

Video Transcript

Elementary Lesson 5: How Does Your Garden Grow?

Speaker 1: Planning a garden isn't rocket science. It's plant science. There are important things you should know before planting your seeds. There are environmental factors that can affect your garden such as soil drainage, the type of soil that you have, the amount of sunlight that you have, and the climate that you live in. All of those things affect what happens in your own garden.

Speaker 1: We all know that the most important ingredient in your garden is the soil. If you don't have the right soil your plants are not gonna germinate and grow and produce the kind of fruit or vegetables that you're hoping to harvest. So soil really is the main ingredient that we all have to pay attention to and we should spend the most amount of time getting the right nutrients in our soil for our productive garden.

Speaker 1: Okay guys, gather around, let's look at these potatoes. Now what environmental factors do you think could affect the production of potatoes from these potato plants?

Speaker 2: Rain.

Speaker 1: Rain, that's right.

Speaker 3: Insects?

Speaker 1: Insects. Insects can do a lot of damage to a plant.

Anna: Frost free day.

Speaker 1: Frost free day, that's right. Frost free day is the first day you can plant a lot of your vegetables in the garden. If you don't know your frost free day the best place to go would be a local garden center or your local extension office. Every county has an extension office. They offer a lot of great gardening information or you could go online and look up the frost free date for your area.

Speaker 1: Hey guys, today we're going to harvest some potatoes out of this garden. Potatoes are large tubers, they're actually stems that grow underneath the soil. They don't grow on top of the soil, they actually grow in the dirt. They're full of vitamin C and are much more nutritious when you leave the skins on them. How many of you guys like potato chips? Okay, potato chips come from the potato.

Speaker 1: When I planted my potatoes I added nutrients to the soil. Those nutrients are nitrogen phosphorous and potassium. I added those fertilizers early when I planted the potatoes. When the flowers started blooming on the potatoes I fertilized again. Now that we've done everything we've needed, we've watered, we've given it sunlight, we've given it food, we're ready to harvest.

Speaker 1: We've got our potato fork and we're gonna break up the earth, the soil, with our potato fork and we're gonna stick it in ... and we're gonna pull the plant up, and pull up. There we go.

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- Speaker 1: Okay, do you guys see these root hairs? These roots? The roots branched out in the soil and brought nutrients from the soil up into the plant and helped produce these red potatoes.
- Speaker 1: Okay guys, let's take these potatoes into the kitchen. We're gonna scrub them up, we're gonna put them in some water, we'll boil them and have a healthy nutritious snack in a just few minutes.
- Speaker 1: If you aren't able to go outside and compare to a real garden I want to share with you the garden that we're in today. We have planned this garden with lots of time and planning. You can see that the rows are nice and straight. We've taken careful consideration that when we planted the seeds they're at the right spacing. You don't want your seeds to be too close and too crowded or they won't grow and germinate like they're supposed to do. So it's important to follow the label directions on the seed packets and follow the right spacing requirements, and it's also important in your garden that it has at least six hours of sunlight.
- Speaker 1: A garden in the shade doesn't grow and produce like you want it to so you've got to make sure you have at least six hours of sunlight for a garden to grow properly.
- Speaker 1: We also talked about how soil is the main ingredient and you can see that this soil is nice and dark and falls apart. It has a lot of organic matter in it so pay special attention when you're planning your garden to having the right nutrients and the right organic matter in your soil.
- Speaker 1: You can also see that these rows are weed-free. Weeds will take away nutrients and water from your plants and when your plants don't have to compete with the weeds they're gonna grow bigger and stronger and produce more fruit.
- Speaker 1: What we're next to here are green beans. How many of you guys like to eat green beans? Green beans are so nutritious and you can see in this plant the flowers. Each of these flowers grows into a green bean and if we look here closely ... you can see this is a tiny baby green bean and this green bean, with the right nutrients and rain and sunlight, will grow into a large green bean.
- Speaker 1: Now one of my favorite things in the garden are green beans so I'm gonna snap the ends off and take a bite. Mmmm, they're so good.
- Speaker 1: I'm in a small garden with some sweet corn in it. As you can see the sweet corn plant is growing relatively tall. At the top of the sweet corn plant is the tassel and the tassel's important because it helps pollinate the corn. The pollen comes from up here down to the silks on the ear. The silks catch the pollen and the pollen is drawn down into the ear of corn.
- Speaker 1: Now this ear of corn is really small and very immature but it will grow into a large ear of sweet corn. Now, sweet corn plants require a lot of nitrogen. If there was no nitrogen in

