

## LIVING AND NON-LIVING

### LIVING THINGS UNDER A MICROSCOPE:

- ✚ Microorganisms are living organisms that can be only seen through a microscope.
- ✚ Microorganisms are found everywhere, in every corner you can imagine.
- ✚ They adapt to the environment in which they live.
- ✚ Some microbes cause diseases, whereas others are useful for us.
- ✚ The tiny thread like structures generally observed on bread are commonly called mould.
- ✚ **Microorganisms as Friend:**
- ✚ Microbes present in milk (Lactobacillus) help in the conversion of milk to curd.
- ✚ Microbes present in the intestines of humans and animals help in digestion.
- ✚ **Harmful Impacts of Microorganisms:**
- ✚ Microorganisms that cause diseases are called Pathogens.
- ✚ A microscope has a very powerful magnifying glass.
- ✚ Microscope is an instrument with the help of which we are able to see minute things that we cannot see with our naked eyes.
- ✚ The image of an object is magnified through at least one lens in the microscope.
- ✚ This lens bends light toward the eye and makes an object appear larger than it actually is.
- ✚ Compound microscopes are commonly used in research labs and institutes to study microorganisms.

1	<p>Microorganisms (also called microbes) are living organisms that can be only seen through a microscope. Microorganisms are present everywhere and they can survive in all types of environments. They are also present in the bodies of different animals and plants. Some microorganisms are useful for plants, animals, and humans whereas others cause diseases. Viruses are sometimes classified as microorganisms but viruses are just genetic materials that can live only in the bodies of other organisms. Examples of microorganisms include amoeba, bacteria, etc.</p>	<p>Display the text along with the picture of different types of microbes like bacteria, viruses, amoeba etc.</p>	
2	<p>Microorganisms are found everywhere, in every corner you can imagine. They are found on your palms, books, pen, table, food, mobile phones, soil, hair, and even in your intestines. There may not be any possible place where microbes do not exist.</p>	<p>Display the text and show that microbes are present everywhere like on hands, books, in air etc.</p>	
3	<p>They adapt to the environment</p>	<p>Display the</p>	

	<p>in which they live. They can survive in extreme conditions like ice-cold areas, hot springs, equators, deserts, polar regions, oceans, and marshy lands. They are also found inside other living organisms like plants, animals and humans. Millions of microbes are found in the human body. Some microbes cause diseases, whereas others are useful for us. Some microorganisms live freely, whereas others grow on other living organisms.</p>	<p>text and continue the frame. Then show deserts and ice cold areas there also microbes live.</p>	
4	<p>The tiny thread like structures generally observed on bread are commonly called mould. Can we say that mould is also living? The mould that develops on spoiled material is able to produce new mould. It grows. So we can say the mould is also living.</p>	<p>Display the text and show a bread piece and mould is developing on it and spreading.</p>	
5	<p>Curd contains several microorganisms. Of these, the bacterium, <i>Lactobacillus</i> promotes the formation of curd. It multiplies in milk and converts it into curd. Bacteria are also involved in the making of</p>	<p>Show the curd here and show the bacteria multiplies in milk and changes to</p>	

	cheese, pickles and many other food items.	curd.	
6	<p><b>Microorganisms as Friend:</b></p> <ul style="list-style-type: none"> <li>✚ Microbes present in milk (Lactobacillus) help in the conversion of milk to curd.</li> <li>✚ Microbes present in the intestines of humans and animals help in digestion.</li> <li>✚ Microbes (yeast) help in making bread and cakes.</li> <li>✚ Microbes present in batter help in the souring of dosa batter.</li> </ul>	<p>Display the text and show microbes are present in curd, in intestine and help in digestion. Show that microbes acts as friends and useful for us.</p>	
7	<ul style="list-style-type: none"> <li>✚ Microbes are useful in the large-scale production of vinegar, alcohol, and wine through fermentation.</li> <li>✚ Microbes are used in the production of antibiotics such as Streptomycin, tetracycline, erythromycin, etc.</li> </ul>	Continue the frame.	
8	<p><b>Harmful Impacts of Microorganisms:</b></p> <p>Microorganisms that cause diseases are called Pathogens. Some microbes cause</p>	Display the text and show the picture of bacteria can	

	<p>communicable diseases which spread from an infected person to a healthy person through food, water, and air. Example: chicken pox, common cold, cholera, etc. Some microbes spoil food and cause food poisoning.</p>	<p>cause harmful infections to us and are dangerous.</p>	
9	<p>A microscope has a very powerful magnifying glass. The entire world — our bodies included — are made up of billions of tiny living things that are so small you can't see them with just your eyes. But with a microscope, it's possible to examine the cells of your body or a drop of blood.</p>	<p>Display the text and show the picture of microscope and we can see bacteria through microscope.</p>	
10	<p>Microscope is an instrument with the help of which we are able to see minute things that we cannot see with our naked eyes. It works like a hand or magnifying lens but it is much more powerful. Basically, there are two components in a microscope - the structural component and the visual components. Structural components are the head/ body, base and arm. Visual</p>	<p>Here display the text and show the microscope and its labeled parts.</p>	

	<p>components are eyepiece, objective, nosepiece, coarse and fine adjustment knobs, stage, aperture etc.</p>		
11	<p>Microorganisms are too minute in size to be seen by unaided eyes, hence are observed and studied using microscopes. The image of an object is magnified through at least one lens in the microscope. This lens bends light toward the eye and makes an object appear larger than it actually is.</p>	<p>Text and show here the objects are magnified and appears large in microscope.</p>	
12	<p>Compound microscopes are commonly used in research labs and institutes to study microorganisms. They use glass lenses to bend and focus light rays and produce enlarged images of small objects. A stain is a chemical that adheres to structures of the microorganism and in effect dyes the microorganism so the microorganism can be easily seen under a microscope.</p>	<p>Text and show the working mechanism of compound microscope and show that stained samples of bacteria under microscope.</p>	