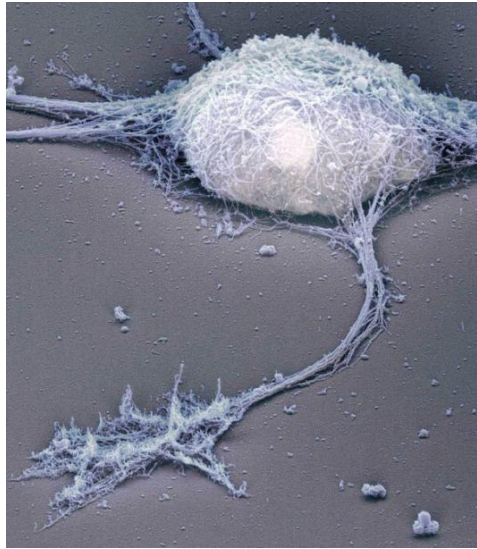
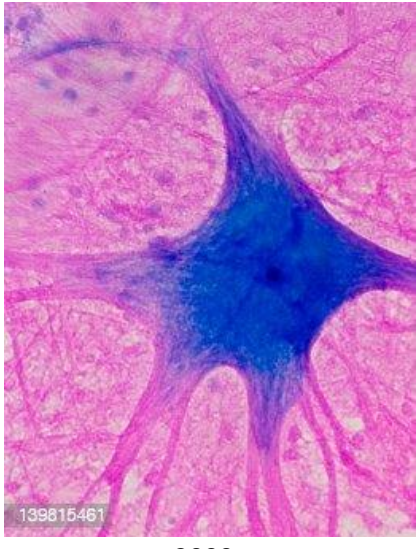
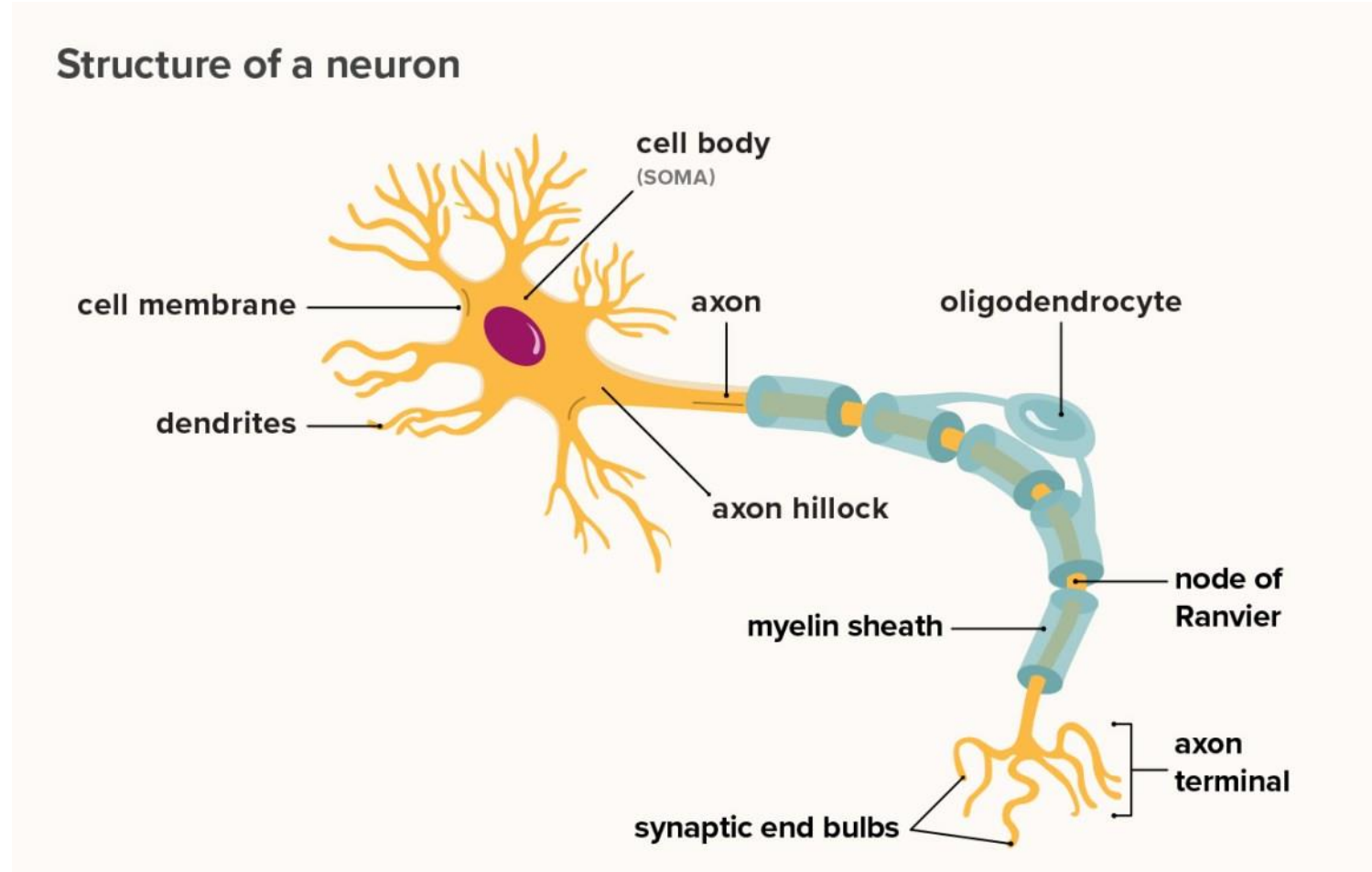


Most cells are microscopic, which means we cannot see them without the aid of a microscope. Neurons (nerve cells) are unusual in that some may be metres long, although they are only a fraction of a millimetre in diameter. How can microscopy be used to help us learn about neurons?

The microscope image on the left was made with a powerful microscope that uses electrons to produce an image thousands of times the size of the actual specimen. Colour can be added to the image later, as shown here. In contrast, the image on the right was made with a light microscope. First the cells were placed on a slide and stained to make them more visible.

- 1.) In groups, examine the images and make a list of all the details that you can observe. For example, note shapes, arrangement of shapes, colours, and level of detail.
- 2.) As a group, re-examine the microscope images and list some information that each type of microscopy cannot provide.

 <p style="text-align: center;">50,000x</p>	 <p style="text-align: center;">2000x</p>
Details of each image that I can observe	
Details that I cannot see	



3.) Which type of microscope image would be most useful to a clinical neurobiologist, who must make decisions about patients' treatments? Why?

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4.) Which image would help research scientists' study how a psychoactive drug affects the brain in the moment, as neurons are communicating?

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5.) When would the light microscope be more useful than the electron microscope? Hint: size.

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