

## Kingdom Monera ANSWERS

Use the two textbooks as references: Miller & Levine (Elephant) and Nelson (Orca)

1. Explain how bacteria reproduce. You may draw a diagram to help you explain the processes. M & L p. 367 – 69 / Nelson p. 216 -7.
  - a) Binary fission (asexual)
    - Single strand of bacterial DNA doubles
    - Cell membrane elongates / grows
    - Cross wall forms – divides cell in two
    - Get 2 identical cells
  - b) Conjugation (sexual). Name 2 bacteria that undergo conjugation.
    - 2 bacteria line up close together and a cytoplasmic / conjugation bridge forms
    - Donor gives plasmid (extra bacterial DNA being exchanged) to recipient
2. What are endospores and why are they important? Nelson p. 217
  - An adaptation to survive unfavourable conditions – NOT FORM OF REPRODUCTION
  - A thickened wall forms around the genetic material (DNA)
  - This makes bacteria resistant to heat and not easily destroyed.
  - When conditions are suitable for growth, the wall breaks down and the live bacteria emerges
3. How can bacteria move? M & L p. 365
  - Secrete slime trail they glide over – (not well known how they move forward though)
  - Snake or wiggle forward (spiral bacteria)
  - Barbs to hitchhike – grab passerby – otherwise cannot move
  - Pili &/ or flagella
4. Explain respiration in bacteria: M & L p. 365 / Nelson p. 216
  - a) Aerobic respiration
    - The organism requires oxygen for survival – gets energy from oxygen + glucose
  - b) Photosynthesis
    - Light energy is used so the organism can make its own food
  - c) Fermentation
    - Makes alcohol in the absence of oxygen

5. Explain the ecological roles of bacteria: M & L p. 370 – 74 / Nelson p. 217 - 218

a) Beneficial roles

- Nitrogen fixation –  $N_2$  to  $NH_3$  – important for plants
- Decomposers
- Break down harmful substances ex) chlorides
- Clean up oil spills
- Make food – cheese, yogurt, vinegar, sour cream
- Tanning leather

b) Ability to cause human disease




- Tuberculosis
- Bubonic plague
- Anthrax
- Clostridia/ botulism/gangrene
- Strept throat
- STD's
- Boils – staphylococcus bacteria
- Spoil gas & food
- Pollute water

6. How can bacteria be controlled? M & L p. 375.

- Wash / hygiene
- Antibiotics
- Sterilization
- Food processing

7. Shape and grouping of bacteria cells M & L p. 363-4 / Nelson p. 215 -6.

a) Shape

<b>Shape</b>	<b>Description</b>	<b>Diagram</b>
• Bacilli	rod-shaped	
• Cocci	spherical	
• Spirilla	spiral shaped	

b) Grouping

- Strepto = twisted chain filament (filament = chain of cells)  
Ex) *Streptococcus*
- Staphylo = cluster (bunch of grapes)  
Ex) *Staphylococcus*