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the soil the ear of corn would come out very small and stunted. But with the right nutrients, nitrogen, phosphorous, and potassium, that ear of corn will grow into a healthy, delicious, dinnertime vegetable.

Speaker 1: This is Indian corn. It's a unique, novelty kind of crop, something that not everybody thinks about growing in the garden. When you're planning your garden think about something fun and unique that you might want to add. Ask your parents if you can add a special crop just for you in your garden.

Speaker 1: Today I am joined with Anna Lyles, who's a farmer in New Mexico. Anna, can you tell us what you grow on your farm?

Anna: We grow lots of vegetables. We are in the desert. We're almost near the Mexican border and so we grow things like lettuce, cabbage, watermelons, and pumpkins, onions, wheat, alfalfa, green chile and lots of pecans.

Speaker 1: Anna, being in the desert, how do you sustain your farm with those dry conditions?

Anna: Where we live we only get seven inches of rain a year, which is no rain. So all of our crops are irrigated, either through flood irrigation or drip irrigation. Drip irrigation means we have little hoses laid underneath all of our fields and they drip out water a drop at a time that go right to the roots of the plants.

Speaker 1: Do you pay for the water you use?

Anna: Yes we do pay for the water. Our water either comes out of the Rio Grande River and we pay for use of that or we pay for it by drilling wells and pumping. And the cost of the well and the cost of the fuel to run the pumps is what we pay.

Speaker 1: Anna, as a farmer who makes a living off the land, how important is it for you to plan what you grow very precisely?

Anna: We must plan. We have a four year plan. Right now we know what we're going to plant on each field four years in advance. We need to do that so that we apply the right kinds of fertilizer, the right kind of waters, and the soil born diseases are not effected from year to year.

Speaker 1: So, you use something called a crop rotation?

Anna: Yes, that is exactly what we use, crop rotation. We know that you don't grow green chile on the same field except every fourth year and every fourth year for cabbage also because of the diseases that can be in the soils.

Speaker 1: What do you do on your farm to improve the soil conditions?

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- Anna: Our soil is very important. Without the proper soil it's very, very difficult to grow a good crop. We add nutrients like fertilizers, nitrogen to help the crops grow. Just like your mother gives you a vitamin every morning, we give the soil vitamins to help the plants grow. We also grow fields of what we call green manure crops, grasses, oats, sudan grass, barley, and we only let it get about two foot tall and then we plow it back into the ground to help replace the nutrients that the previous year's crops have used.
- Speaker 1: What happens if you don't plan ahead?
- Anna: If we don't plan ahead we can lose an entire crop. It cost a lot of money, thousands and thousands of dollars to plant a crop. If we make a mistake and don't take care of the land properly we could lose all of that because our crop will die. We have to make sure that we take care of the earth, that we use our water responsibly, and that we use the land to the best of our ability.
- Speaker 1: If you could give the students one tip for growing a garden what would it be?
- Anna: Well a garden is a great thing to do but it's a long term commitment and you must pay attention to it every day; checking for the moisture in your soil, bugs that could be on your plants, insects, or maybe your plants just needs a little fertilizer, a multiple vitamin. So the best advice I could say is if you're going to plant a garden make sure you can give it the attention that it needs.
- Speaker 1: And Anna, what is your favorite thing about being a farmer?
- Anna: My favorite thing about being a farmer is how we get to spend time on the land with our family. We all work together. All of our children have grown up here on the farm and now that they are getting to be adults they are sharing the information and the knowledge of farming with other people.