

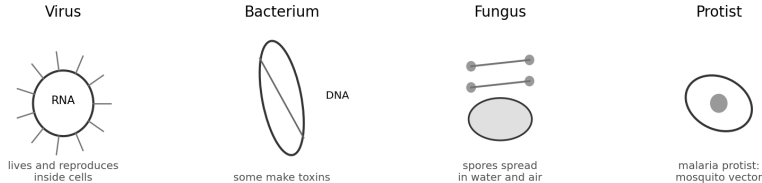
Topic 3: Infection and response

AQA GCSE Biology 8461 · spec 4.3 · sheets 3.1–3.4

The war inside

- Pathogens invade; barriers and immunity respond; medicine arms the fight.
- Monoclonals (HT) and plant disease are biology only.
- The disease table is exam gold.

Four pathogen types



- Virus, bacterium, protist, fungus.
- Spread: direct contact, water, air — and vectors.
- Toxins damage tissues; viruses hijack cells.

Your turn: name that disease

- Measles, HIV, TMV, Salmonella, gonorrhoea, black spot, malaria.
- For each: pathogen type, spread, symptoms, control.

Named diseases worked

- 1 **Measles** virus, droplets, fever + rash, vaccination.
- 2 **Salmonella** bacterium, food, cramps + vomiting, hygiene.
- 3 **Malaria** protist, mosquito vector, fever, nets.

Barriers and immunity



- Skin, nose, trachea, stomach — the barriers.
- White cells: phagocytosis, antibodies, antitoxins.
- Vaccination trains memory cells.

Antibiotics vs painkillers

- Antibiotics kill bacteria — specific ones for specific bacteria.
- They cannot kill viruses; painkillers only mask symptoms.
- Foxglove, willow, Penicillium; then trials.

Monoclonal antibodies (HT)

- Lymphocyte + tumour cell = hybridoma.
- Clone it; collect one pure antibody.
- Uses: pregnancy tests, labs, research, cancer.

Plant disease

- Signs: stunted growth, spots, rot, discolouration, pests.
- Nitrate lack stunts; magnesium lack yellows.
- Defences: physical, chemical, mechanical.

Check yourself

- Checklist before you call this topic done.
- Disease table by heart; three white-cell actions.
- Vaccination, antibiotics, trials; hybridoma; plant signs.