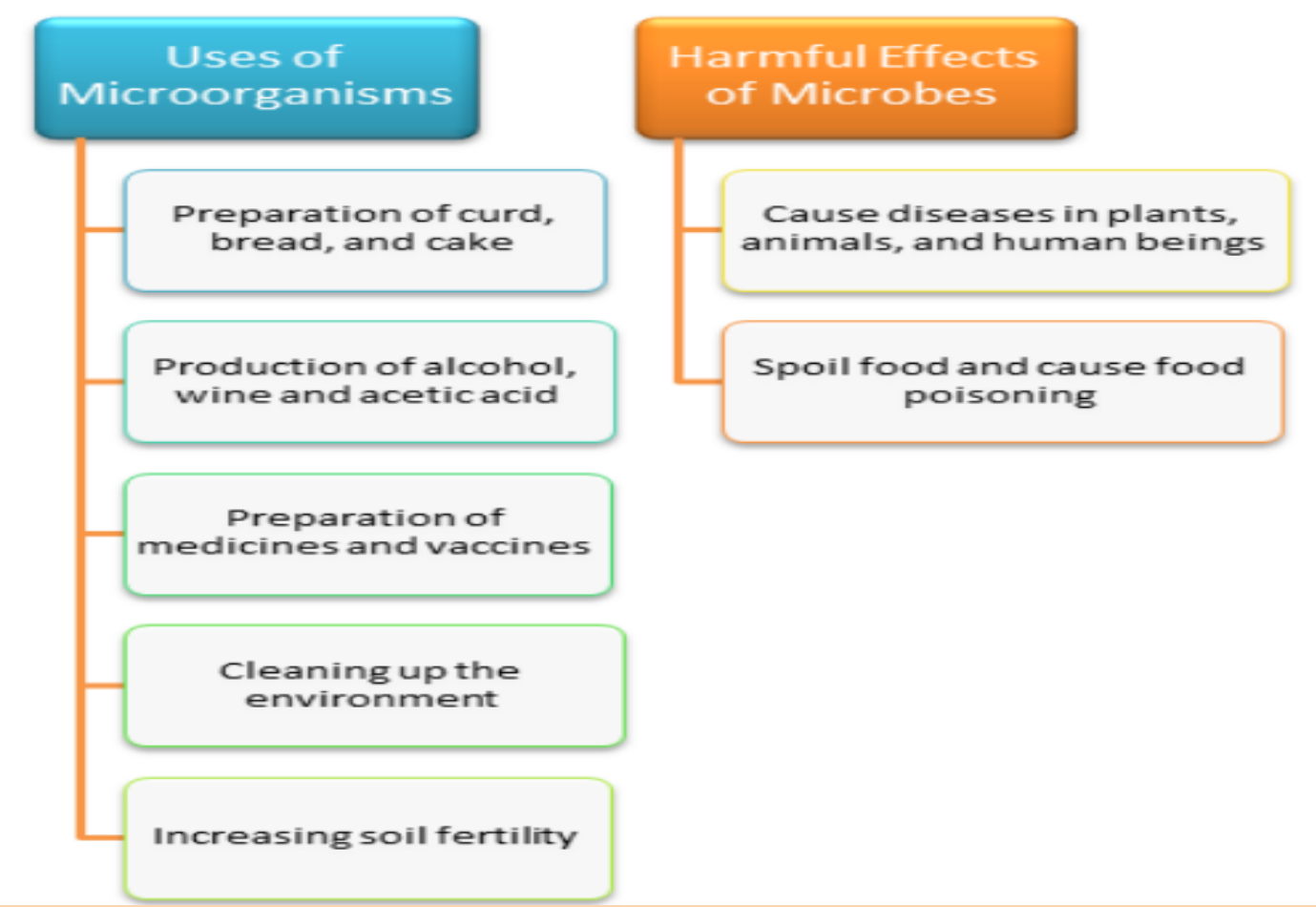
Where do Microorganisms Live?

Microbes can survive in all kinds of environments – from icy cold climates to hot springs (any kind of temperature); and deserts to marshy lands (any humidity level). Some live independently while others live as parasites – inside the bodies of other organisms (including animals and human beings).

Microorganisms and Us

Some microorganisms are beneficial to us while others are harmful and cause diseases.



How are bacteria useful to us?

Bacteria are helpful because:

- It decomposes organic wastes (such as vegetable peels, animal remains, and faeces etc.).
- It is used in the preparation of medicines.
- It increases soil fertility by fixing nitrogen.

