

## **Video Transcript**

### **Middle and High School Lesson 1: In Search of Essential Nutrients**

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- Speaker 1: Today we're going to talk about the search for essential nutrients. Can you tell me what the three essential nutrients from plants are? That's right. The essential nutrients for all plants are nitrogen, phosphorus and potassium. Let's take a look at my garden. You can see that my plants are tall, lush, and green. That's because I provided them with the essential nutrients, nitrogen, phosphorus and potassium.
- Speaker 1: Now, let's take a look at some of the ways I have added those three essential nutrients to my garden. First, we're going to talk about just general fertilizer. This one right here is a ten, ten, ten fertilizer. That means ten percent of it is nitrogen, ten percent of it phosphorus and ten percent of it is potassium. That's just a general fertilizer that can be applied to any garden. It's not gonna burn your plants if you sprinkle it on the soil and rake it in.
- Speaker 1: You can also do something called side dressing. And as your plants grow, like my potatoes back here, along each row I used my hoe and I made a valley. And in that valley, I sprinkled this fertilizer in it. Now anytime I'm using fertilizer, I follow label directions. I read the back of the packet and it tells me how much fertilizer to add to any specific garden vegetable. So this ten, ten, ten nitrogen, phosphorus, potassium is one way I add nutrients to my soil.
- Speaker 1: Another way to add nutrients to my garden is through a water soluble fertilizer. Here you can see the blue powder. I'm going to add some water, and there are label instructions on every container. It's gonna tell you how much water to add per tablespoon of this fertilizer and make sure that it stirs and dissolves. Now this is very highly concentrated. Normally, I would put it in my water can and add the right amount of water.
- Speaker 1: So here I just wanted you to see that it does dissolve and becomes a liquid. And, when my plants start telling me that they're hungry for nutrients, they'll start turning yellow, they'll look droopy. This is when I know I need to start adding a water soluble fertilizer. In this bowl is compost, which is organic matter that was once alive and now is dead. Twigs, branches, leaves, insect parts.
- Speaker 1: All things that were once alive were pulling nutrients out of the soil as they grew. And now that they are dying and decomposing, those nutrients as they break down, go down into the soil and add to that soil structure. So adding organic matter is so important to any gardener or farmer. If you wanted to have your own compost bin, it's easy to start when it's your school or in your backyard or somewhere around your garden.
- Speaker 1: To a compost bin, you add grass clippings leaves from trees in the fall. You could take scraps from your leftover dinner like leftover lettuce, anything except for like meats and cheeses can be added to your compost bin. As the compost bin breaks down, all of that stuff is converted into organic matter and can be added to your garden. The last sample I have is potting soil. Now, potting soil is a soilless media. It's not something that you would add to your garden.

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- Speaker 1: This is a media that you use if you can't have a garden and you wanted to grow some vegetables in pots. This is excellent for pots because it's lightweight, it has excellent drainage, and it lets water through it, and generally when you buy a new bag of potting soil, it has a lot of nutrients in it, those being nitrogen, phosphorus, and potassium. So, if you wanted to grow a patio garden and have some Cherry Tomatoes, some Basil, some other herbs, this is the type of soil media that you would use.
- Speaker 1: It's not a good idea to go out and dig some dirt in the backyard and put it in a pot because it's too heavy, it doesn't allow drainage, and the plants won't grow as well. So doing your patio garden, or adding some flowers in front of your house in pots. This is a really good way to add soil to your container, and plant your seeds and your plants right inside the soilless media. I've just showed you four ways to add nutrients to your soil.
- Speaker 1: Through the use of a granular fertilizer, a liquid fertilizer, compost or potting soil for your indoor plants. The best way to know what nutrients your soil needs is to have a soil analysis taken. In order to do that, you have to take a soil sample and send it in for a test to be run. It'll tell you the Ph, they'll tell you how much nitrogen, phosphorus, and potassium is needed to amend your soil to make it just right for your plants to grow in.
- Speaker 1: Well on your search for essential nutrients, be on the lookout for those 17 elements that are needed for a full plant lifecycle. The macro nutrients here on the periodic table are nitrogen, phosphorus, and potassium, they're all in orange. The micro nutrients, there are 14 of them and they are in green. Oxygen, chlorine and iron or a few of those micro nutrients.