



A BALANCING ACT

4-H Plant Science Lesson

YOUTH WILL ROLE PLAY VEGETABLES AND WEEDS COMPETING FOR NUTRIENTS



Project Skills:

Plant nutrient requirements and competition for these resources

Life Skills:

Managing resources
WI Academic Standards:
Science F.4. Life And
Environmental Science

Time:

20-25 minutes

Supplies:

- 36 - 2" x 2" squares of green poster board (N on one side and Nitrogen on other)
- 36 - 2" x 2" squares of yellow poster board (K on one side and Potassium on other)
- 36 - 2" x 2" squares of blue poster board (P on one side and Phosphorus on other)
- A large area to conduct the activity

Getting Ready:

Divide the 2" x 2" inch squares into 3 equal groups with 12 green, 12 yellow and 12 red squares each.



WHAT TO DO

Play A Balancing Act

1. Divide the group by having youth count off one-two. The ones will be weeds and the twos vegetables.
2. Tell the youth that you are planting a garden. Have the vegetables line up in rows evenly spaced throughout the garden.
3. Ask the weeds to randomly fill in spaces among the vegetables.
4. Tell the group that they will be playing a game to better understand competition among plants for food (nutrients). The object of the game is for the weeds and vegetables to gather as many colored squares as they can.
5. Tell the youth that they are plants and that they are each anchored firmly in the ground and cannot move their feet. They can only reach down to pick up nutrients that are within reach.
6. Randomly scatter approximately one group of the 2" x 2" squares on the ground around the weeds and vegetables.
7. When you give the signal to start the first round, have the vegetables and weeds reach down without moving their feet and pick up as many nutrients as possible in 10 seconds and record data on their worksheet.
8. Conduct two more rounds by repeating steps 6 and 7.
9. Explain that each colored square represents a different plant nutrient. Green represents nitrogen; yellow represents potassium; and red represents phosphorous. All plants (vegetables and weeds) need enough of each of the three nutrients to survive.
10. If a vegetable or a weed does not have at least two of each color square, they "die" from not getting enough nutrients and must step out of the garden.
11. Repeat steps 6-10 two more times and see how many plants are still alive.

TALK IT OVER

Try to get each youth to express his or her feelings and experiences.

Reflect:

- What kept you from getting a higher number of each nutrient?
- How did spacing the vegetables evenly apart help them to survive?
- What are some other resources for which plants might compete?

Apply:

- How would you explain competition to someone else?
- What are some resources for which people compete?
- How do you feel when you have to compete and perform under pressure?
- How would you explain competition to someone else?

BALANCING ACT WORKSHEET

	Vegetable Count		Weed Count	
	# Live	# Die	# Live	# Die
Starting Count				
Round 1 Count				
Round 2 Count				
Final Count				
Analysis & Comments				

Nitrogen Nitrogen Nitrogen Nitrogen

Nitrogen Nitrogen Nitrogen Nitrogen

Nitrogen Nitrogen Nitrogen Nitrogen

Nitrogen Nitrogen Nitrogen Nitrogen

Nitrogen Nitrogen Nitrogen Nitrogen

N

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Potassium Potassium Potassium Potassium

Phosphorus

Phosphorus

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