

# Edexcel Biology GCSE

## CP05 - Microbial Cultures

### Flashcards

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What antiseptic techniques can be used to avoid contamination?



# What antiseptic techniques can be used to avoid contamination?

- Spray working area with disinfectant and wipe dry
- Wash hands with antibacterial wash
- Flame the neck of the culture bottle
- Lift the lid of the agar plate at an angle
- Dip spreader in ethanol and pass through Bunsen flame before spreading bacteria
- Use forceps to place antibiotic discs



Describe how you could investigate the effect of antibiotics on bacterial growth using zones of inhibition



# Describe how you could investigate the effect of antibiotics on bacterial growth using zones of inhibition

- Divide agar plate with bacteria into three segments
- Use forceps to place filter paper disc with antiseptic in each zone
- Loosely tape lid onto agar plate to allow oxygen to reach bacteria
- Incubate at 25°C for 48 hours
- Measure the diameter of clear zones (zones of inhibition) using a ruler from two opposite directions - calculate mean of measurements
- Calculate area of clear zones



How would you measure the zone of inhibition?



# How would you measure the zone of inhibition?

Use a ruler to measure from a point on one side to a point directly opposite (with lid still in place)

Measure again at  $90^\circ$  to first diameter measurement in order to calculate a mean



Why should you not completely seal the agar plate?





# Why should you not completely seal the agar plate?

To allow oxygen to enter the agar plate, preventing the growth of harmful anaerobic bacteria



Why is it necessary to measure the diameter of the zone of inhibition twice?



Why is it necessary to measure the diameter of the zone of inhibition twice?

Clear zones are not always uniform - taking more than one measurement allows a mean diameter to be calculated



What equation is used to calculate the area of clear zones?



What equation is used to calculate the area of clear zones?

$$\text{Area} = \pi r^2$$



What is a source of error in this practical?



What is a source of error in this practical?

The area of the clear zone may be irregular and it is difficult to determine a suitable width to be recorded.

