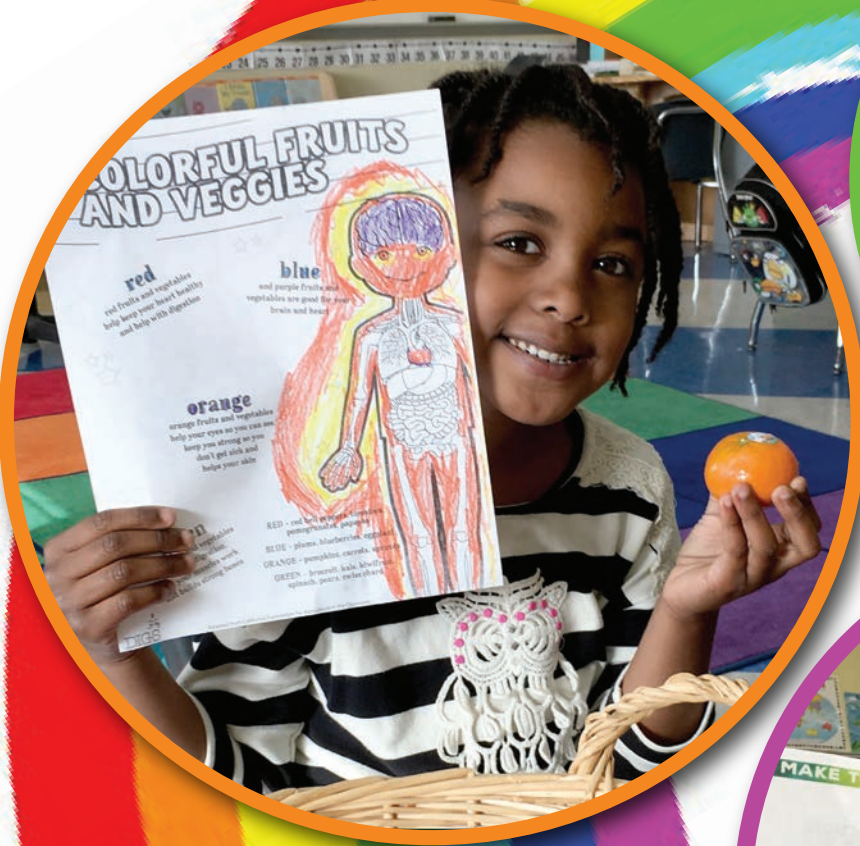




a project of  
Earth Island Institute



# GROW HEALTHY WITH US!

A Garden-Based Nutrition Activity Guide for Grades K-6  
produced with support from the Whole Kids Foundation and the City of Richmond, CA

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# Why Nutrition Education?

Dear Garden Educator,

The American fast food, super-sized diet coupled with our sedentary lifestyle is killing us. There is consistent evidence that ultra-processed foods, loaded with added chemicals, sugars and fats are taking a toll on us. Americans are showing an increase in diet-related maladies including high; blood pressure, cholesterol, and blood sugar as well as mental health issues. The COVID-19 pandemic and stay-at-home orders further limit physical activity, and opportunities to eat well. The low-income communities where we teach often rely on cheap, highly processed foods making families at high risk for health problems. Childhood obesity is more prevalent than ever. Astoundingly, 65 – 70% of Americans are obese!

The *good news* is that children who are exposed to a healthy diet early on are more likely to develop good eating habits. Educators can increase the likelihood that children will learn to like and choose healthy foods by teaching them the basics of nutrition and encouraging them to eat more fruits and vegetables. More importantly, children who grow their own vegetables are more likely to eat them. School and family gardens play an important role in nutrition and good health.

As a result of the stay-at-home orders, gardening and seed buying has spiked in the USA. We have seen these changes in our own school community when we gave away 600 plants to Richmond, California families. More families are “getting their hands in the dirt” as food insecurity rises and family income takes a downturn.

As a teacher, I have combed the internet many times attempting to come up with the best lessons for my students. In the land of nutrition education you can easily get tangled in the jungle of resources available to you. We did our own “pruning” and testing, and came up with a few key lessons to guide our way. To encourage more nutrition teaching, we want to share with you the results of our research by making it easier for you to instruct with new knowledge and skills that are so critical to your students health and well-being.

Our hope is that this DIGS Activity Guide will support your efforts to teach Nutrition/Garden Lessons and to reach your students with this vital information. I think you will find that you and the kids will have fun learning about nutrition. And in an effort to be a good role model, you will find yourself improving your own health habits!

So, may you and your children Go, Grow, Glow and enjoy a healthy nutritious life!

Graciella Rossi  
*Retired Teacher, WCCUSD*  
*Project Director*  
*West County DIGS*

# Resources and Supporters

This Nutrition Resource book is brought to you by West County DIGS (Developing Instructional Gardens in Schools) an organization dedicated to supporting school garden programs in the West Contra Costa School District. With past support from Kaiser Permanente and a recent grant from the Whole Kids Foundation, DIGS focused on developing key nutrition lessons for students grades K-6.

We want to recognize the work of Life Lab and KidsGardening.org for their ongoing work in developing garden-based curriculum and training. Many of the lessons you see in this resource book are based on their publication, *The Growing Classroom, Garden Based Science and Nutrition Activity Guide*. This is one book that we would recommend you purchase if you want to grow your skills as a garden/nutrition educator. Our aim was not to reinvent the wheel but to tailor lessons from various sources to meet our students' needs.

We would also like to thank Mira Vista School first grade teacher, Bonnie Janora for her dedication to teaching children about making healthy choices and for her contributions to several lessons.

Some of the key websites that we would like to refer you to include the following:

<https://lifelab.org/about/>

This is our go-to site for fun state-of-the-art garden curriculum and training workshops

<https://www.bakespace.com/members/profile/melaniepena/796785/>

The Mira Vista School community has posted their favorite garden recipes for families to enjoy

<https://www.kiddycharts.com/printables/go-grow-glow-printables/>

A simple color version of a Go Grow Glow Plate and vegetables

<https://kidsgardening.org/lesson-plans-eat-a-rainbow/>

further reference for Eat Your Colors

<https://web.extension.illinois.edu/gpe/case1/c1facts2a.html>

for plant parts lesson

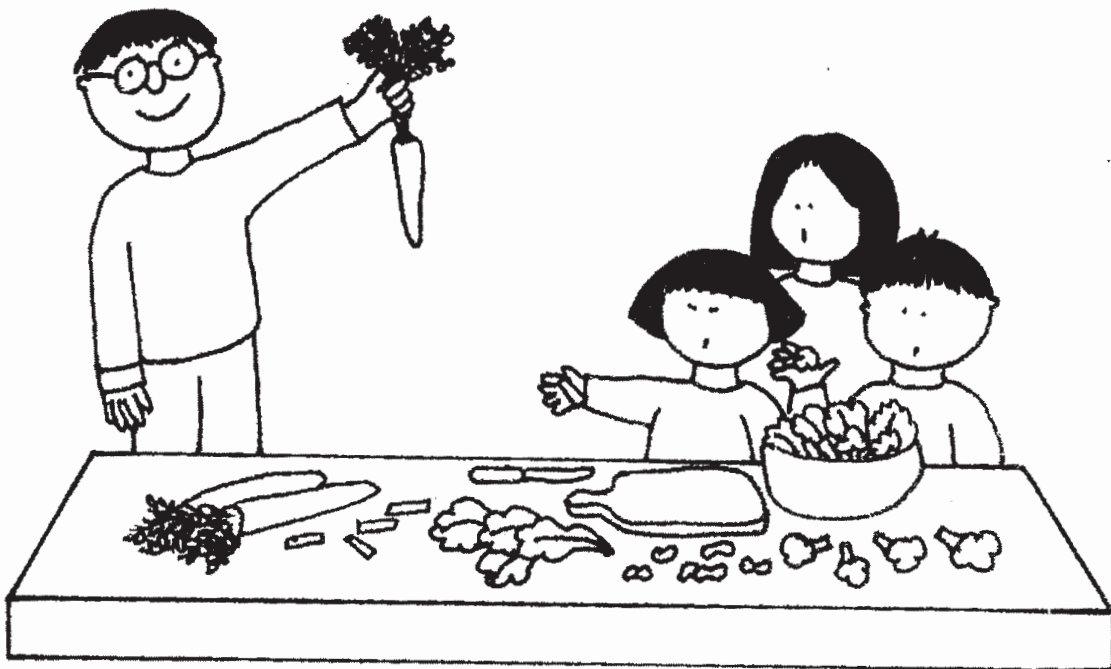
<https://www.cde.ca.gov/ls/nu/he/documents/ntgo.pdf>

Garden/Nutrition Book for Upper Elementary Grades



# Healthy Eating Tips from Life Lab

- ✔ *Eat a balanced diet, including all of the food groups.*
- ✔ *Cover about half of your plate in fruits and veggies.*
- ✔ *Choose whole and minimally processed foods, including whole grains.*
- ✔ *Eat a variety of natural colors.*
- ✔ *Maintain energy balance by exercising daily.*
- ✔ *Reduce the amount of salt, sugar, and unhealthy fats you eat.*
- ✔ *Get to know foods by reading nutrition labels.*
- ✔ *Balance health, preference, and tradition.*
- ✔ *Put flowers on the table, have a seat, and enjoy meals with family and friends.*



# Healthy Alternatives for Snacks, Birthday Parties, and Other Classroom Celebrations

## **Fresh Produce:**

Vegetables (Examples: carrots, jicama, sugar snap peas, cherry tomatoes, peppers) Fruits (Examples: apples, pears, bananas, oranges, persimmons, grapes, berries)

## **Trays, either purchased or made at home:**

Assorted Vegetables

Assorted Fruits

## **Combination Platters, either purchased or made at home:**

Lean Meats and Cheeses

Cheeses and Multigrain Crackers

Vegetables and Hummus

Whole Wheat Pita Wedges and Hummus

Multigrain Tortilla Chips and Salsa

Multigrain Tortilla Chips and Guacamole

Apple Slices and Almond Butter or Sunflower Seed Butter

Sugar Snap Peas and Bean Dip

## **Crunchy Snacks:**

Multigrain Tortilla Chips

Multigrain Pretzel Nuggets

Pretzel Sticks

Air-popped Popcorn

Whole Wheat Pita Chips

## **Dairy:**

String Cheese

Yoghurt Tubes (no more than 9 gr. of sugar)

# Garden-Based Nutrition Curricular Connections

## Science

- The chemistry of cooking
- Plant growth and development
- Seasons and climate
- Experimentation with plant growth and cooking
- The science of nutrition

## Social Studies

- The origins and movement of foods
- Foods of different cultures
- Agriculture through the ages and across the globe
- Food systems and consumerism

## Physical Education

- Physical fitness
- Aerobics
- Understanding how the body uses nutrients
- Gardening as exercise
- Using tools safely

## Art

- Appreciation of food: color, shape, texture, smell, taste, sound
- Poetry, music, visual art about food and gardens
- The art of garden design
- Creating a beautiful meal



## Garden-Based Nutrition *Curricular Connections*

## Math

- Multiplying, dividing recipes
- Measuring in cooking (volume, weight, temperature, time)
- Measurement and geometry in gardening
- Comparing nutrient quantities
- Counting: seeds, potatoes, leaves, etc.
- Graphing and charting (food preferences, height of peas, size of pumpkins, etc.)

