

## { INSTRUCTIONS }

Thank you for trying our elementary plant and soil science curriculum! With the curriculum, we've also included a set flashcards to enhance your students' learning experience. The following games were designed to be a simple, yet fun way to help students retain information that they learn from the different lessons. You can play one of our games or come up with one of your own!

### **Around the World**

1. The student that will start the game stands next to the desk of another student. These two students will compete to correctly answer the question on the flashcard.
2. The teacher holds up or reads aloud the question on the flashcard. Listen for the student who answers the question correctly first.
3. The student that correctly answers the question first wins the battle and continues on to the next student. The student that does not win must remain in his/her seat or sit in the desk of the student that does win.
4. Continue the game until one student remains and has traveled around the world (or classroom). Shuffle the flashcards as needed.



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## Beat the Clock

1. You must first decide on a certain amount of time (i.e., 30 seconds) for each student to answer as many flashcards as possible.
2. Let each student answer as many flashcards as he/she can before the time runs out.
3. The student who answers the most flashcards wins. If there is a tie, allow the students that tied another chance to answer the questions, but reduce the amount of time to answer. Keep reducing the time until there is a clear winner.

## Circle Up

1. Have your students sit in a circle.
2. Go around the circle asking each student a different question from the flashcards.
3. If the student answers correctly, he/she stays in the circle. If he/she gets it wrong, they are out and must sit in the middle of the circle.
4. Keep going around the circle until only one student remains.



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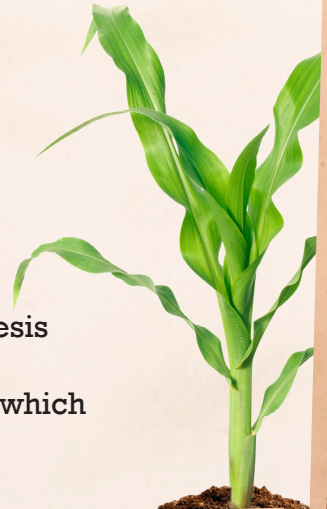
# NITROGEN



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# NITROGEN

- Helps plants grow strong and healthy
- Helps plants gain energy through photosynthesis
- Without nitrogen, plants don't grow as tall
- Without nitrogen, their old leaves turn yellow, which is called chlorosis
- The chemical symbol for nitrogen is N





# PHOSPHORUS

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## { PHOSPHORUS }

- Without phosphorus, plants don't grow as tall and their old leaves turn purple
- Without phosphorus, plants don't make seeds, their flowers don't bloom, and they don't make fruit
- Helps plants with respiration
- Helps plants store and move energy
- Helps plants use water
- Helps plants grow strong roots
- Helps plants make flowers and fruit
- The chemical symbol for Phosphorus is P



# POTASSIUM

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# { POTASSIUM }

- Helps plants fight disease
- Helps plants make energy from food
- Helps plants control water inside of them
- Without potassium, plants do not have energy to grow
- Without potassium, the older leaves have “burnt” edges
- Without potassium, plants cannot fight-off diseases and pests
- Without potassium, plants cannot live through the winter
- The chemical symbol for Potassium is K



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1.

**What are the three primary nutrients found in fertilizer?**



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## ANSWER

- Nitrogen
- Phosphorus
- Potassium



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**2.**

**Why do plants need nitrogen?**



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## ANSWER

- Nitrogen helps plants grow strong and healthy
- Nitrogen helps plants gain energy by helping with photosynthesis

*Accept one or all of the above answers*



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**3.**

**Why do plants need phosphorus?**



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## ANSWER

- Phosphorus helps plants with respiration
- Phosphorus helps plants store and move energy
- Phosphorus helps plants make roots, flowers, and fruit

*Accept one or all of the above answers*



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4.

**Why do plants need potassium?**



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## ANSWER

- Potassium helps plants fight diseases
- Potassium helps controls water inside plants
- Potassium helps make energy from food

*Accept one or all of the above answers*



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5.

**What happens when a plant doesn't get enough nitrogen?**



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## { ANSWER }

- It doesn't grow as tall
- Its old leaves turn yellow, which is called chlorosis

*Accept one or all of the above answers*



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6.

**What happens when a plant  
doesn't get enough phosphorus?**



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## ANSWER

- Its older leaves turn purple
- It doesn't grow as tall
- It doesn't make seeds, flowers, or fruit

*Accept one or all of the above answers*



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**7.**

**What happens when a plant  
doesn't get enough potassium?**



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## ANSWER

- Its older leaves look “burned”
- It doesn’t have enough energy to grow
- It cannot fight-off diseases and pests
- It cannot live through the winter

*Accept one or all of the above answers*



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8.

**What provides plants with nitrogen, phosphorus, and potassium?**



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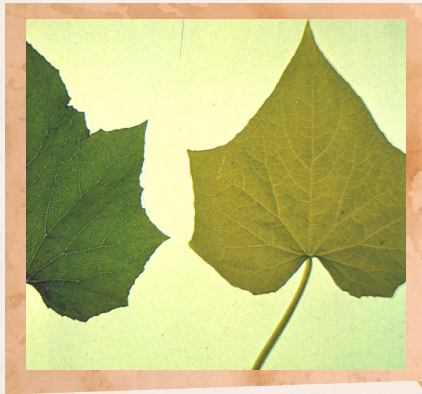
## ANSWER

- Plants get these nutrients from the soil. As plants grow, these nutrients are removed from the soil and we can use fertilizer to replace those nutrients.
- Fertilizer is food for the plants.





**9. What nutrient is this plant missing?**



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**ANSWER**

Nitrogen



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**10. Which nutrient is this plant missing?**



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**ANSWER**

Phosphorus



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# 11. What nutrient is this plant missing?



**ANSWER**

Potassium



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12.

**What is K the chemical symbol for?**



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**ANSWER**

Potassium



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13.

**What is N the chemical symbol for?**



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**ANSWER**

Nitrogen



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**14.**

**What is P the chemical symbol for?**



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**ANSWER**

Phosphorus



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**15.**

**What is chlorosis?**



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## ANSWER

- It is when a plant does not get nitrogen and its leaves turn yellow



16.

**What does photosynthesis do?**



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## ANSWER

- It gives plants energy



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**17.**

**What is the chemical symbol  
for potassium?**



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**ANSWER**

**K**



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**18.**

**What is the chemical symbol  
for nitrogen?**



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**ANSWER**

**N**



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19.

**What is the chemical symbol  
for phosphorus?**



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ANSWER

P



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20.

**What nutrient makes plants grow strong and healthy?**



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**ANSWER**

Nitrogen



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21.

**What nutrient helps plants store and move energy?**



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**ANSWER**

Phosphorus



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22.

**What nutrient helps plants  
fight diseases?**



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**ANSWER**

Potassium



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**23.**

**What nutrient deficiency causes yellow leaves?**



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**ANSWER**

Nitrogen



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**24.**

**What nutrient deficiency causes purple leaves?**



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**ANSWER**

Phosphorus



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25.

**What nutrient deficiency causes burnt leaves?**



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**ANSWER**

Potassium



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**26.**

**What is it called when a plant does not have enough nitrogen and its leaves turn yellow?**



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**ANSWER**

Chlorosis



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**27.** What nutrient is lacking resulting in a poor root system?



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**ANSWER**

Potassium



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**28.**

**What nutrient is missing which results in pale color and spongy citrus fruit with a thick rind?**



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**ANSWER**

Phosphorus



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**29.** What primary nutrient is missing from the tomatoes on the right resulting in small, irregular colored tomatoes?



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**ANSWER**

Potassium



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