

Study Guide for Genetics and Microorganisms

- How are microorganisms beneficial and harmful to other organisms?
- Know about:
 - Protists
 - Bacteria
 - Fungus
- What are some beneficial microorganisms and how are they beneficial?
- What are some harmful microorganisms and how are they harmful?
- How are learned behaviors and inherited traits similar? Different?
- Recognize that offspring can resemble parents in inherited traits and learned behaviors
- What is a gene and what is the role genes play in the transfer of traits?
- Explain the role of chromosomes in development of people.

Words to know:

Heredity
Inherited traits
Learned behaviors
Offspring
Genes
Chromosome
Multi-cellular
Single-cellular
Microorganism
Bacteria
Protists
Harmful microorganism
Helpful microorganism

Genes are the instructions -- the marching orders -- that direct our growth, what we look like, and how we react to things in our world, or environment. The genes instruct our original dab of cells, as they divide, to become different - muscle, bone, lung, or brain cells, or part of a toe. As a result of what the cells become and do, we grow. Every human has the same number and set of genes, so you might think we would all be exactly the same. But the genes themselves vary a lot or a little, just as people do. For example,

everyone has a pair of genes for eye color but one variation instructs the eyes to be blue while other variations order green or brown.

- The genes are strung together in strands are called chromosomes. Most living things have pairs of chromosomes (one from each parent), though they may have a different number of chromosomes from another living thing. For example, humans have 23 pairs of chromosomes and the fruit fly has 4 pairs.

Microorganisms include bacteria, viruses, protists, and some fungi.

Harmful examples:

1. Salmonella or E. coli, both are bacteria found on raw meat, and eggs. They can cause stomach illnesses or even death.
2. Viruses such as the common cold virus.
3. Mold, a fungus that spoils food.
4. Ring Worm, a fungus that causes skin disease.
5. Athletes Foot, a fungus that causes skin disease.

Beneficial examples:

1. Yeast, a fungus that causes bread to rise.
2. Bacteria in your stomach that help food to digest.
3. Penicillin, a fungus that is used as a medicine.
4. Certain bacteria turn milk into yogurt or cheese.
5. Plankton are protists that live in the ocean, make their own food, and are the beginning of most ocean food webs.