## Language Development

- Vocabulary
- Journal writing
- Letter writing
- Literature connections
- Recipe reading
- Oral communication
- The art of conversation



# Common Core Math and English Language Arts Standards We Can Frequently Reinforce in Gardening, Cooking and Tasting Activities

## Language Arts

- K.W.3** Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
- K.W.8** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- K.SL.1** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- K.SL.6** Speak audibly and express thoughts, feelings, and ideas clearly.
- K.L.5.a** Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- K.L.5.c** Identify real-life connections between words and their use (e.g., note places at school that are colorful).
- I.L.5.c** Identify real-life connections between words and their use (e.g., note places at home that are cozy).
- I.W.3** Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
- I.SL.1** Participate in collaborative conversations with diverse partners about grade topics and texts with peers and adults in small and larger groups.
- I.SL.6** Produce complete sentences when appropriate to task and situation.
- 2.W.7** Participate in shared research and writing projects (e.g....record science observations)
- 2.SL.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- SL.3** Asks and answers questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
- 2.L.5.a** Identify real-life connections between words and their use (e.g., describe spicy or juicy foods).
- 2.L.5.b** Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).
- 2.L.5.d** Distinguish shades of meaning among verbs differing in manner (e.g., look, peek, glance, stare, glare, scowl) and adjectives differing in intensity (e.g., large, gigantic) by defining or choosing them or by acting out the meanings.
- SL.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- SL.4** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- SL.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- SL.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.



## Math

- K.CC.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
- K.C.5** Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
- K.CC.6** Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Groups with up to 10 objects)
- K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
- K.MD.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- K.MD.2** Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter
- K.MD.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- K.G.1** Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
- 2.MD.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2.MD.2** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- 2.MD.3** Estimate lengths using units of inches, feet, centimeters, and meters.
- 2.MD.4** Measure to determine how much longer one object is than another expressing the length difference in terms of a standard length unit.
- MD.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
- NF.1** Understand a fraction  $\frac{1}{b}$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of size  $\frac{1}{b}$ .
- 3.MD.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
- 3.MD.8** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
- 5.MD.1** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05m), and use these conversions in solving multi-step, real world problems.

Science and Engineering Practices - go to this link

[https://www.lifelab.org/wp-content/uploads/2013/12/K-8-NGSS\\_In\\_the\\_Garden.pdf](https://www.lifelab.org/wp-content/uploads/2013/12/K-8-NGSS_In_the_Garden.pdf)



Lessons are adapted from Life Lab: *The Growing Classroom*. © 2016

Life Lab | [www.lifelab.org](http://www.lifelab.org)

# Parent Questionnaire: Healthy Eating

Circle your answer

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Does your child eat five fruits and vegetables daily?

N                      Y

2. Does your child eat foods with whole grains and fiber?

N                      Y

3. Does your child eat 2-3 servings of dairy daily?

N                      Y

4. Does your child drink soda or sugared fruit drinks?

N                      Y

5. Does your child eat breakfast daily?

N                      Y

6. Does your child eat three meals a day?

N                      Y

7. Does your child eat more than two snacks a day?

N                      Y

8. Does your child eat Fast Food on a regular basis?

N                      Y

9. Does your family eat meals together on a regular basis?

N                      Y

10. Does your child eat after dinner and before bedtime?

N                      Y

11. Does your child have a TV in his/her room?

N                      Y

12. Does your child participate in more than 2 hours of screen time? (TV, computer, texting, etc.)

N                      Y

13. Does your child play outside on a daily basis?

N                      Y

14. Does your child get physical exercise on a daily basis?

N                      Y

15. Are Carbohydrates the main part of your child's diet? (i.e. breads, cereals, pasta, rice, potatoes, etc.)

N                      Y



# Student Nutrition Pre and Post Test

Name \_\_\_\_\_ Date \_\_\_\_\_ Rm # \_\_\_\_\_

1. Do you know about the MyPlate or PowerPlate? Put an x on the line for your answer.

- I have seen it and know a lot about it
- I have seen it and know a fair amount about it
- I have seen it but know very little about it
- I have never seen it before
- Not sure

2. Which food group should we make half of our plate?

3. When should you eat a variety of foods?

- Just at breakfast
- Just at lunch
- Just at dinner
- All day long

4. Yesterday, did you eat any vegetables? Vegetables are salads; boiled, baked and mashed potatoes; and all cooked and uncooked vegetables. Do not count french fries or chips.

- No, I didn't eat any vegetables yesterday
- Yes, I ate vegetables 1 time yesterday
- Yes, I ate vegetables 2 times yesterday
- Yes, I ate vegetables 3 or more times yesterday

5. Yesterday, did you eat fruit? Do not count fruit juice.

- No, I didn't eat any fruit yesterday
- Yes, I ate fruit 1 time yesterday
- Yes, I ate fruit 2 times yesterday
- Yes, I ate fruit 3 or more times yesterday

6. During the week, how many hours per day do you usually spend on a computer or cell phone or watching TV shows or videos?

- I don't watch TV or videos
- Less than 1 hour a day
- 1-2 hours a day
- 3-4 hours a day
- More than 4 hours a day

7. Yesterday, did you exercise or participate in sports activities that made your heart beat fast and made you breathe hard for at least 20 minutes. (For example: basketball, jogging, skating, fast dancing, swimming laps, tennis, fast bicycling, or aerobics)?

Yes

No

8. How many total servings of fruits and vegetables should you eat each day.

At least 2

At least 5

At least 9

At least 1

I don't know

9. Name the most nutritious snack that you eat. How often do you eat it?

10. Name a least nutritious snack that you eat. How often do you eat it?

11. Does your family grow any fruits or vegetable in a garden at home?

Yes

No

# Power Plate Lessons

## GO, GROW AND GLOW - Introductory Lesson

**Description:** Students draw connections between what they eat and drink and their ability to do the things they enjoy most.

### Materials:

- 12 x 18" paper with Power Plate copied on one side, and the GO, GROW, GLOW circle on the other.
- GO, GROW, GLOW Word Lists.
- *We Eat Food That's Fresh* by A. Russ-Ayon or similar kid nutrition book.

### Actions for GO, GROW AND GLOW:

1. Class discussion. What does food do for our bodies? Think-Pair-Share.
2. Explain that food is what allows us to GO, GROW AND GLOW with health and that water keeps us hydrated.
3. Read *We Eat Food that's Fresh* by A. Russ-Ayon.
4. Using the GO, GROW, GLOW circle, and Word Lists, students fill in a word and/or drawing for their favorite things or activities that make them GO, GROW AND GLOW.
5. GO: What are your favorite things to do? Students might choose a sport or active hobby. Use GO Word List for reference.
6. GROW: What do you want to be when you grow up? What do you want to learn? What are you excited to do, but have to wait until you get older? Use GROW Word List for reference.
7. GLOW: Visualization of a warm, safe, beautiful garden. Who is there? What are you doing? What make you glow? What makes you happy? Use GLOW Word List for reference.
8. First and second grade students did each GO, GROW, GLOW segment on different days. Third and older could do all of them in one lesson.
9. Collect student work and save for the next lesson.

## Power Plate

**Description:** Students learn to categorize foods into five food groups: vegetables, fruits, whole grains, healthy proteins, and healthy fats, plus water.

### Materials:

- Felt board with foods (optional) Can be purchased at Amazon. *My Plate Precut Flannel/Felt Board Figures, 56 Pieces Set* - <https://www.amazon.com/Little-Folk-Visuals-Flannel-Figures/dp/B007GB2RXY>. or use - Food Card pictures for sorting.
- *My Plate and You* by G. Olson.
- GO, GROW AND GLOW and Power Plate on 12 x 18" paper (back side of GO, GROW, GLOW circle).
- Crackers, hummus, cream cheese and cut up fruit and veggies.

### Actions for Power Plate:

- Read *My Plate and You* by G. Olson.
- Show students the Power Plate. Each of the food groups on the Power Plate does something important

to support our health. Whole grains are GO foods and provide a good source of calories for energy to move and be active. Healthy proteins such as fish chicken, beans and nuts are GROW foods that build our muscles and bones and provide calories that give us energy to grow and move.

Fruits and vegetables are GLOW foods and provide us with high doses of essential antioxidants, vitamins, minerals and fiber that protect us from disease, help with digestion, and keep us glowing in health. Healthy fats are GO, GROW, GLOW foods that come from plant and fish sources such as the oils from olives, nuts, seeds and fish. Fats are the highest calorie food and provide us with sustained energy. They also build our brains to keep us smart.

- Using My Plate felt board, hand out felt picture to students and have them place on the felt board in the correct section.
- Or use the Food Cards for sorting with Power Plates in small groups, or project Food Cards with document camera.
- Hand out a blank Power Plate activity sheet. Have students draw and write the name of their favorite foods in each section of the Power Plate. Hand out the Food Cards to help students spell the name of the foods. First and second grade students can do one section each day, doing all three can be too much for them. Older students can fill out all sections in one lesson.
- Make a Power Snack on a cracker incorporating food from each of the groups. Make it food art! Have children look at each others creations and then eat and enjoy! Find recipe at: <http://www.westcounty-schoolgardens.org/blog>
- Homework: fill out a Power Plate meal that you eat at home.
- Additional reference : [myplate.gov/eat-healthy/vegetables](http://myplate.gov/eat-healthy/vegetables)



## Make a Placemat

- After the Power Plate and GO, GROW, GLOW plates are finished, decorate the border using stamps or veggie prints and laminate. Students can use as a placemat.



Lessons are adapted from Life Lab: *The Growing Classroom*. © 2016

Life Lab | [www.lifelab.org](http://www.lifelab.org)

