

# Lesson Plan

**NEUROHEADWAY**

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Neuroscience Into Education

# Introduction to Pathology

Pathology and the Causes of  
Disease



## Important points from the last lesson

- Histology = The study of the microscopic structures of the normal human body
- Every living thing is made up of cells
  - Every cell has a nucleus storing the DNA
  - Water cytoplasm surrounds the nucleus
- Many different types of cells in the human body including
  - Epithelium (lining the skin, stomach, intestine, bladder, others)
  - Red blood cells
  - White blood cells



## What we will be looking at here...

1. Pathology and pathologists
2. Six major causes of disease
  1. Problems with blood supply
  2. Infection
  3. Inflammation
  4. Toxins and drugs
  5. Genetic and inherited causes
  6. Cancer



## **Pathology and Pathologists**

## What is Pathology?

- The study of disease
  - Why do diseases make us sick?
  - What changes can we see in the body because of these diseases?
  - How can we diagnose diseases by looking at these changes? (usually using a microscope)



## Pathologists

- A particular type of doctor (mentioned in the first lesson)
- Main job is to look at a patient's cells under the microscope to work out if they have a disease



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## Work of the Pathologist

- The work of the pathologist can be divided into **surgical pathology** and **forensic pathology**
- In **surgical pathology** we look at samples surgeons have taken from a living patient to work out what is wrong
- **Forensic pathology** involves working out when and how a dead person died
  - The pathologists in TV detective shows are doing forensic pathology

## What does the Pathologist need to know?

- What do normal cells look like?
  - This is known as histology (first lesson)
- What are the causes of disease and what changes do they cause in the cells?
  - This lesson and the next





## Pathology & Pathologists: Summing Up

- Pathology is the study of disease and why it makes us sick
- The pathologist is a type of doctor who works out whether disease is present, usually by looking at samples under the microscope
- To do their job the pathologist needs to know
  - What normal organs look like? (Histology)
  - What changes do diseases cause?

*So... We need to learn a little bit about how diseases make us sick and what changes they cause*