

Activity 1.5 Investigating arteries and veins

Purpose

- To relate the structures of blood vessels to their functions.
- To practise some experimental skills, including identification of variables, producing valid results, presenting data, drawing conclusions, considering safety.

This activity has two parts. In part A students stretch blood vessels (a piece of artery and a piece of vein) and measure how elastic they are. In part B they look at the histology of the blood vessels using a microscope.

Part A: Elastic recoil in arteries and veins

Requirements per student or group of students	Notes
Rings cut from aorta and vein (1 of each)	Rings cut during the heart dissection practical can be frozen for this investigation. Rings from arteries and veins should be cut to be the same width (e.g. 2 mm). Safety <i>Eye protection should be used in case of 'flyback' from bits of animal tissue when the tissue breaks.</i> <i>You should wash your hands after handling the sections of blood vessels. Work surfaces should be disinfected after the practical with 1% Virkon, and any apparatus that has come into contact should be washed and autoclaved or disinfected. Do not soak metal things in Virkon.</i>
Hook suspended on cotton thread	Hooks can be made from paperclips or piano wire. Check that the cotton is not stretchy too.
Mass carrier and five 10 g and five 50 g masses	The mass needed varies. Some centres report that a total mass of up to 300 g has to be used.
Clamp stand, boss and clamp	
Metre rule	
Disinfectant and cloths for wiping down benches	Use 1% Virkon or suitable alternative.
Soap and (paper) towels for washing hands	
Graph paper	
Calculator	A few spares per class (students should bring their own).
Eye protection	

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Technician

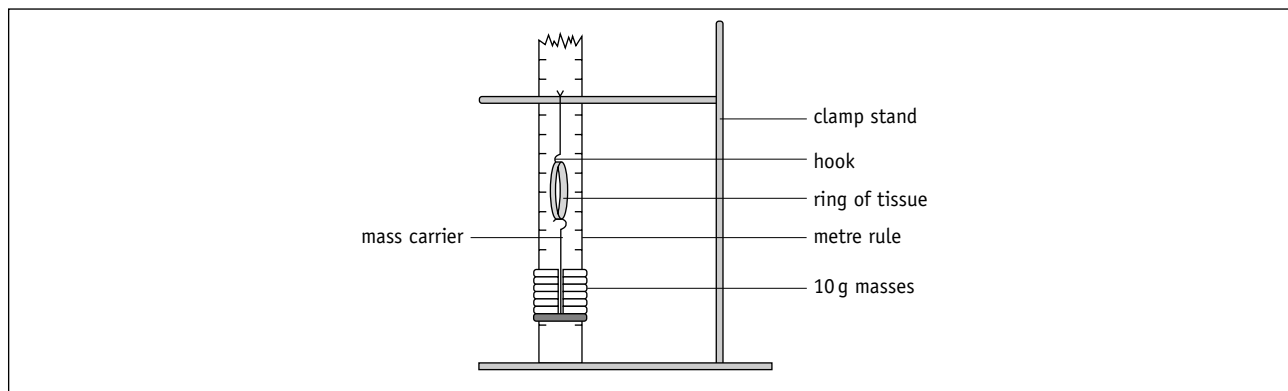


Figure 1 Measuring the length of the ring.

Part B: Histology of blood vessels

Requirements per student or group of students	Notes
Prepared slides of artery and vein T.S.	
Prepared slides of lung or thyroid gland T.S. to show capillaries	
Microscope	Microscopes with high power lenses are needed. Safety <i>Ensure students are aware of the danger of using microscopes where direct sunlight may strike the mirror.</i>
Lamp if not built into microscope	
Histology book	
Drawing paper	
Pencils	

Notes