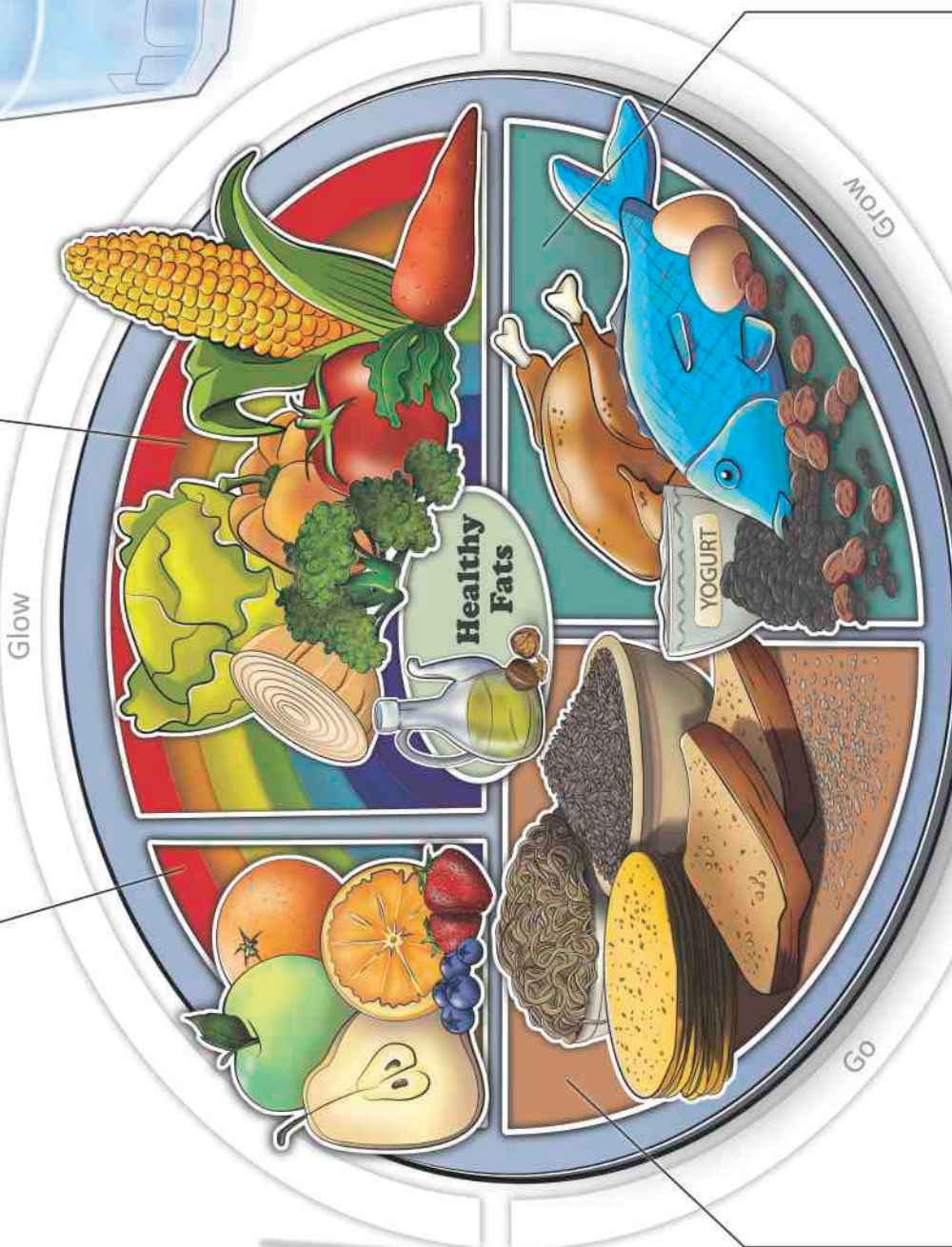


# POWER PLATE



**Fruits**

**Vegetables**

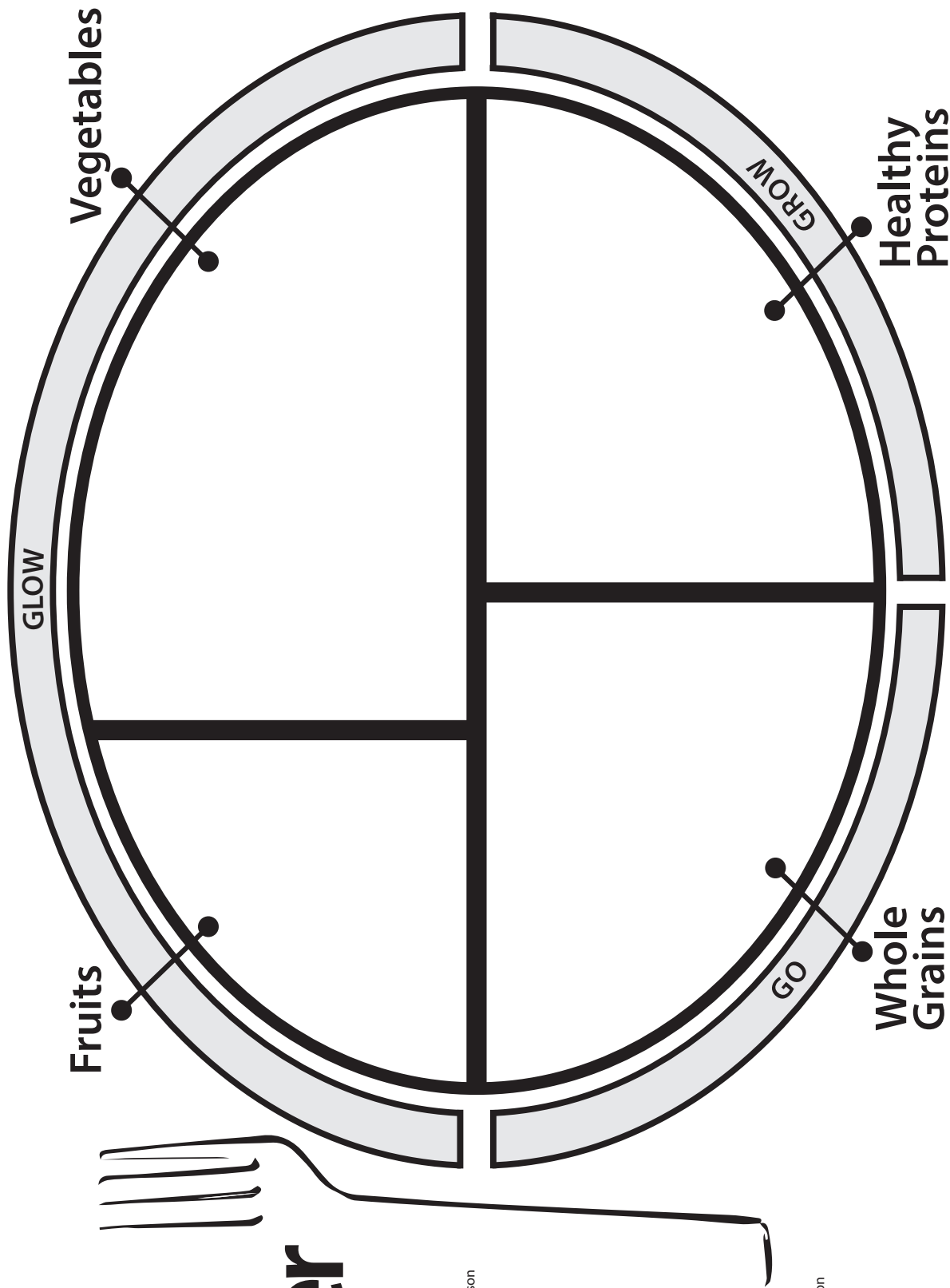


**Whole Grains**

**Healthy Proteins**

# Power Plate

Adapted from LifeLab Power Plate Lesson



Adapted from LifeLab Power Plate Lesson

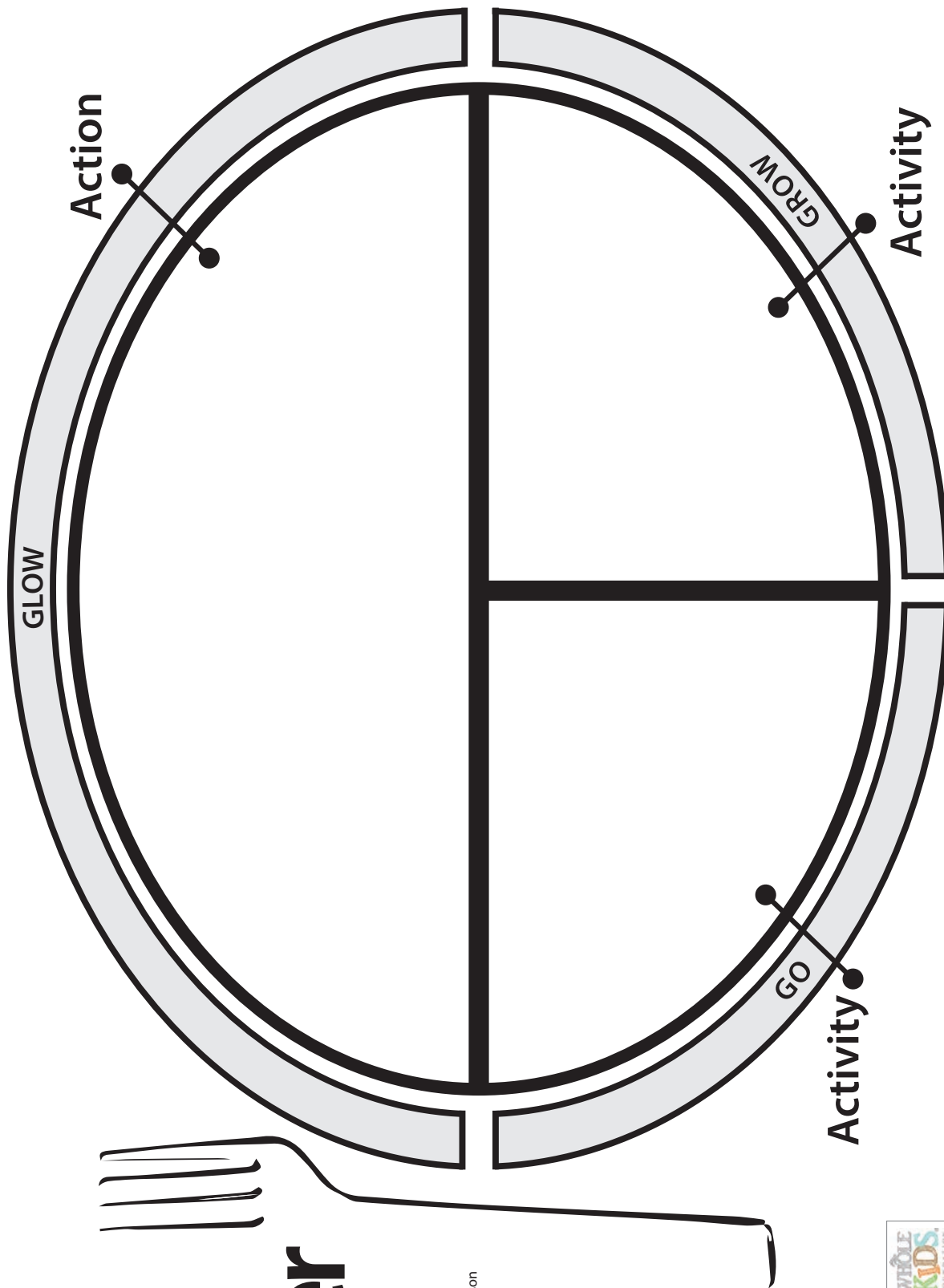


PD Workshop #3, 2018



# Power Plate

Adapted from LifeLab Power Plate Lesson



# Power Plate Lesson GO! - Word List



Riding a bike



Hiking



Jump rope



Dancing



Swimming



Hula hoop



Soccer



Karate



Skateboard



Stretching



Baseball

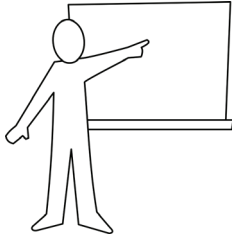


Tag



Monkey bars

# Power Plate Lesson GROW! - Word List



Teacher



Veterinarian



Doctor



Artist



Fireman



Musician



Police officer

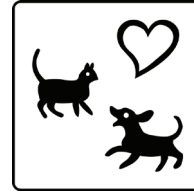


Scientist

# Power Plate Lesson GLOW! - Word List



Family



