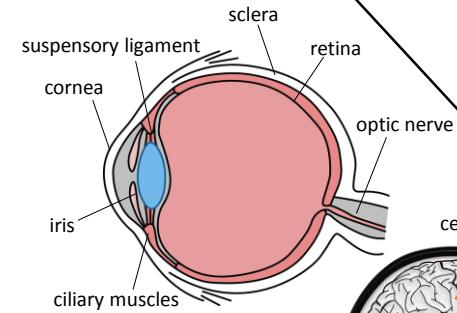
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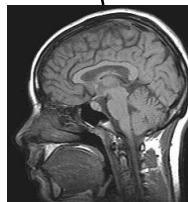
Edexcel GCSE Biology Cells and Control Part 2

The Eye



The Brain

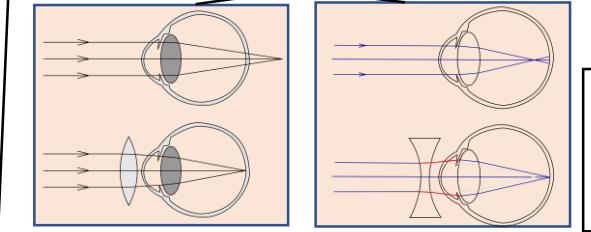
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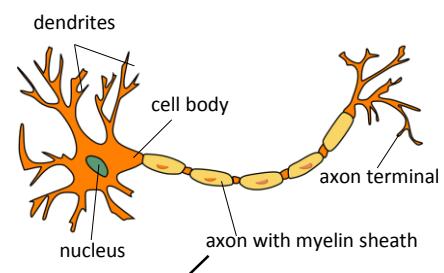
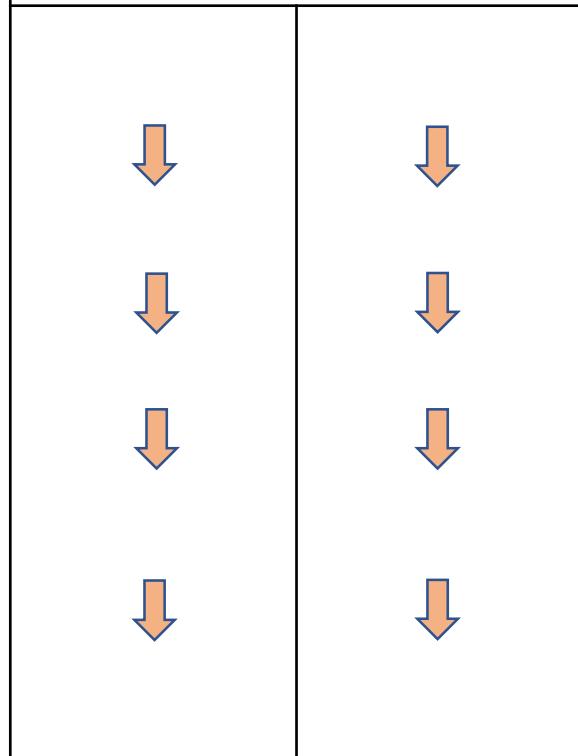


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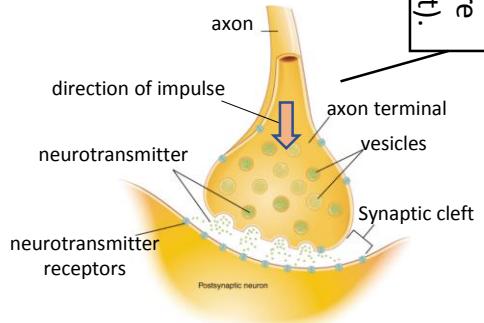
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