Video Notes Page

Carefully watch the video. If you see examples of any of the science ideas being shared, write them down on your notes sheet.

Multiple animal species can survive in the same ecosystem as long as their needs are being met.

Multiple plant species can survive in the same ecosystem as long as their needs are being met.

Multiple plant and animal species can survive in the same ecosystem as long as their needs are being met.

Humans play a role in managing plant species within an ecosystem.

Humans play a role in managing animal species within an ecosystem.

Humans play a role in managing how plant and animal species interact in an ecosystem.

Scenario 3: Multiple Planting Alfalfa and Grass

Summary

A farmer has been growing and feeding her cattle alfalfa. It has been causing bloat, a problem where cattle suffer from an increase in gas pressure within the rumen. Bloat can be caused by eating too much lush forage like alfalfa, but farmers can help prevent it by ensuring cattle have a diet with both grass and alfalfa. This farmer has decided to use a technique called interseeding where a new forage species is added to an established crop. She is planning to add grass hay to her existing alfalfa field.

Interseeding could have multiple benefits. Along with providing her cattle with a more diverse diet, it could also increase the amount of feed she's able to produce with the same plot of land. She has chosen grass hay because those plants have similar resource needs as alfalfa, but they don't require the resources at the same time, and they don't draw these resources from the same place. Alfalfa will do the majority of its growing early in the season, and after it is established, the grass hay she chose will do the majority of its growing later in the summer.

In order to make sure that the interseeding is successful, she will need to think about how to seed a field with grass hay in order to ensure that both plants have their needs met. She has consulted with some neighboring farmers and received different advice about what she should do prior to seeding. Which option would best ensure that the needs of both species are met?

Scenario 3: Options

- **Grazing/mowing to reduce competition.** - Close grazing or mowing is recommended in order to minimize competition for resources like light and nutrients. It cuts down on weeds and established plants before the seed of the new crop is planted. By reducing the competitive plants, seedlings tend to be more successful and result in better stands.
- **Use of herbicides to reduce competition.** - Applying an herbicide to the field will help to ensure that it starts out weed free, so only the desired species are there to begin with. Once both the grass-hay and alfalfa have been established, it will be very difficult to control weeds. If the weeds aren't controlled, it will be difficult to maintain enough resources for both crops.
- **Fertilizing to provide extra nutrients.** - Fertilizer use has the benefit of improving the soil by providing plants with more nutrients. However, the "salt effect" can occur when fertilizer is located with or near a germinating seed resulting in injury or death of the seedling, so it is very important to use fertilizer at the right time so that the seedling of the new crop is not damaged.

Student Recording Sheet

Scenario 3

Place the components of the ecosystem described in the scenario on the graphic.

Plants	Physical Attributes
Animals	**Humans**

What is the problem in this scenario?

What impact does it have on the ecosystem?

Which potential solution are you selecting?

How does your choice change the ecosystem described in the scenario (positive and negative)?

How does it support both plants in meeting their needs?

How does it show good stewardship of the agricultural resources?