pets



Friends



reading



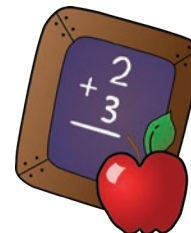
Playing



art

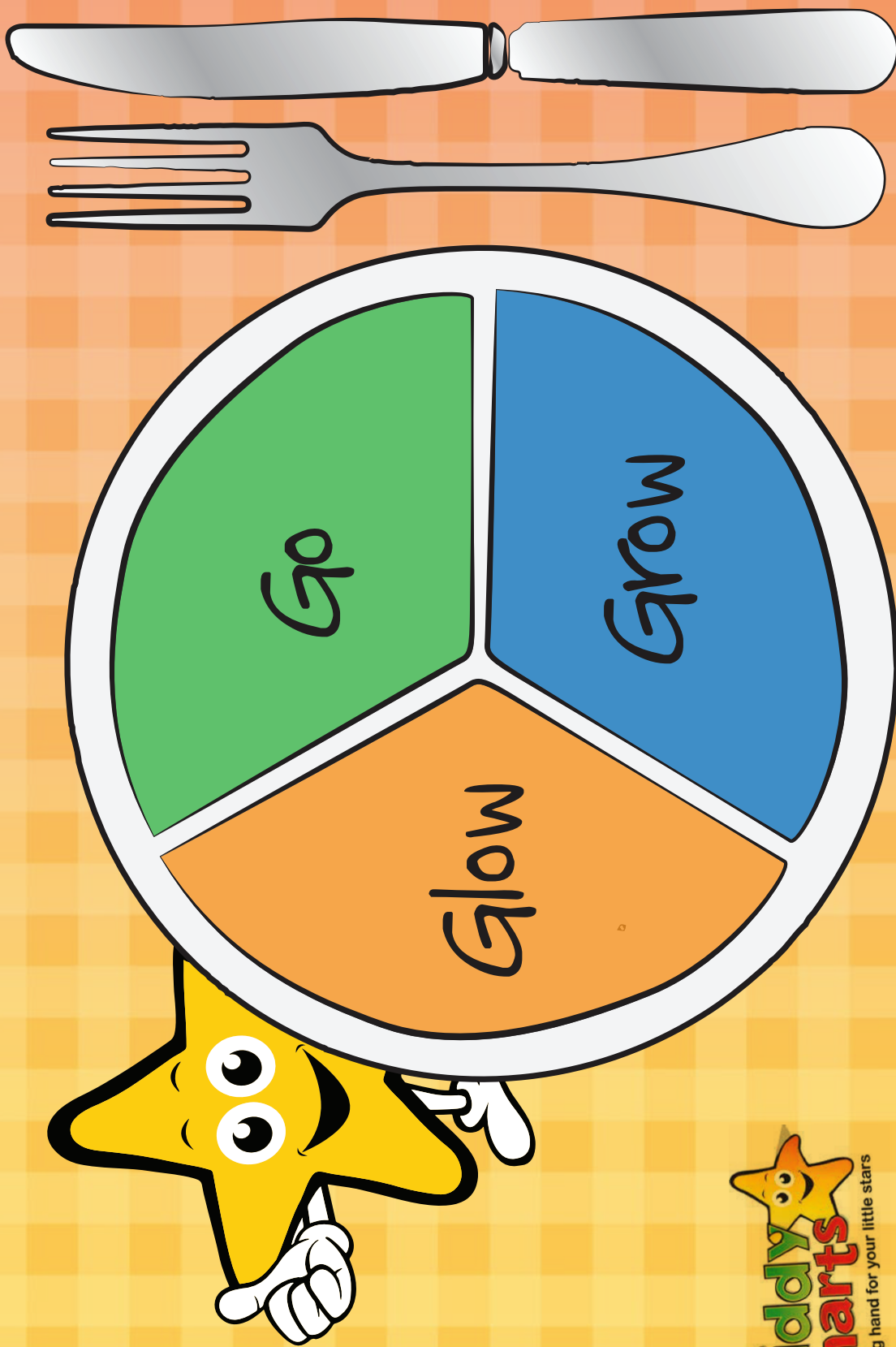


Amusement park



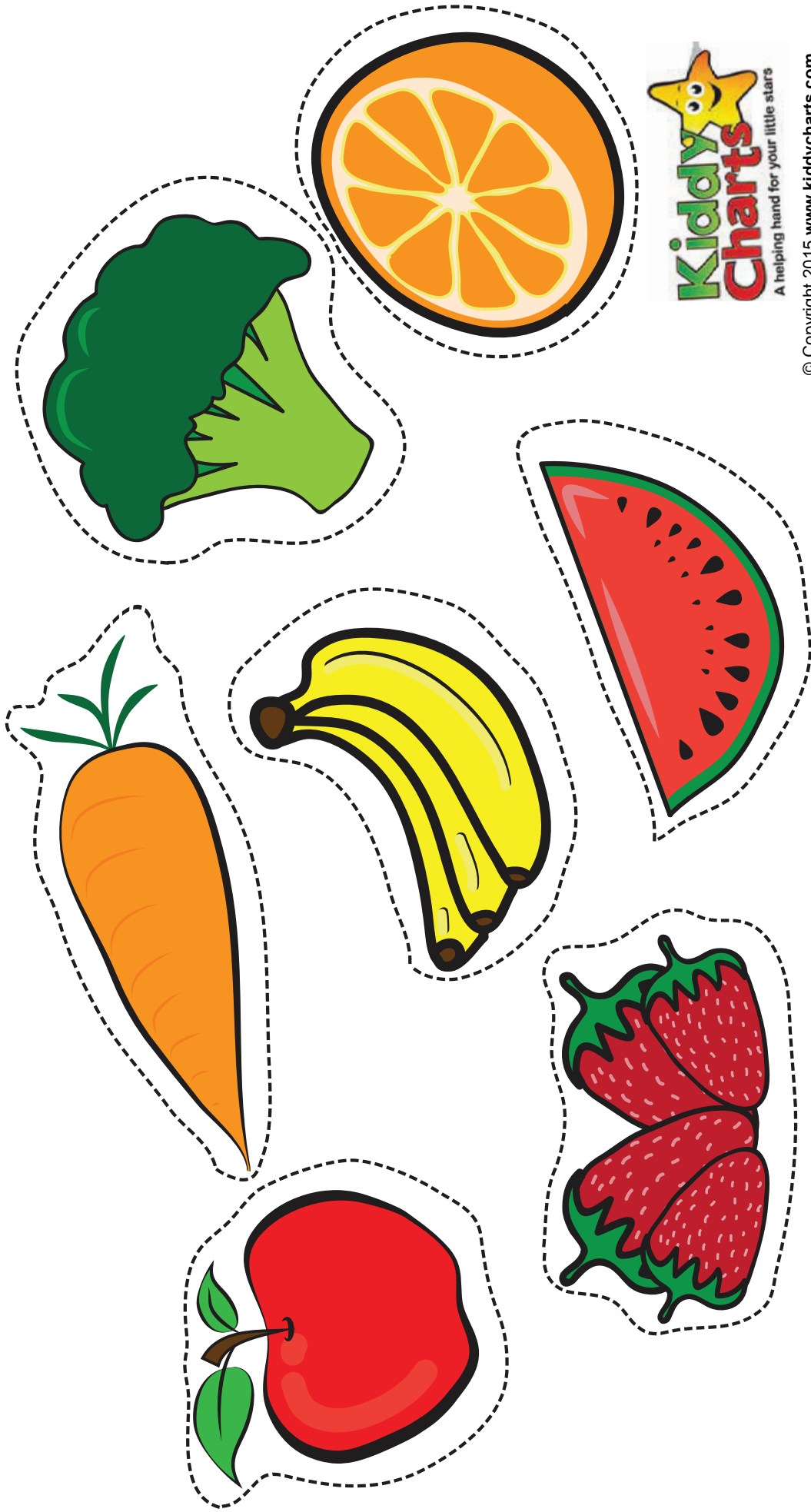
school

Stay Healthy with **Go, Grow & Glow!**



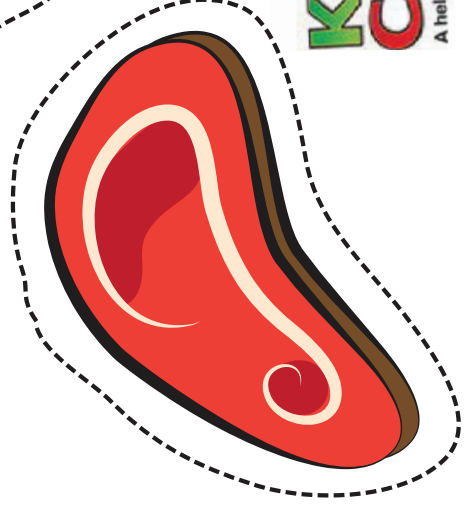
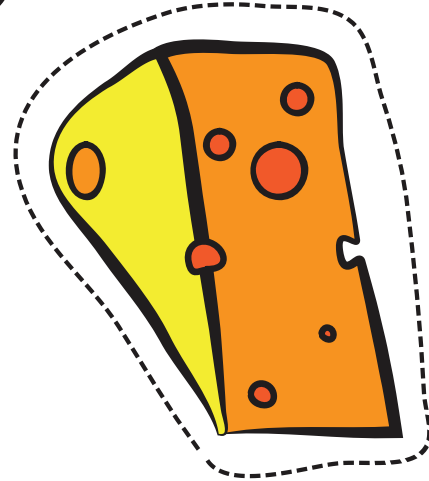
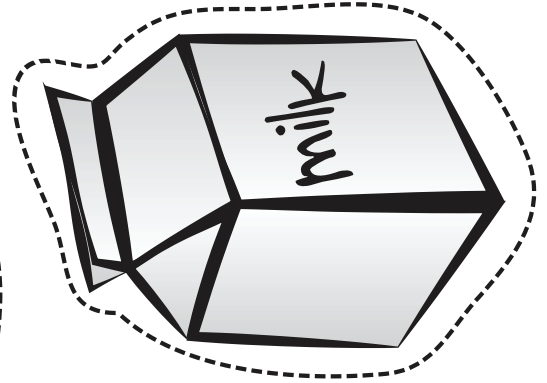
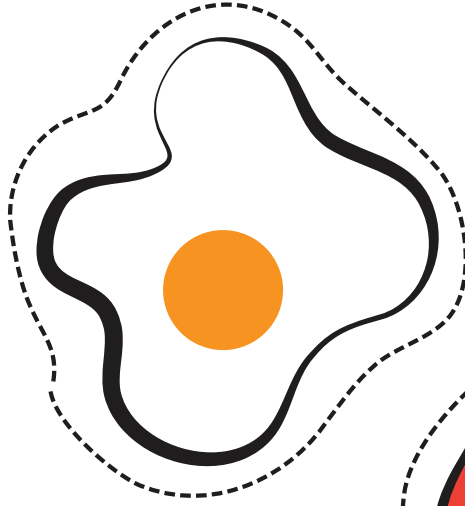
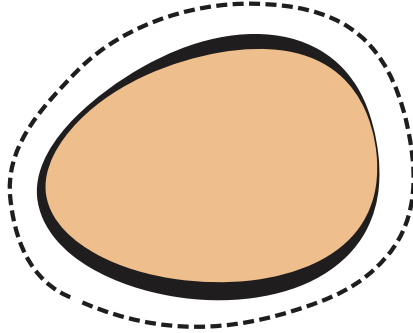
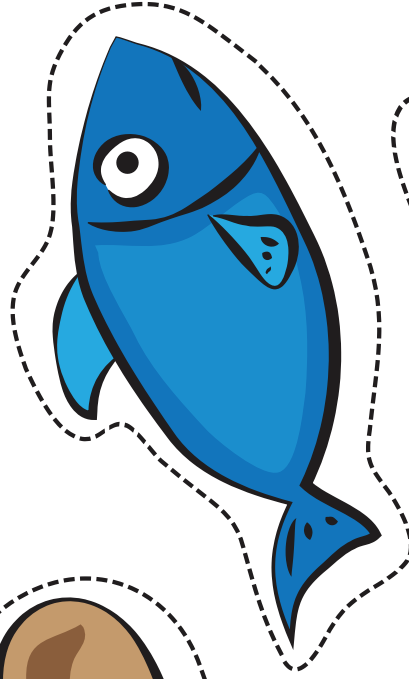
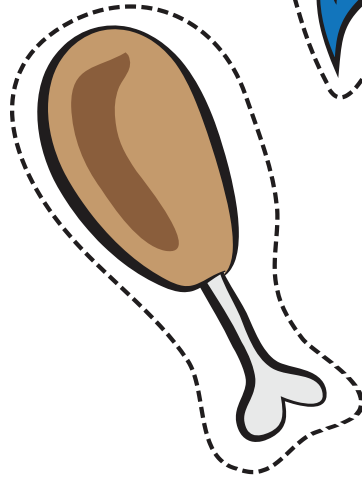
# Glow foods

These are foods that enhances the quality or the "Glow" of our skin. This foods are rich in vitamin D that is important for the development of a healthy skin. Green-leafy vegetables and fruits are examples of this food group. They help you have shiny hair and sparkly eyes.



