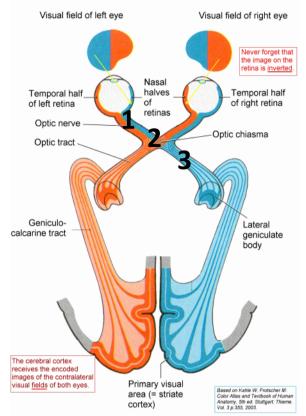
# CRANIAL NERVE II: OPTIC NERVE

#### **FUNCTION**

CN II is a sensory nerve, responsible for conveying visual information from the eye to the brain.

## VISUAL PATHWAY ANATOMY

- Light enters the eyes through the lens, where it crosses to the other side of the **retina** i.e. light from the temporal visual field hits the nasal hemiretina.
- Vision is generated by photoreceptors in the retina.
- Visual information is then conveyed via the optic nerve which enters the skull through the optic canal in the sphenoid bone at the back of the orbit.
- The left and right optic nerves meet at the **optic chiasm**, where the fibres from the **nasal halves of the retina cross over** i.e. information from the nasal half of the left retina crosses at the optic chiasm to go to the right side of the brain.
- The optic tract continues to the lateral geniculate nucleus (LGN) of the thalamus, and then to the primary visual cortex of the occipital lobe where visual information is processed.



## **CLINICAL LINK: VISUAL FIELD DEFECTS**

Lesions at specific points along the visual pathway give rise to characteristic patterns of visual field deficits. There are three main patterns of visual field loss to be aware of:

#### MONOCULAR BLINDNESS

- Blindness in one eye
- Results from a lesion of one optic nerve (1)



Left monocular blindness

#### **BITEMPORAL HEMIANOPIA**

- Blindness in the temporal visual fields
- Results from compression of fibres from the nasal halves of each retina at the optic chiasm (2)

HOMONYMOUS HEMIANOPIA

- Blindness in the same half of the visual field in both eyes
- Results from a lesion of one optic tract (3)



Bitemporal hemianopia



Left homonymous hemianopia

## Key Terms

- Retina
- Optic Nerve
- Optic Canal
- Optic Chiasm
- Optic Tract
  - Lateral Geniculate Nucleus
- Primary Visual Cortex

Check out this Soton brain hub video on the visual pathway!

