ACTIVITY C

CONNECT THE DOTS: MAKE A NUTRIENTS COMIC STRIP

Time Frame: Three 45-minute sessions

Learning Objectives:

- Make and investigate hypotheses about how their essential nutrients travel to them.
- Learn about different vitamins and minerals, and which foods contain them.
- Use comic strips or storytelling to share their investigations with their peers.

Materials for activity:

- Poster board or large paper (one for each group)
- Copies of storyboard worksheet
- Printed out maps of the U.S. (one per group) or illustrations/photos
- Markers, scissors, glue sticks, art supplies
- Access to computers, or printed out research materials
- Printed out *FDA vitamins & minerals chart*

Overview:

In this activity, students work in small groups to make illustrated storyboards showing how different minerals are connected from different points along the journey to their tables.

Essential Questions:
- How do the vitamins and minerals we need to eat get to us?
- Which foods are the most vitamin/mineral-rich and where do they come from?

Introduction (10–15 minutes):
Give a brief overview of vitamins and minerals, highlighting key ones (calcium, iron, potassium, vitamin C, etc.) and their importance. Use the reference material at the end of this lesson. Have the class make hypotheses as to which foods they think are most nutrient-rich.

Instructions:
Divide the students into small groups and assign each group a different vitamin or mineral. Give each group a poster sheet, a map of the U.S. and a copy of the vitamins & minerals chart. Now give the following instructions to students:

1. Consult the FDA vitamins & minerals chart to find out which foods contain your group's nutrient, along with information about its benefits.

2. Research your assigned nutrient and try to visualize its journey to your table. Since many foods contain each vitamin/mineral, choose a few (such as the ones you eat most frequently) to research. (10–15 minutes)
3. Collaborate with your group to make a creative comic strip or graphic novel, illustrating the vitamin or mineral's journey through different foods, to your tables. Begin by making a plan and brief outline. (10–15 minutes)
4. Work on your project with your group. Include a map, showing the geographical journey, along with other relevant illustrations (plant life cycle, growing conditions/seasons, etc.). You may also include animal products in addition to plants, as well as health information (e.g., recommended daily intake, health benefits). (45 minutes)
5. When finished, present your group's storyboard to the class, highlighting key parts of the vitamin/mineral journey. Optional: Add an element of drama and action by acting it out!
6. Once all groups have presented, revisit the hypotheses you made at the beginning of the lesson. Which foods were the most nutrient-rich? Were the hypotheses correct? What was most surprising?

Optional Extension:
Challenge students to go home and keep a list of what foods they eat for a day, and try to match those up with the vitamins and minerals they contain.

Reference Material:
[Will provide a link to the new 3–5 lesson plans that include reference material on nutrients such as calcium, potassium and vitamin D.]

FDA Vitamin & Minerals Chart
https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/factsheets/Vitamin_and_Mineral_Chart.pdf

Potassium is an important nutrient found in a wide variety of foods – from fruits like bananas, dried apricots and orange juice to vegetables like spinach and potatoes. Some beans (white beans, soy beans), fish (halibut, tuna), and types of dairy (low-fat yogurt and milk) are good sources, too. Potassium supports our blood pressure, heart health, and muscle strength.

Vitamin A is good for your eye health and immune system. Beta-carotene, a form of vitamin A, is what gives carrots and sweet potatoes their orange color.

Vitamin C is an important nutrient that is needed for the growth and repair of tissues in all parts of your body. All fruits (and vegetables, too) contain some amount of vitamin C.

Folate is one of the B vitamins and is needed by all of our cells for growth. Fruits, vegetables and some whole grains are a good source of folate.

***Vitamin Deficiencies**
When the 2010 Dietary Guidelines for Americans were released, it was noted that there were four nutrients of concern based on data that suggested as Americans we don't get enough of them. Potassium, calcium, vitamin D and fiber were the four nutrients on the list. Potassium has been a focus because of its health associations and its benefits. The goal for Adequate Intake set by the National Academy of Sciences is 4,700 milligrams per day.

Foods in the Dairy Group provide nutrients that are vital for the health and maintenance of the body regardless of age. These nutrients include calcium, potassium and vitamin D, all of which help keep bones strong and reduce the risk for bone fractures and breaks.

Teacher Resources:
Printable Map of USA

Printable Map of Central and South America

More Lessons on Soils and Nutrients:
In Search of Essential Nutrients (Grades 6-8) | National Agriculture in the Classroom
In this lesson students will learn the definition of an essential element, compare and contrast the essential nutrient requirements of plants and humans, explain why plants cannot use elemental nitrogen found in the atmosphere, and identify the sources for each essential nutrient needed by plants.

Plant-Soil Interactions (Grades 6-8) | National Agriculture in the Classroom
Students will recognize that plants remove nutrients from the soil, explain the roles of diffusion and active transport in moving nutrients from the soil to the plant, and relate the root and vascular systems of the plant to the human circulatory system.

Next Generation Science Standards:
NS. 5-8.1 Science as Inquiry
As a result of activities in grades 5-8, all students should develop –
- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

Worksheets & Downloads:

Comic Strip Template