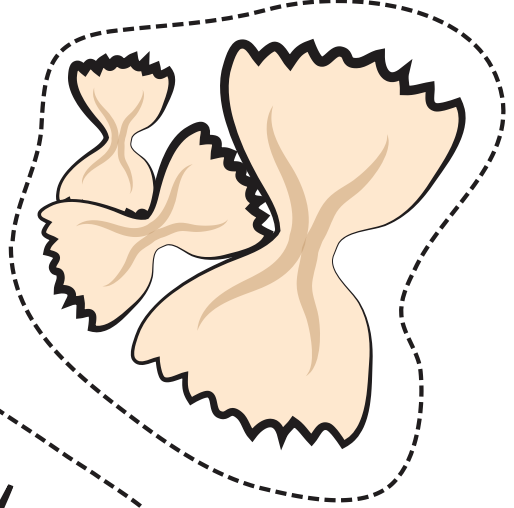
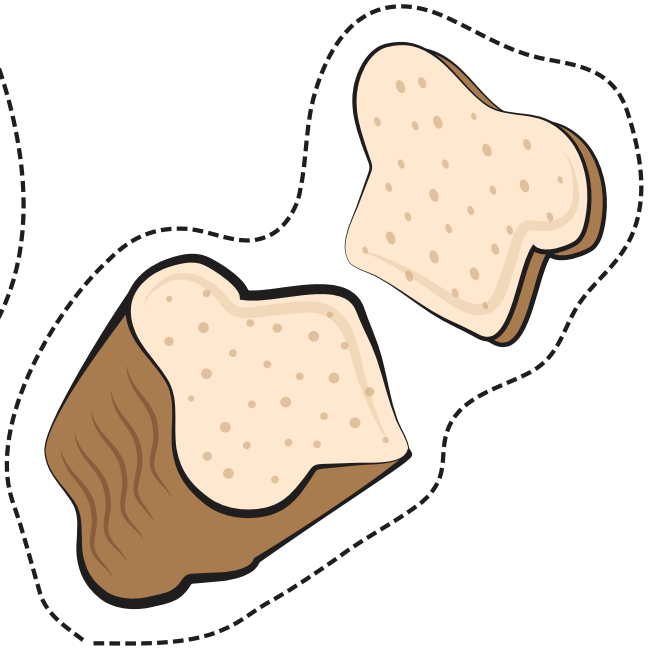
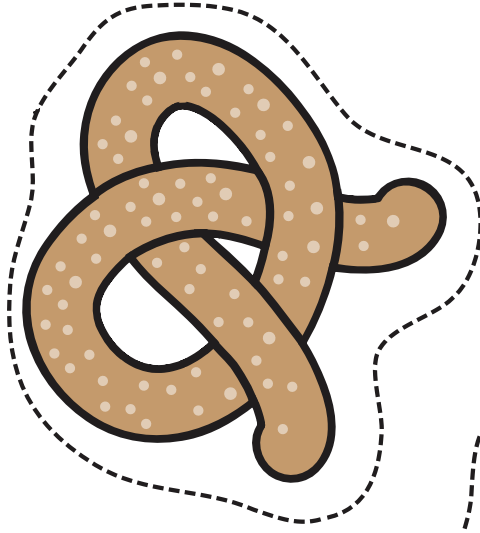
# Grow foods

Grow foods are foods that enhances growth development. Foods like milk, yogurt, cheese and other dairy products are types of this food group. They help you to grow big and strong.



# Go foods

Go foods provide energy, hence the name "go". Examples of this type of food group are bread, rice, cereals and other foods that primarily provide carbohydrates. Go foods help you run, jump and play all day.





# 🥕 Food Cards

(From: Power Plate, page 317)

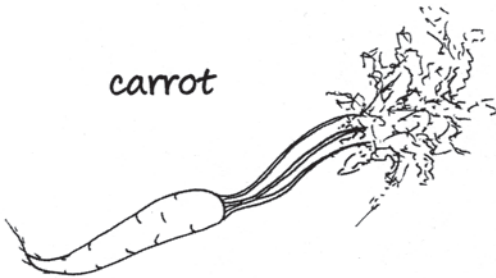
whole-wheat  
pasta



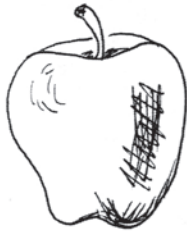
olive oil



carrot



sweet potatoes



apples

chicken


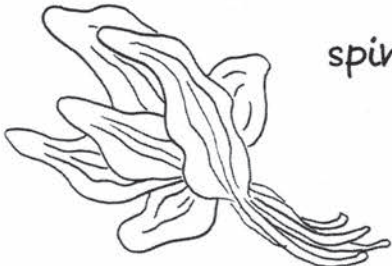
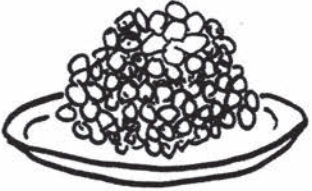


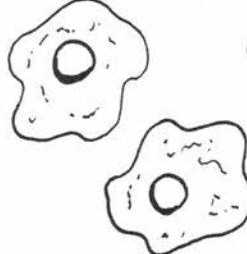



water

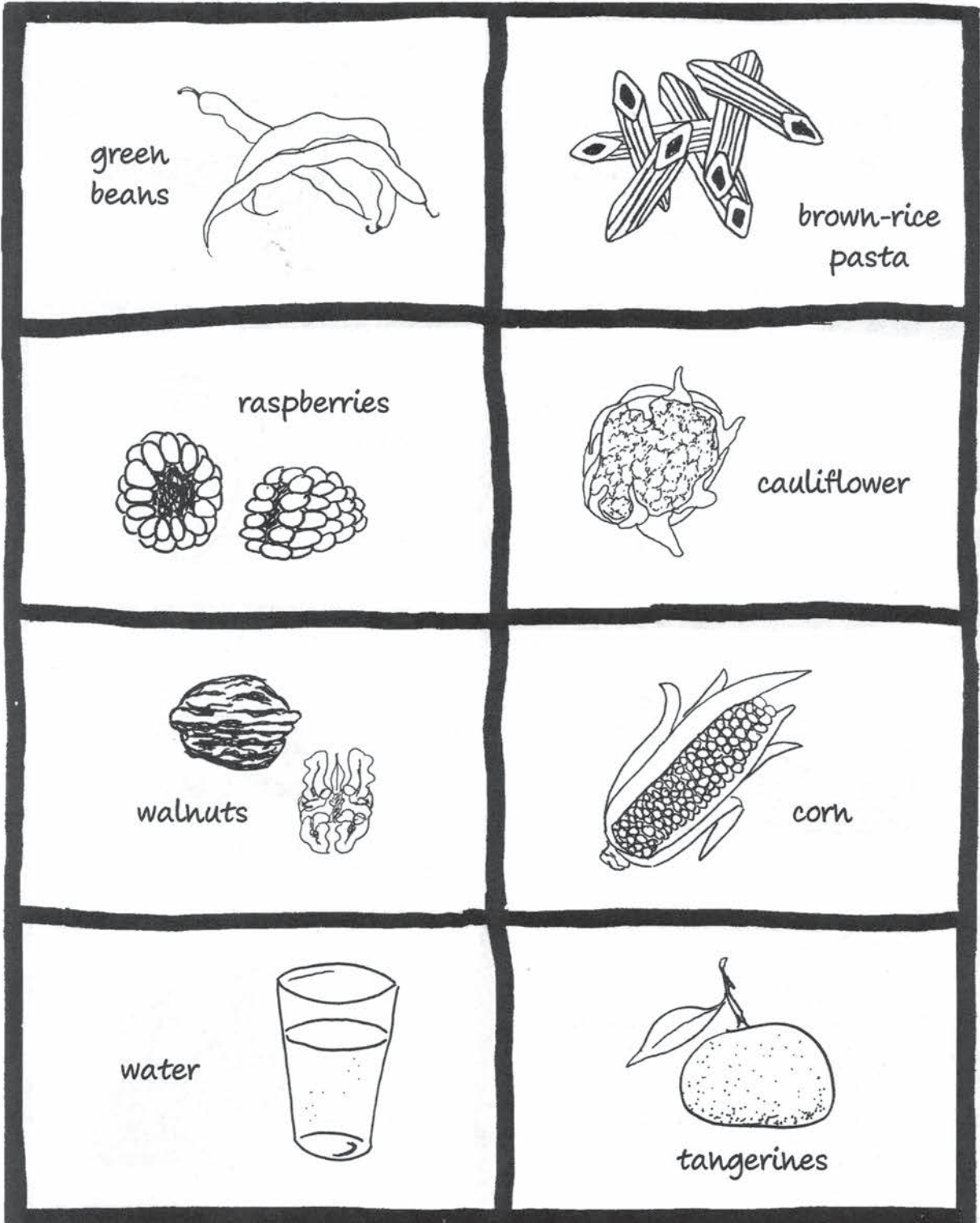


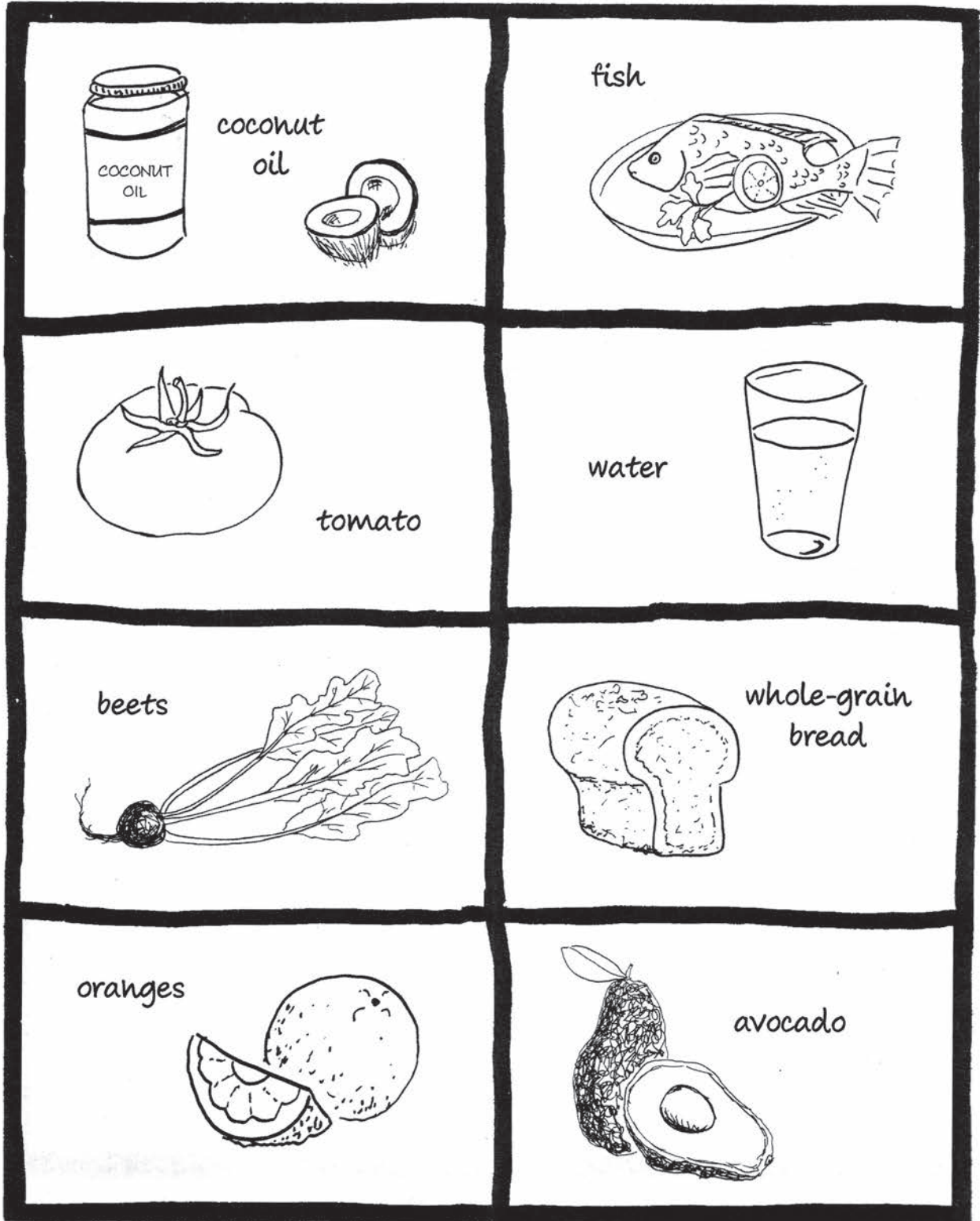
brown rice



 <p>cucumber</p>	<p>water</p> 
 <p>spinach</p>	<p>quinoa</p> 
 <p>strawberries</p>	 <p>walnut oil</p>
 <p>eggs</p>	<p>broccoli</p> 









