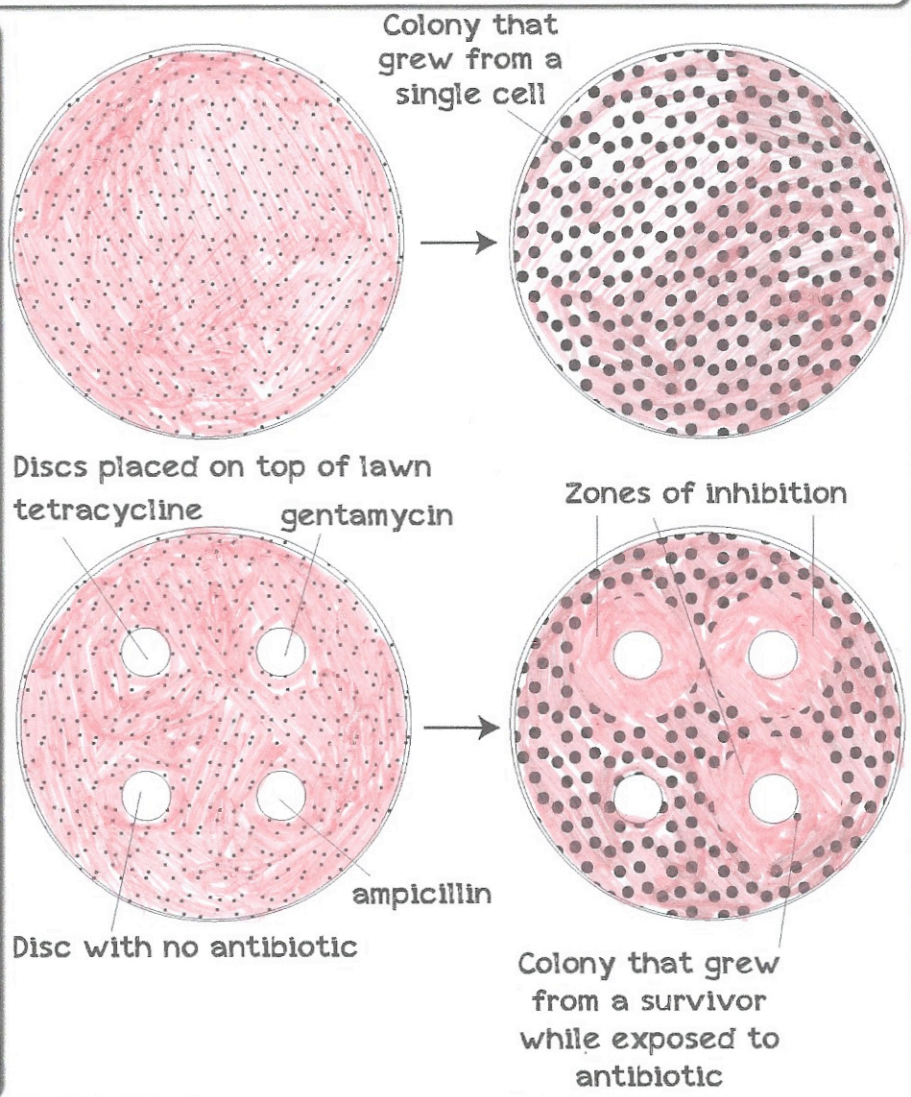
Name: _____

Antibiotic Resistance: Evolution in the Lab

Scientists can demonstrate how natural selection and mutation can cause evolution on a micro-scale in the lab.

- If they spread a bacterial "lawn", tiny microscopic bacterial cells spread evenly over a nutrient agar plate, bacterial colonies grow all over the plate where the original cells were spread. Colonies are full of the descendants of an original single cell that multiplied.
- If they place a lawn on a plate and place small filter paper discs soaked in an antibiotic, most bacteria near the antibiotic are killed and the disc will have an empty "zone" around it.
- If a colony grows near the antibiotic disc, the scientist can pick up that colony and grow the bacteria in that colony in nutrient broth.
- The scientist can make a new lawn of bacteria on a fresh plate, using bacteria that are descended from that original survivor bacteria and colony. That new lawn of descendants will all be resistant to the antibiotic.



Effects on Human Health

Antibiotic resistance is a big problem. Overuse of antibiotics and misuse of them can cause bacterial populations that live on or near humans to become more resistant over time.

- In hospitals, antibiotic resistant bacteria can infect susceptible patients and cause very serious illness and even death.
- Research into discovering new antibiotics is crucial and it's important that doctors only prescribe antibiotics to patients who really need them.