



EarthBox Garden Student Activity Guide

Activity: The Nutritional Value of 21 Healthy Crops

Focus:



Health

Time Required: 45 minutes

Goals:

- Learn about the vitamins and minerals and health benefits found in some everyday produce

Materials:

- “Percent of Recommended Daily Intake of Vitamins and Minerals Per Serving of Fruits and Vegetables” data table
- Standard Kitchen Scale
- One head of cabbage
- “Health Benefits of Vitamins and Minerals” information sheet
- “Vitamin and Mineral Matching Activity” student activity sheet

Handout(s):

Yes

Step 1: Pass out one copy of the table titled “Percent of Recommended Daily Intake of Vitamins and Minerals Per Serving of Fruits and Vegetables” as well as one copy of the information sheet titled “Health Benefits of Vitamins and Minerals” to each participant.

Step 2: Review the table “Percent of Recommended Daily Intake of Vitamins and Minerals per Serving of Fruits and Vegetables”. Be sure to read the comment typed in beneath the table. Then ask the students questions about the table. For example, ask them which vegetable provides the highest per cent of Vitamin A (spinach). Try to create a question for each of the minerals and vitamins to familiarize the students with what is in the table and to help them to read the table. Be sure to tell the students that the table is not a comprehensive list of vitamins and minerals, but does include all those that can be found in produce. Point out that Vitamin D is obtained from sunlight and that ten minute daily visits to the outdoor EarthBox Garden will provide sufficient amounts of Vitamin D.

Step 3: Inform the students that the weights listed in the table reflect the weight of raw vegetables, not cooked. Then, proceed to show them the physical amount of cabbage that represents the recommended 70 gram serving.

Step 4: Have participants take turns reading the health benefits of each vitamin and mineral. When they finish, pass out the activity sheet titled “Vitamin and Mineral Matching Activity”. Have them work in pairs to complete this matching activity. Encourage them to discuss the value of the vitamins and minerals and to discuss their current eating habits.



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Percent of Recommended Daily Intake of Vitamins and Minerals Per Serving of Fruits and Vegetables

Food	Serving Size (g)		Vitamins				Minerals				Minerals									
	Calories	A	E	K	C	Thiamin	Riboflavin	Niacin	B6	Folate	Calcium	Iron	Magnesium	Phosphorous	Potassium	Sodium	Zinc	Copper	Manganese	
Chinese Cabbage	70	9	156	1	42	70	3	5	3	14	15	6	7	5	2	4	3	2	21	6
Green Leaf Lettuce	100	15	370	3	289	40	8	9	3	9	13	3	11	5	2	4	2	2	4	13
Red Leaf Lettuce	100	16	375	2	233	8	7	9	3	10	12	3	15	5	2	4	2	3	4	11
Broccoli	91	31	28	6	154	180	7	12	5	16	19	3	8	8	5	6	2	5	6	10
Spinach	100	23	469	18	805	62	9	21	6	20	65	8	34	33	4	12	5	7	19	47
Butternut Squash	140	63	744	18	3	65	16	3	14	22	13	5	12	20	4	11	0	3	14	15
Acorn Squash	140	56	26	~	~	34	22	2	8	22	8	4	12	19	4	11	0	2	13	12
Sweet Yellow Corn	166	136	16	1	1	23	34	10	22	9	24	0	10	24	11	9	2	9	12	13
Green Peas	145	117	56	2	60	129	43	21	25	25	31	3	27	20	13	8	0	23	36	31
Lima Beans	156	176	24	10	15	81	38	18	19	32	18	4	64	38	17	16	1	15	71	100
Zucchini	124	20	12	1	9	47	7	20	5	27	12	1	5	9	4	7	1	5	9	11
Red Tomatoes	149	27	75	9	24	51	7	4	9	14	9	1	6	8	3	9	1	4	15	11
Green Peppers	149	30	28	5	18	267	9	5	6	33	5	1	6	6	2	6	0	2	14	10
Red Peppers	149	39	233	22	12	629	9	14	12	43	9	1	8	7	3	7	0	5	4	9
Okra	100	31	19	4	88	47	22	7	8	22	29	6	10	24	5	7	1	8	13	52
Red Cabbage	89	28	50	1	57	113	6	7	3	19	5	3	9	6	2	5	2	3	2	11
Eggplant	82	20	1	2	5	4	4	3	4	7	6	1	3	5	2	4	0	2	10	11
Cucumber	100	15	5	0	27	6	3	4	1	4	2	1	4	5	2	3	0	3	6	4
Cantaloupe	156	53	264	1	7	127	7	3	10	11	11	1	4	8	2	9	2	4	9	3
Honeydew	170	61	4	0	8	68	7	2	6	15	11	1	4	7	2	9	2	2	6	2
Watermelon	152	46	44	1	0	28	6	4	2	7	2	1	5	6	1	4	0	2	9	3