**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**Handout 3-2**

**Match the Food Groups**

**Directions:** Draw a line to match each food group with the box that tells us what the group gives our bodies.

Food Group	Picture of Foods from Each Food Group
Vegetables	
Fruits	
Grains	
Dairy	
Protein foods	

What the Food Group Gives to Our Bodies
<p>Foods from this group can include all the plant parts. They provide many nutrients and fiber. Orange or dark-green ones are rich in vitamin A.</p>
<p>Foods from this group provide our bodies with fiber and energy from complex carbohydrates. We need carbohydrates to do all the things we do every day.</p>
<p>Foods from this group provide our bodies with the protein that our muscles need to grow and stay strong.</p>
<p>Foods from this group contain seeds. They provide many nutrients and fiber. Many are rich in vitamin C.</p>
<p>Foods from this group provide our bodies with the calcium that our teeth and bones need to grow and stay strong.</p>





## Power Snack Recipe

This recipe is great to teach kids healthy eating habits and also it gives them the opportunity to create what they want to eat. This snack follows Power Plate guidelines. Power Snack contains at least one ingredient from each of the five food groups.

### Ingredients You'll Need:

1 Large whole-grain cracker or rice cake per person

1 Tub of hummus or bean dip

A variety of fruits and vegetables of many colors such as red bell pepper, oranges, yellow apple, blueberries, green broccoli, brown pear etc.

### Directions:

1. Chop all Fruits and Vegetables into 1/4 chunks or smaller
2. Place each fruit or vegetable into its own bowl
3. Grab a cracker or rice cake and spread hummus on top
4. Design a miniature garden with chopped fruit and vegetables

# Eat a Rainbow Lesson

**Description:** In this lesson, students will discuss the colors of vegetables and fruits and why eating a rainbow of colors is important for the body.

## Materials:

- *Eat Lots of Colors* by Helen Marsteller
- Food Picture Cards and Eat a Rainbow Cards
- Butcher paper for tracing a human body
- Markers
- Vegetables from the garden
- Colorful Fruits and Veggies body worksheet
- Homework paper listing what color foods they eat in each meal at home
- Eat a Rainbow coloring pages - (2 pages side-by-side)

## Lesson:

1. Remind students that fruit and veggies are GLOW foods. All fruits and vegetables contain important vitamins and minerals that keep our body healthy. They also contain fiber to keep the gut strong and help get rid of toxins in the body. Fruit and vegetables contain antioxidants and phytonutrients which protect plants from pests and disease. When we eat them, these phytonutrients can also protect us from disease, promote healthy aging and boost our immunity. Phytonutrients give plants their vibrant colors. When we eat fruits and vegetables in a variety of colors, we are getting a variety of essential vitamins, minerals and nutrients that are important for our body.
2. Read the story *Eat Lots of Colors*.
3. Pass out or show Food Cards. Have students sort their cards and put them in the correct food color group. Students tell what their card is and why that color is important for the body.
4. Draw a figure of a human body or trace an outline of a student or project the Colorful Fruits and Veggies body worksheet. Color the parts of the body with the color food group that it benefits. Ex. *Green vegetables like Kale are good for your bones and teeth. I'm going to draw in bones and teeth with a green marker.*
5. Make a recipe using a rainbow of colors of fruit and veggies from the garden. Find many recipes here at BakeSpace: <https://www.bakespace.com/members/profile/melaniepena/796785/>
6. Have students draw sample plates of meals that use all of the colors of the rainbow.

This lesson can be done all in one day or spread out over a few days.



Lessons are adapted from Life Lab: *The Growing Classroom*. © 2016  
Life Lab | [www.lifelab.org](http://www.lifelab.org)



# 'Eat a Rainbow' Cards

from [The Growing Classroom](#)

## Red

**BODY PARTS:** heart, skin  
**BENEFITS:** can improve heart and skin health  
**EXAMPLES:** apples, tomatoes, strawberries, watermelons, beets, cherries

## Deep Yellow / Orange

**BODY PARTS:** eyes, heart, skin  
**BENEFITS:** can promote strong vision, prevent cancer, and prevent heart disease  
**EXAMPLES:** oranges, carrots, cantaloupe, sweet potatoes, squash, corn, yellow apples

## Yellow / Brown / White

**BODY PARTS:** heart  
**BENEFITS:** can lower cholesterol  
**EXAMPLES:** cauliflower, brown pear, onions, garlic, bananas, mushrooms, potatoes

## Green

**BODY PARTS:** gut (intestines), bones, brain  
**BENEFITS:** can strengthen gut, bones, teeth and memory  
**EXAMPLES:** leafy greens, broccoli, cabbage, green beans, avocado, kiwi

## Blue / Purple

**BODY PARTS:** brain  
**BENEFITS:** can improve memory and healthy aging  
**EXAMPLES:** grapes, raisins, purple cabbage, eggplant, plums, blueberries, blackberries

## \*All Fruits and Vegetables Provide:

- essential vitamins and minerals (vital daily body functions)
  - antioxidants & phytochemicals (anti-aging, cancer prevention, immunity boosting)
  - fiber (gut and heart health)
  - energy for your body
- \*In general they all can prevent diseases such as cancer and boost immunity*

# COLORFUL FRUITS AND VEGGIES

## red

red fruits and vegetables help keep your heart healthy and help with digestion

## blue

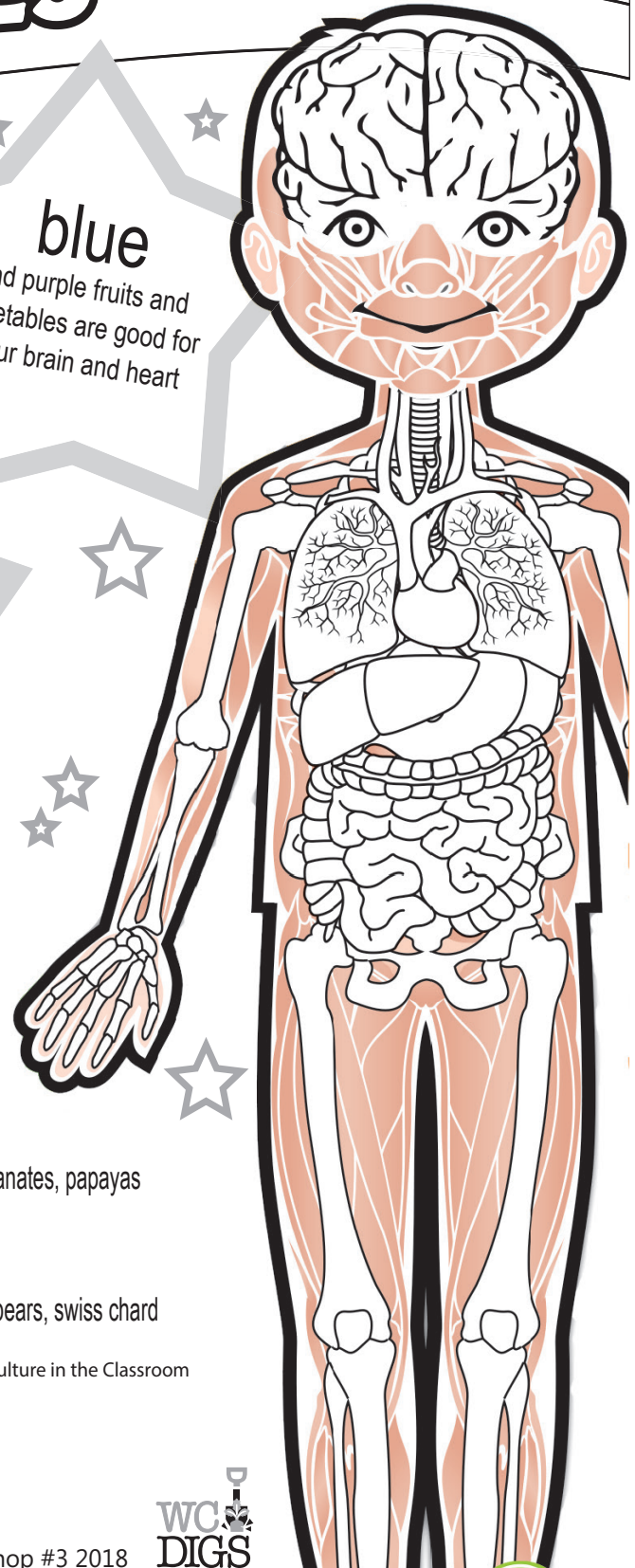
and purple fruits and vegetables are good for your brain and heart

## orange

orange fruits and vegetables help your eyes so you can see, keep you strong so you don't get sick and helps your skin

## green

green fruits and vegetables help your digestion, help your muscles work and builds strong bones



RED - red bell peppers, tomatoes, pomegranates, papayas

BLUE - plums, blueberries, eggplant

ORANGE - pumpkins, carrots, apricots

GREEN - broccoli, kale, kiwifruit, spinach, pears, swiss chard

Adapted from California Foundation for Agriculture in the Classroom

# Eat a RAINBOW everyday!

\_\_\_\_\_ 's Rainbow Chart

Name



	Red	Orange	Yellow	Green	Blue	Purple	How many colors did I eat today?
Sunday							
Monday							
Tuesday							
Wednesday							
Thursday							
Friday							
Saturday							

Color the pages and glue them together.





# Plant Parts Lesson

**Description:** Students will identify the six plant parts (roots, stems, leaves, flowers, fruits and seeds).

**Background:** In culinary terms, we describe sweet crops as fruits and less sweet ones as vegetables. In botany, the part of the plant that contains the seeds is the fruit.

Vegetables are any part of the plant that does not contain the seeds of the plant. So the roots, stems, leaves and even the unopened flower buds are vegetables. That means that tomatoes, cucumbers, green beans, squash and avocados are fruits!

## The function of each plant part:

**Leaf:** Leaves turn sunlight into food for the plant. They take in carbon dioxide and release oxygen into the air. Leaves use water, air, and sunlight to make the food that the plant needs - Photosynthesis.

**Flower:** The flower makes seeds for the plant. It attracts birds and insects to spread pollen.

**Fruit:** The fruit stores and protects the seeds.

**Stem:** The stem supports the plant. It contains thin tubes for carrying food, minerals and water through the plant.

**Seed:** The seed grows into a new plant.

**Root:** The roots take water and nutrients from the soil, store food and anchor the plant in the ground.

## Activities:

**Garden Exploration:** Take a notebook and draw what you see in the garden. Discuss with students what part of the plant they are looking at.

Draw and label a plant.

Make a plant part book. Include the purpose of the plant parts.

Make the flip diagram of plant parts (see handout).

Make a plant part burrito.

**Homework:** Ask students what plant parts they think they eat the most of. Record how many plant parts they eat each day/week as homework.

