

Name:

Class:

# K3B7 Microbes Focus Notes

## Lesson 1 - What are micro-organisms

<b>List and define the keywords</b>	
<b>Name four different types of microorganism</b>	
<b>Draw and label a diagram of a protozoan (amoeba)</b>	
<b>State the function of the different amoeba cell structures (parts of the amoeba)</b>	
<b>Draw and label a diagram of a fungal cell</b>	
<b>State the function of the different fungal cell structures (parts of the fungus)</b>	
<b>Draw and label a diagram of a virus</b>	

Name:

Class:

<b>State the function of the different virus structures</b>	
<b>Draw and label a diagram of a bacterial cell (prokaryotic)</b>	
<b>State the function of the different cell structures (parts of the bacterial cell)</b>	
<b>Compare an amoeba to a bacteria cell</b>	
<b>Compare a virus to a bacteria cell</b>	
<b>Compare the fungus to the amoeba</b>	

**Lesson 2 - How are Microbes Useful**

<b>State some ways that microorganisms can be useful</b>	
<b>Name an example of how microorganisms are useful in industry</b>	
<b>Describe how bacteria is used to make cheese</b>	

Name:

Class:

<b>Describe the process of yeast being utilised for the alcohol industry</b>	
<b>What are the benefits of using microbes in industry?</b>	
<b>What are the disadvantages of using microbes in industry?</b>	
<b>Evaluate the use of microbes in industry.</b>	<i>Hint: Discuss the advantages and disadvantages of using microbes by comparison. Use your discussion to formulate an opinion/judgement.</i>
<b>State the definition of a symbiotic relationship</b>	
<b>List 2 examples of how micro-organisms have a symbiotic relationship</b>	
<b>Describe how microbes contribute to nutrient recycling matter in ecosystems</b>	

**Lesson 3 - How are Microbes Harmful?**

<b>List examples of how microbes can be harmful to other living organisms</b>	
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Name:

Class:

<b>Name diseases caused by:</b> <ul style="list-style-type: none"><li>- Bacteria</li><li>- Viruses</li><li>- Fungi</li><li>- Protozoa</li></ul>	
<b>For each disease listed, name the plant or animal it affects. E.g. flu virus - humans, pigs, birds, etc.</b>	
<b>Describe what happens to a living organism infected with microbes</b>	
<b>Name a way that we can kill bacteria</b>	
<b>What is antibiotic resistance?</b>	
<b>Describe why it is important for scientists to research genetics of different microbes?</b>	

#### Lesson 4 - Malaria, the killer?

<b>State how many people are affected by malaria worldwide</b>	
<b>What is a 'transmission method'?</b>	
<b>State the transmission method of malaria</b>	
<b>Name the stages of the malaria life cycle</b>	
<b>Give a definition for the following:</b> <ul style="list-style-type: none"><li>- Parasite</li><li>- Vector</li><li>- Host</li></ul>	

Name:

Class:

<b>List factors that can increase transmission of malaria</b>	
<b>List factors that can prevent the transmission of malaria</b>	
<b>Is there a treatment for malaria, and what is it?</b>	
<b>Name a few medical and non-medical methods to prevent malaria</b>	
<b>Evaluate which methods are best at combating malaria and transmission</b>	

### Lesson 5 - Stopping the spread of disease

<b>Name ways in which diseases can be spread (transmitted)</b>	
<b>What caused the spread of the bubonic plague aka "the black death"</b>	
<b>What factors can increase the spread of diseases such as small pox</b>	
<b>Describe what factors can increase chances of disease spreading</b>	
<b>State how microbes are adapted for their preferred transmission method</b>	

Name:

Class:

<b>Name methods to stop the spread of disease</b>	
<b>Describe how different methods prevent the spread of disease</b>	
<b>Justify different methods for disease prevention</b>	
<b>Describe how scientists can test different methods of disease prevention in the lab</b>	
<b>State a step-by-step method of how to grow microbial cultures in a lab safely</b>	
<b>State the safety precautions used in the method and why it is important</b>	

**Lesson 6 - Protection against disease**

<b>Name natural defences in plants that prevent infection</b>	
<b>Name natural defences in animals that prevent animals</b>	
<b>Name structural adaptations of plants and animals that prevent disease.</b>	

Name:

Class:

<b>What does having structural adaptations and natural defences prevent?</b>	
<b>Explain how plants have developed structural adaptations</b>	
<b>Define an antigen</b>	
<b>Define a pathogen</b>	
<b>Define an antibody</b>	
<b>How do antibodies prevent the spread of disease in the body?</b>	
<b>State the role of white blood cells</b>	
<b>How is an immune response triggered in the infected host?</b>	
<b>Draw the timeline to show how the use of antibiotics has developed over time.</b>	
<b>How have scientists mimicked natural defences?</b>	

**Lesson 7 - Protection against diseases - Immunisation and Vaccination**

<b>What are vaccinations?</b>	
<b>What are vaccinations made of?</b>	
<b>What does receiving a vaccination do to the human body?</b>	

Name:

Class:

<b>How does this provide protection to the human body?</b>	
<b>Define immunity and herd immunity</b>	
<b>Describe who herd immunity protects</b>	
<b>Explain the importance of herd immunity to vulnerable individuals.</b>	
<b>Explain how herd immunity protects vulnerable individuals in a community?</b>	
<b>What are the challenges against herd immunity?</b>	
<b>What are "anti-vaxxers?"</b>	
<b>What is the risk of the increased popularity of anti-vaccination?</b>	
<b>Describe how you could promote awareness and the importance of herd immunity?</b>	