

Edexcel B Biology A-Level

Core Practical 7

Investigate the gas exchange system of a locust





Dissections are essential to a complete understanding of **internal biological functions**. There are some **ethical issues** with dissection, including the way in which the animals are raised and killed.

Equipment

- Live locust
- Dead locust
- Forceps
- Scissors
- Cork board
- Dissecting pins
- Seeker
- Specimen jar or syringe
- Microscope slides and coverslips
- Methylene blue stain
- Dissecting microscope
- Hand lens
- Pipette
- Watch glass

Risk Assessment

Hazard	Risk	Safety Precaution	In emergency	Risk Level
Biohazard	Contamination	Use disinfectant; keep sample on dissection board; wash hands with soap after dissection	Seek assistance	Low
Disinfectant	Flammable	Keep away from naked flame	Put out fire; seek assistance	Low
Sharp tools	Cuts from sharp object	Cut away from fingers; use forceps to hold tissue whilst cutting; keep away from edge of desk	Elevate cuts; apply pressure; seek medical assistance	Low



- You should wear a **lab coat**, **gloves** and **eye protection** for all dissections

Dissection Tips

- At the start of a dissection, pin the locust to the dissecting board and **remove the exoskeleton** so the internal gas exchange system can be observed.
- Locusts have spiracles controlled by sphincters, tracheae held open by chitin spirals, and tracheoles where gas exchange occurs. They may also have air sacs.
- When you dissect a locust, you should **flood the specimen with water** so that the tracheae show up as **silvery-grey**.
- When observing the live locust, watch for **rhythmic movements** of the abdomen - this the locust **mechanically ventilating** its gas exchange system.

Tips for Biological Drawings

- Use an **HB pencil** and a white, unlined sheet of paper.
- Draw in the centre of the page, and have the drawing take up at least half of the paper.
- **Label** the diagram, also in pencil.
- Use a **ruler** for straight lines and for labelling.
- Use **clear lines** - don't smudge or feather them.
- Only draw what you can see.
- Do an outline first.
- Do not use shading or colour.
- Write the **lens power** that has been used somewhere on the diagram.