## Recommended Books:

*From Seed to Plant* by Gail Gibbons

*What is a Plant?* by Bobbie Walker Kalman

*Oh Say Can You Seed?* by Bonnie Worth

*The Rechargeables* by Tom Rath

## National Standards:

NSES: K-4: The Characteristics of Organisms

NSES: 5-8: Personal Health: Food provides energy and nutrients for growth and development.

NSES: 5-8: Structure and Function in Living Systems

# Plant Parts

The basic parts of most land plants are roots, stems, leaves, flowers, fruits and seeds.

**Roots** anchor plants in the soil and absorb nutrients and water that are needed by the rest of the plant.

**Stems** support the upper part of the plant and act as a transport system for nutrients, water, sugar and starches.

**Leaves** are the parts of the plant where photosynthesis usually occurs – where food for the plant is made. Chlorophyll, the green substance, captures light energy and uses it to convert water and carbon dioxide into plant food and oxygen.

**Flowers** are the reproductive parts of plants. They often have showy petals and fragrances to attract pollinators such as birds, bees and other insects.

Most flowers have four main parts: petals, stamen (anther and filament), pistil (stigma, style and ovary), and sepals. After flowers are pollinated and fertilized, they produce seeds in the ovary of the flower.

**Fruits** are the fleshy substances that usually surround seeds. They protect the seeds and attract animals to eat them. This helps in seed dispersal.

**Seeds** contain plant material that can develop into another plant. This plant material is called an embryo. Seeds are covered with a protective seed coat and have one or two cotyledons. Cotyledons are the food for the baby plant until it can make its own food from light and are often the first embryonic leaves of the plant.

# Plant Part Burrito Lesson

**Description:** Students review what they have learned about plant parts. Students design labels for each plant part and include a brief description of each ingredient. Students cut and prep each ingredient using safe food handling and preparation skills.

## Preparation:

Have students harvest what is ready in the school garden. Supplement with produce from the farmer's market.

Prepare food prep stations with cutting boards and a large bowl. You can pass out the knives later. Refer to handout for hand washing procedures and knife handling. Demonstrate procedures.

Divide class into 5 teams: roots, stems, leaves, flowers, fruits/seeds. Pass out knives as needed and have students take turns preparing their fruit/veggie.

Once students have prepared their ingredient, have them present to the class what plant part they have prepared and how that plant part helps the plant.

Have students build their plant part burrito, wait and all take a bite on cue. Remember, *don't yuck my yum!*

## Suggested Recipe for Plant Part Burrito

**Leaves** - cabbage, kale or lettuce leaves

**Roots** - carrots and radishes

**Stems** - celery and green onions

**Flowers** - broccoli, cauliflower

**Fruits** - apples, avocados, cucumbers, green beans, pappers, tomatoes

**Seeds** - spring peas, sunflower seeds, corn

Hummus, salad dressing

## Homework:

Have students describe a recent meal in terms of plant parts.

What is your favorite vegetable? What plant part is it? What is your favorite root? Stem? Leaf? Flower? Fruit and seed?

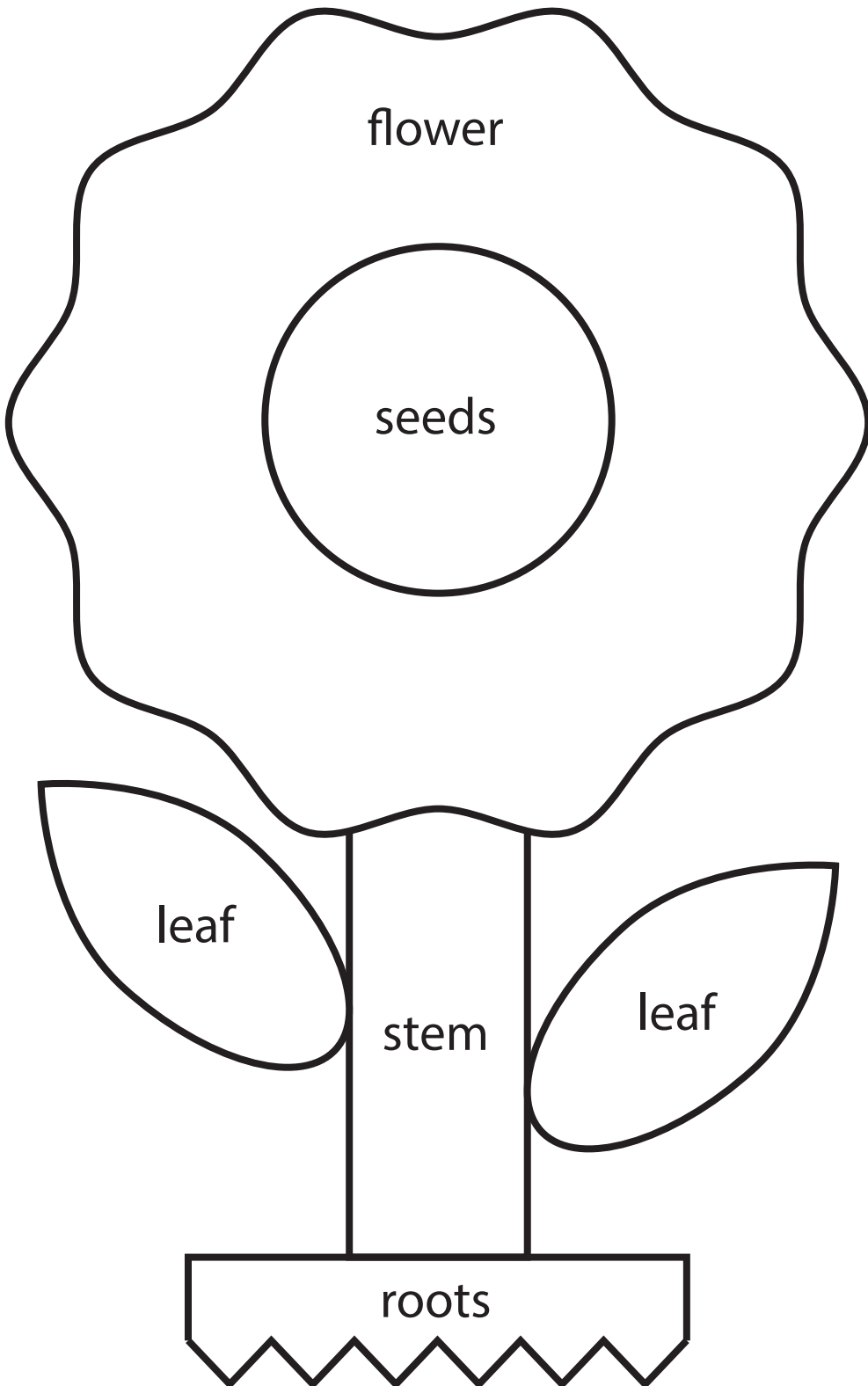
**Further activities:** Plant a 6 Plant Parts Garden Bed. Read *Oliver's Vegetables* by Vivian French or *Tops and Bottoms* by Janet Stevens

## National Standards:

NSES: K-4: The Characteristics of Organisms. 5-8 Personal Health and Structure and Function in Living Systems.



# I can eat a whole plant!



flower

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seeds

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---

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leaf

---

---

---

stem

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---

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roots

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Plant Parts We Eat					
Roots	Stems	Leaves	Fruits	Flowers	Seeds
Beets	Asparagus	Cabbage	Apple	Artichoke	Beans
Carrots	Celery	Chard	Avocado	Broccoli	Chocolate
Daikon	Jicama (tuber)	Garlic (bulb)	Banana	Cauliflower	Corn
Parsnips	Kohlrabi	Herbs	Bell Pepper	Nasturtium	Nuts
Radishes	Potato (tuber)	Lettuce	Cucumbers	Violets	Peas
Rutabaga		Onion (bulb)	Eggplant		Quinoa
Turnips		Spinach	Squash		Rice
			Strawberry		Wheat
			Tomato		

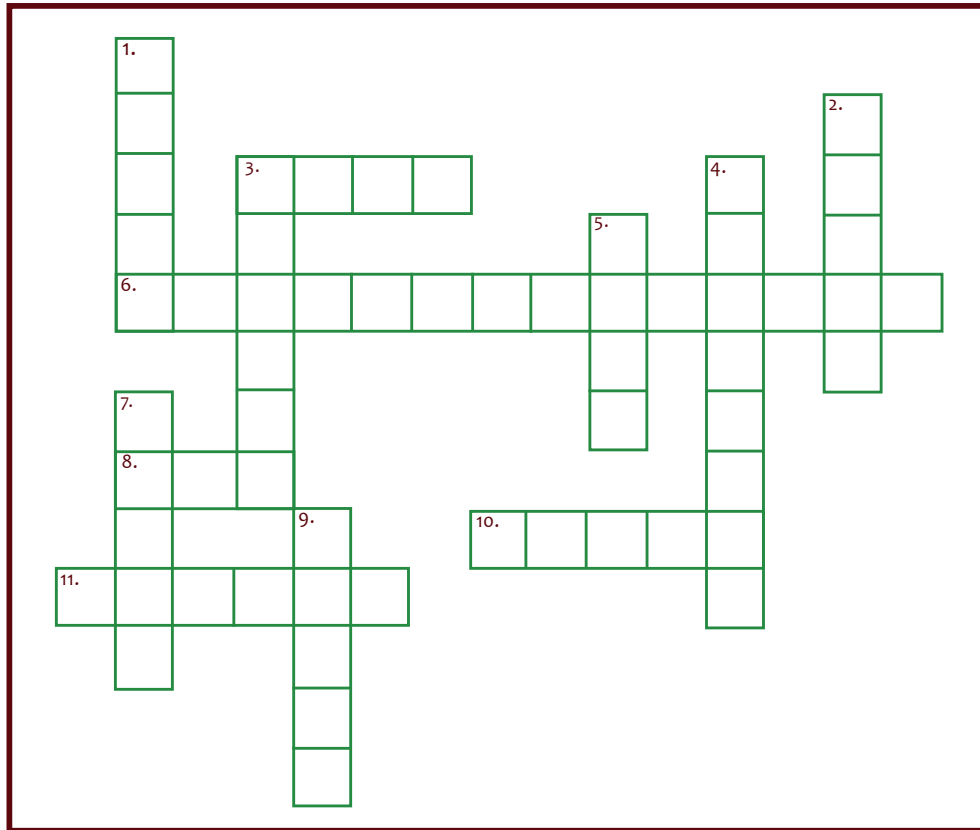




**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

## Handout 1-3 Crossword Puzzle



### Across

3. You need to eat \_\_\_\_\_ every day for energy.
6. How do plants make their own food using water, air, and sunlight?
8. The \_\_\_\_\_ you breathe gives your body the oxygen it needs.
10. \_\_\_\_\_ usually grow underground and take up water from the soil.
11. \_\_\_\_\_ are the part of the plant where photosynthesis takes place.

