Communication across the brain and lateralization

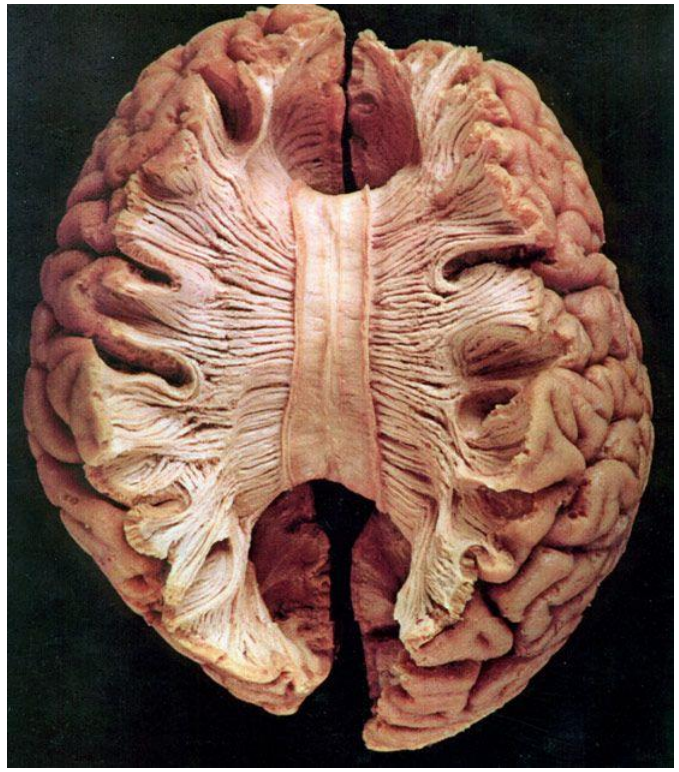
Hemispheric lateralisation

Many (most) aspects of processing tend to rely on different parts of the brain so there must be communication between them

- These processes may come from different hemispheres
- One of the main ways information can transfer across hemispheres is via the **corpus callosum**
  - a bundle of nerve fibres that connect the hemispheres
- There are many other tracts in the brain that connect other areas
  - E.g., arcuate fasiculus, which is important in some aspects of language

Areas may be connected anatomically, but also **functionally**

- Functional connections occur when there is no obvious direct anatomical connection between two areas but their processing is still associated in some conditions

