

WJEC Wales Biology GCSE

2.7 - Microorganisms and their Applications

Flashcards

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What does aseptic mean?



What does aseptic mean?

Not contaminated with microorganisms



Describe precautions that should be taken to avoid contaminating samples of microorganisms



Describe precautions that should be taken to avoid contaminating samples of microorganisms

- Sterilise equipment and surfaces
- Keep the lid of the agar dish closed as much as possible
- Pass the inoculating loop through a flame

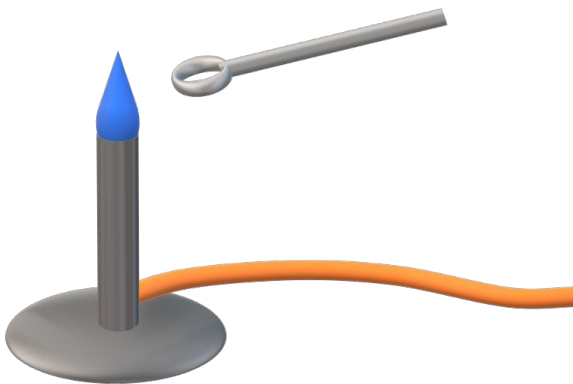


How should you sterilise an inoculating loop?



How should you sterilise an inoculating loop?

Pass it through a blue bunsen burner flame



What are inoculating loops used for?



What are inoculating loops used for?

Inoculating loops are used to transfer microorganisms



What is an autoclave?



What is an autoclave?

A machine that uses hot steam to sterilise equipment



Why are microorganisms not cultured at temperatures above 25 degrees in schools?



Why are microorganisms not cultured at temperatures above 25 degrees in schools?

To prevent pathogens that are harmful to humans from growing



Why should you place a lid on an agar plate?



Why should you place a lid on an agar plate?

- To prevent microorganisms from the air from contaminating it
- To prevent the microorganisms being cultured from contaminating other areas



Give 4 safety precautions to take when culturing microorganisms



Give 4 safety precautions to take when culturing microorganisms

- Wear protective equipment (safety glasses, lab coat, etc.)
- Wash hands before and after the practical
- Clean all work surfaces
- Keep eyes and face away from culture medium



How can the number of original bacteria be estimated from the number of colonies present?



How can the number of original bacteria be estimated from the number of colonies present?

Each bacterium will divide many times to produce a single colony so the amount of colonies should be equal to the number of original bacteria



Why is counting colonies an inaccurate method of determining the original number of bacteria?



Why is counting colonies an inaccurate method of determining the original number of bacteria?

- Colonies may clump together
- Often there will be lots of colonies so counting may be difficult



What happens to the rate of bacterial growth if the temperature is **increased**



What happens to the rate of bacterial growth if the temperature is **increased**

The growth rate increases as the temperature increases but when the temperature gets too high the proteins will denature and the bacteria will die



What happens to the rate of bacterial growth if the temperature is **decreased**



What happens to the rate of bacterial growth if the temperature is **decreased**

The growth rate decreases as the temperature decreases but when the temperature gets too low bacteria will stop growing completely



What does refrigeration of food do to bacterial growth?



What does refrigeration of food do to bacterial growth?

It slows the growth of microorganisms



What does freezing food do to bacterial growth?



What does freezing food do to bacterial growth?

It stops the growth of microorganisms completely



Why are refrigeration and freezing useful in food storage?



Why are refrigeration and freezing useful in food storage?

Food will last for longer as microorganism growth is limited



Give the name and type of
microorganism that produces penicillin



Give the name and type of microorganism that produces penicillin

Penicillium fungus



What is a fermenter used for?



What is a fermenter used for?

To produce large cultures of microorganisms



State 5 things that need to be controlled
in an industrial fermenter



State 5 things that need to be controlled in an industrial fermenter

- Temperature
- pH
- Nutrient levels
- Oxygen levels
- Contamination



How is penicillin extracted from the growth medium in the fermenter?



How is penicillin extracted from the growth medium in the fermenter?

The penicillin is filtered out

