

# Edexcel A Biology A-Level Core Practical 8

Determine the tensile strength of plant fibres.



**Plant fibres** can be used to refer to any fibre-like structure within a plant but is generally used to describe the vascular bundle - the **xylem** (hollow tube of cells which water is transported through) and **phloem** (cells with sieve plates which transports assimilates like sucrose) - and the **sclerenchyma** fibres (lignified support tissues). **Tensile strength** describes the **maximum pulling force** that can be applied to a tissue before the tissue breaks.

## Equipment

- Forceps
- White tile
- Sample of New Zealand flax plant
- Scalpel
- Suspended masses

## Method

1. Use the **forceps** to separate the fibres.
2. Test the **tensile strength** of the fibres by using **suspended masses** to compare e.g. types of fibres, internal vs external fibres etc.

## Risk Assessment

Hazard	Risk	Safety Precaution	In emergency	Risk Level
Scalpel	Cuts from sharp object	Cut away from fingers; use forceps to hold sample whilst cutting, keep away from edge of desk	Elevate cuts; apply pressure; seek medical assistance	Low
Biohazard	Contamination	Use disinfectant; wash hands with soap after handling	Seek assistance	Low

## Modification

The plant used could also be **stinging nettles** instead of the New Zealand flax plant. The practical works the same way, but the nettles must be **soaked for a week** to soften and **rubber gloves** must be worn to avoid being stung.