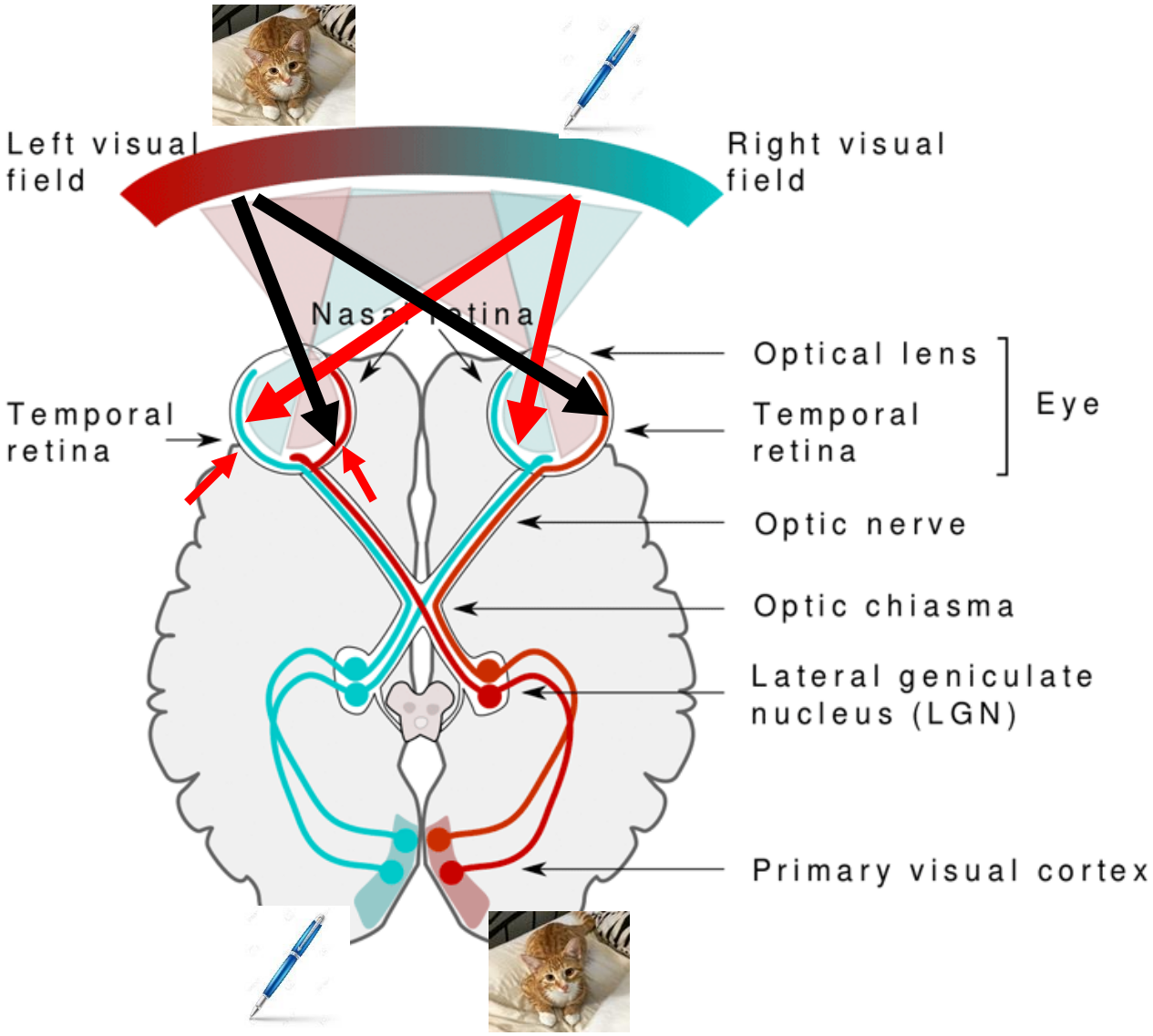


Some processes are largely lateralized

Language (in right handers)

- You can often find people with quite substantial RH damage whose language ability is left largely intact.
- Alternatively, it is hard to find right handers who have had substantial left hemisphere damage whose language is intact
- But it is probably more complex that “left or right”

What happens when the corpus callosum is cut? Split brain patients

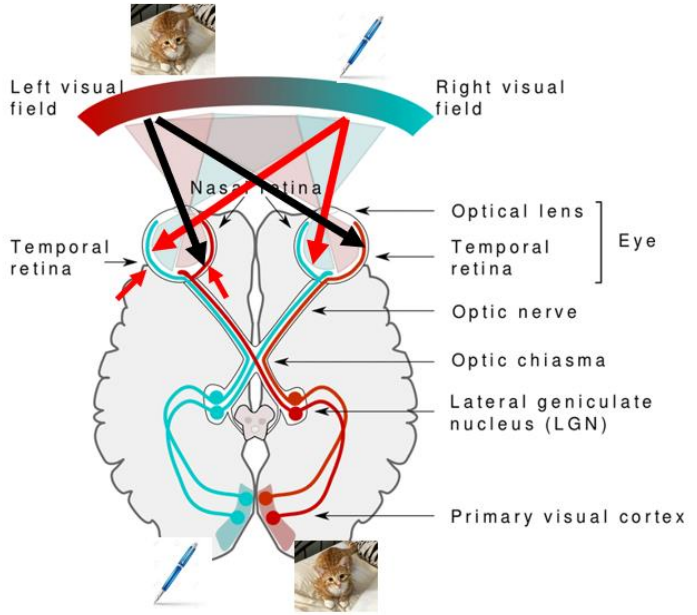


Learning:
I want you to be able to distinguish between visual fields and not just ‘left and right’ in space.

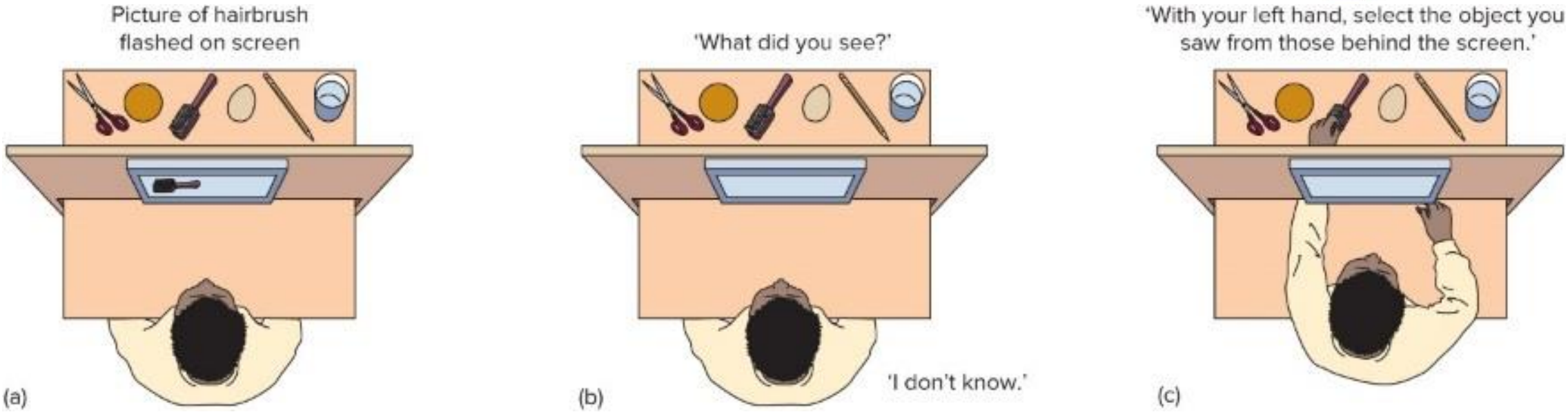
Split brain studies:

In an ‘intact’ brain, visual input crosses over the optic chiasma.

If the corpus callosum is cut this doesn’t happen, which means researchers can present information to one hemisphere at a time



Sperry’s experiment



Learning:

I only expect you to learn that neat experiments can be used to teach us about the way different parts of the brain process information and that the left hemisphere processes language more than the right hemisphere, which has other functions, not the nitty-gritty of the experiment. Of course, the nitty gritty of these experiments got Sperry a Nobel prize, so please think about it!