- It is used in the setting of curd and making cheese, pickles, and other food items.

- **How is yeast useful to us?**
- Yeast is used in the baking industry (to make bread, pastries, and cakes) because it helps in fermentation. It reproduces rapidly and produces carbon dioxide during respiration. Bubbles of the carbon-dioxide gas it produces fill the spaces in the dough and increases its volume.
- It is also used in the commercial production of alcohol and wine which is done by growing yeast on natural sugars present in fruit juices and grains like rice, wheat, and barley.

Antibiotics

What are Antibiotics? What are their uses?

Antibiotics are medicines that can kill or stop the growth of disease-causing microorganisms. **For Example**, Penicillin.

Antibiotics are used to:

- Cure a variety of diseases (such as streptomycin, erythromycin, and tetracycline that are made from bacteria and fungi),
- Cure microbial infection in animals (by mixing antibiotics with the feed of livestock and poultry), and
- Control several plant diseases.

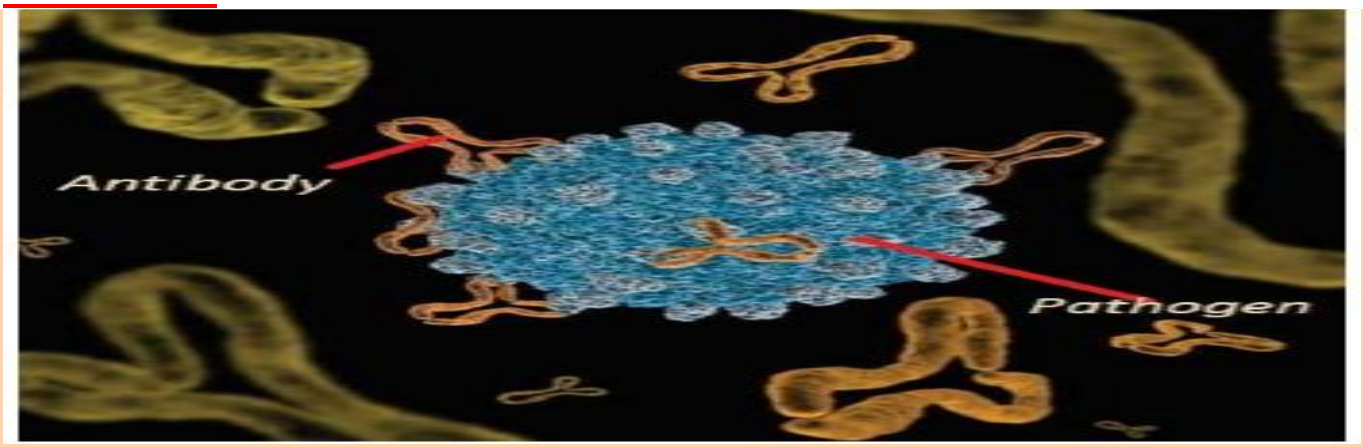
What precautions should be followed while taking antibiotics and why?

Antibiotics should be taken only on the advice of the doctor, and one must complete the course the doctor prescribes.

Antibiotics taken in wrong doses may make the body resistant to the drug and it may not be effective in the future. Moreover, antibiotics may also kill the beneficial bacteria in the body.

Please Note: Antibiotics cannot cure cold and flu caused by viruses.

Vaccines



➢ **Some Definitions to Remember:**

Pathogens: Disease-causing microbes are called **Pathogens**.

Antibodies: Antibodies are substances our body produces to fight disease-causing microbes.

Vaccines: Vaccines are weakened or dead disease-causing microbes that are injected in our body to trigger the production of antibodies. These antibodies remain in the body for a long time to protect it against any attack of disease-causing microbes.

Vaccination: The process of protecting the body from pathogens with the help of vaccines is called **Vaccination**.

Name some of the diseases which can be prevented by vaccines

Some of the diseases that can be prevented by vaccination are:

- Cholera,
- Hepatitis,
- Smallpox, and
- Tuberculosis.

One can get necessary vaccines from nearby hospitals.

How do microbes clean up the environment?

Microbes or microorganisms decompose organic waste and dead remains of plants and animals and convert them into simpler substances (which can again be used by other plants and animals) by the process of biodegradation. Thus, they help us in getting rid of harmful and smelly substances and clean up the environment.

❖ **Next Topic : Harmful Microorganisms**