Percentages of Recommended Daily Intake are based on data obtained from the National Academies of Sciences Institute of Medicine for 9-13 year old children. Nutritional data for the included fruits and vegetables was obtained from the USDA National Nutrient Database for Standard Reference, Release 18.



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Health Benefits of Vitamins and Minerals Information Sheet

Fat Soluble Vitamins - These vitamins are stored in fat in your body. Because they are stored, it is possible to have too much of these vitamins in your body which would make you sick.

Vitamin A

- Strong, healthy skin
- Good vision

Vitamin E

- Wound healing
- Healthy skin

Vitamin K

- Blood clotting

Vitamin D

- Helps your body absorb calcium and phosphorous
- Not found in fruits and vegetables
- Made by your skin when you are out in the sun, as with gardening (10 minutes a day of sunlight on your arms and face is all you need!)

Water Soluble Vitamins – Because these vitamins are dissolved in water, it is more difficult to have too much of them in your body. Your body can get rid of extra water soluble vitamins in your waste.

Vitamin C

- Healthy immune system (fights germs)

Thiamin

- Making energy from food
- Healthy nerves and muscles

Riboflavin

- Making energy from food
- Repairing injuries

Niacin

- Making energy from food
- Getting rid of toxins
- Healthy brain

Vitamin B6

- Makes proteins in your body
- Helps control depression
- Controls allergies

Folic Acid

- Healthy brain and nerves
- Helps make DNA in your cells
- Healthy immune system



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Minerals

Calcium

- Strong bones and teeth
- Muscle movement
- Sending signals through your nerves

Iron

- Part of red blood cells – carry oxygen through your body
- Making energy in your body

Magnesium

- Growth of bones

Phosphorous

- Strong bones and teeth
- Helps use energy from food

Potassium

- Controls the amount of water in your body
- Helps nutrients move into your cells and waste move out of your cells
- Healthy nerves and muscles

Sodium

- Controls the amount of water in your body
- Healthy nerves
- Making energy in your body
- Helps nutrients move into your cells

Zinc

- Healthy immune system
- Wound Healing

Copper

- Making blood and bones
- Skin and hair color

Manganese

- Important part of enzymes – help control body functions

Note – This list does not include all vitamins and minerals that the body needs. Others, such as Biotin, B12, and Chloride are not found in large quantities in most fruits and vegetables.



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Vitamin and Mineral Matching Activity

Directions

Match each health benefit on the right with its appropriate vitamin or mineral by writing the number of the vitamin or mineral in the space before the health benefit. A single health benefit may have more than one vitamin or mineral associated with it.

Health Benefit	Vitamin or Mineral
_____ Good vision	1 Vitamin A
_____ Makes proteins in your body	2 Vitamin E
_____ Making energy from food	3 Vitamin K
_____ Controls allergies	4 Vitamin D
_____ Strong bones and teeth	5 Vitamin C
_____ Helps absorb calcium and phosphorous	6 Thiamin
_____ Blood clotting	7 Riboflavin
_____ Important part of enzymes	8 Niacin
_____ Helps use energy from food	9 Vitamin B6
_____ Healthy brain	10 Folic Acid
_____ Helps nutrients move into cells	11 Calcium
_____ Strong, healthy skin	12 Iron
_____ Healthy nerves and muscles	13 Magnesium
_____ Repairing injuries	14 Phosphorous
_____ Making energy in your body	15 Potassium
_____ Carries oxygen through your body (in blood)	16 Sodium
_____ Skin and hair color	17 Zinc
_____ Controls the amount of water in your body	18 Copper
_____ Helps make DNA in your cells	19 Manganese
_____ Healing wounds	
_____ Growth of bones	
_____ Healthy immune system	
_____ Muscle movement	
_____ Helps control depression	
_____ Making blood and bones	