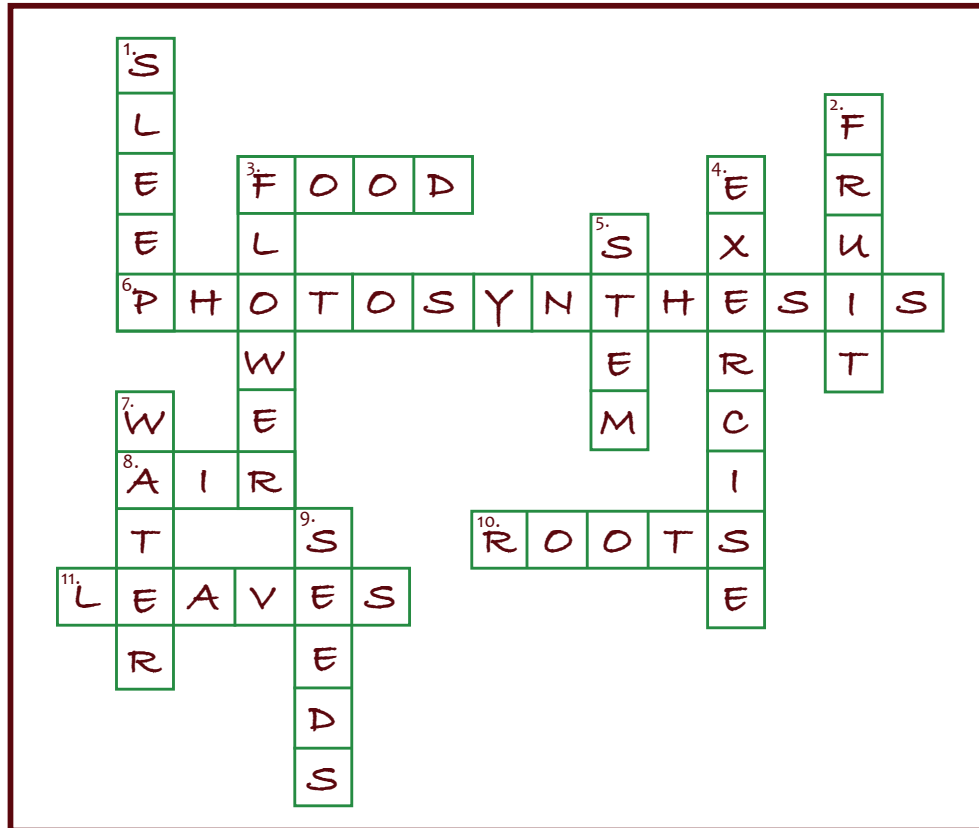
### Down

1. What must you do every night to prepare for the next day?
2. The part of the plant that *holds* and protects the seeds.
3. The part of the plant that *makes* the seeds.
4. A little of this every day will help keep your muscles strong.
5. The part of the plant that moves water and other nutrients from the roots to the leaves.
7. You need to drink this every day to help keep your body cool.
9. Rice, corn, and peas are examples of this plant part.



## Handout 1-3

### Crossword Puzzle—Answer Key



#### Across

3. You need to eat **FOOD** every day for energy.
6. How do plants make their own food using water, air, and sunlight? **PHOTOSYNTHESIS**
8. The **AIR** you breathe gives your body the oxygen it needs.
10. **ROOTS** usually grow underground and take up water from the soil.
11. **LEAVES** are the part of the plant where photosynthesis takes place.

#### Down

1. What must you do every night to prepare for the next day? **SLEEP**
2. The part of the plant that *holds* and protects the seeds. **FRUIT**
3. The part of the plant that *makes* the seeds. **FLOWER**
4. A little of this every day will help keep your muscles strong. **EXERCISE**
5. The part of the plant that moves water and other nutrients from the roots to the leaves. **STEM**
7. You need to drink this every day to help keep your body cool. **WATER**
9. Rice, corn, and peas are examples of this plant part. **SEEDS**



# What is a Whole Food? Lesson

**Objective:** To learn about the difference between whole foods and processed foods.

**Background:** A whole food is a healthy food that doesn't have added sugar, fat or additives. Anything that is not in its whole form from nature is technically processed. But, to what extent a food is processed makes a huge difference. For example, cooking apples to make applesauce and adding only spices is a minimally processed food and it is still healthy and easy to recognize the source. However, highly processed foods are often considered "empty calories", because they provide us with calories, but are lacking in vitamins, minerals and other important nutrients. Not only do highly processed foods have empty calories, but they have large quantities of unhealthy fats, processed sugars, and salt. Highly processed foods can congest the liver and the gallbladder and lead to abdominal obesity, high blood pressure and high blood sugar.

## **What is the problem with processed oils?**

Most oils that are in a clear container have been bleached, deodorized, and refined. Antioxidants and other beneficial molecules have been removed. Also, oils that are processed using heat have most likely gone rancid before they get to your plate. It's not nutritious!

## **So what are the best oils to use for cooking?**

Coconut Oil

Palm Kernel Oil

Ghee

Butter

Olive oil made from cold pressed organic olives and stored in a dark colored glass bottle is great to use on salads, but high temperatures will damage it.

## **Definitions- Introduce the following to students:**

**Unprocessed Foods:** Fresh or raw foods that are found in their natural state and have not been altered, other than the outer covering being removed. Examples are raw fruits, vegetables and nuts. The majority of these foods are in the produce section of a grocery store or at a farmers market.

**Minimally Processed Foods:** Raw foods that are slightly changed from their original form. Examples include artisan whole grain bread, peanut butter without added ingredients, boiled eggs, homemade applesauce, and baked potatoes. These foods contain most of their nutrients but can spoil quickly.

**Processed Foods:** Foods that have been purposely changed from their original form. Foods in packages, cured meats, pies, cereals, yogurt like drinks. They often have cartoon advertising for kids on the packaging.

## **What is Important to look at on a package? Pass out What Is A Whole Food Info sheets**

### **Topics For Discussion:**

Does the packaging have pictures of cartoon characters on it? Many foods that are unhealthy use cartoon characters to help sell their products to children.

Read the label! How many ingredients does it have? If it has just one or two ingredients it is a whole food. The more ingredients, the more likely it is to be a highly processed food. Avoid foods that your great grandmother wouldn't recognize - Go-gurt, breakfast cereal bars, etc. If you don't know what an ingredient is or can't pronounce it, don't buy it.

**Can you figure out what plant it came from or is it a plant? If you can it's probably a whole food.**

If it has fake colors in it, it is not a whole food.

If it has been through a machine, it may not be a whole food. Oatmeal is a whole food even though it has been processed in a way for us to be able to eat it.

If a food doesn't have a wrapper or package it is probably a whole food.

**Activity: Analyzing Nutrition Labels- Show Nutrition Facts Label from California Department of Education**

Bring in some labels from foods that students eat- cereal, yogurt, candy, snacks, soda

Measure out a serving size.

Compare the nutrition labels from different foods.

Have a discussion about why fruits, for example apples or bananas, do not have nutrition labels.

Research the nutrients in fruits.

Create a bulletin board with healthy vs unhealthy foods.

Have students pick a healthy food and write an opinion piece about why it is healthy and why you should eat it. Or write a piece on "Fake Food vs Real Food, who wins?"

**Additional Resources:**

What Is a Whole Food? Handout For Grades K and 1

Whole Foods Word Search Handout - Grades 2 - 5

Nutrition to Grow On : Lesson 5 - Food Labels - Grades 4 - 6 <https://www.cde.ca.gov/ls/nu/he/documents/ntgo.pdf>



## WHAT IS A WHOLE FOOD?

We need healthy food to help us grow, to give us energy and to keep us healthy. Highly processed foods can be harmful and have adverse effects on your health. Doctors who are concerned about our health want us to build a strong body and tell us we need to eat 'whole foods'. But many people, even adults, don't know what that means. Here are some guides to help you know:

- If it has just 1 or 2 ingredients, it **IS** a whole food.
- If it doesn't have a package or wrapper, it **IS** probably a whole food.
- If it has any fake colors, it's **NOT** a whole food.
- If any of the ingredients are something you don't recognize or don't have in your kitchen, it's probably **NOT** a whole food.
- If it has a cartoon character on the box or sugar/high fructose corn syrup in the first 3 ingredients, it's **NOT** a whole food.
- If you can figure out what plant it came from, or it **IS** a plant, then it **IS** probably a whole food.
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# What is a Whole Food?

Circle the whole foods, cross out the processed foods.





## Whole Foods Word Search

A	P	P	L	E	A	A	C	Z	Z	D	S	A	E
B	B	D	O	G	C	V	N	M	S	A	E	V	G
L	O	V	C	E	L	E	R	Y	Z	Z	E	C	G
V	H	K	F	U	N	N	Y	Z	Z	K	D	X	S
B	V	A	N	V	Z	T	K	L	A	C	S	Z	U
A	S	N	M	L	B	E	A	N	S	C	N	V	X
N	V	W	A	T	E	R	M	E	L	O	N	V	C
A	B	C	F	D	G	G	G	R	A	P	E	S	S
N	V	C	Z	U	I	P	E	W	Q	E	W	B	A
A	B	C	X	S	M	B	R	O	C	C	O	L	I
L	H	A	X	F	O	O	D	S	Q	W	O	M	A
C	B	R	K	O	R	A	N	G	E	J	C	M	G
M	O	R	V	I	M	F	P	A	P	E	A	S	M
O	N	O	T	R	E	F	R	A	N	P	X	Q	B
T	R	T	T	D	S	A	N	D	A	N	C	A	N
P	O	T	A	T	O	N	S	L	S	K	I	W	I

**APPLE**

**BEANS**

**CARROT**

**EGGS**

**KIWI**

**BROCCOLI**

**BANANA**

**CELERY**

**GRAPES**

**SEEDS**

**POTATO**

**ORANGE**

**WATERMELON**



## USE THE NUTRITION FACTS LABEL TO EAT HEALTHIER

### Check the serving size and number of servings.

- The Nutrition Facts label information is based on ONE serving, but many packages contain more. Look at the serving size and how many servings you are actually consuming. If you double the servings you eat, you double the calories and nutrients, including the % DVs.
- When you compare calories and nutrients between brands, check to see if the serving size is the same.

### Calories count, so pay attention to the amount.

- This is where you'll find the number of calories per serving and the calories from fat in each serving.
- Fat-free doesn't mean calorie-free. Lower-fat items may have as many calories as full-fat versions.
- If the label lists that 1 serving equals 3 cookies and 100 calories, and you eat 6 cookies, you've eaten 2 servings, or twice the number of calories and fat.

### Look for foods that are rich in these nutrients.

- Use the label not only to limit fat and sodium, but also to increase nutrients that promote good health and may protect you from disease.
- Some Americans don't get enough vitamins A and C, potassium, calcium, and iron, so choose the brand with the higher % DV for these nutrients.
- Get the most nutrition for your calories—compare the calories to the nutrients you would be getting to make a healthier food choice.

## Nutrition Facts

Serving Size 1 cup (228g)  
Servings Per Container 2

### Amount Per Serving

Amount Per Serving	Calories from Fat 110	% Daily Value*
<b>Calories</b> 250		
<b>Total Fat</b> 12g		18%
Saturated Fat 3g		15%
Trans Fat 3g		
<b>Cholesterol</b> 30mg		10%
<b>Sodium</b> 470mg		20%
<b>Potassium</b> 700mg		20%
<b>Total Carbohydrate</b> 31g		10%
Dietary Fiber 0g		0%
Sugars 5g		

### Protein 5g

Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

\* Percent Daily Values are based on a 2,000-calorie diet. Your Daily Values may be higher or lower, depending on your calorie needs.

	2,000	2,500
Total fat	65g	80g
Sat fat	Less than 20g	25g
Cholesterol	Less than 300mg	300mg
Sodium	Less than 2,400mg	2,400mg
Total Carbohydrate	300g	375g
Dietary Fiber	25g	30g

### The % Daily Value is a key to a balanced diet.

The % DV is a general guide to help you link nutrients in a serving of food to their contribution to your total daily diet. It can help you determine if a food is high or low in a nutrient—5% or less is low, 20% or more is high. You can use the % DV to make dietary trade-offs with other foods throughout the day. The \* is a reminder that the % DV is based on a 2,000-calorie diet. You may need more or less, but the % DV is still a helpful gauge.

### Know your fats and reduce sodium for your health.

- To help reduce your risk of heart disease, use the label to select foods that are lowest in saturated fat, trans fat, and cholesterol.
- Trans fat doesn't have a % DV, but consume as little as possible because it increases your risk of heart disease.
- The % DV for total fat includes all different kinds of fats.
- To help lower blood cholesterol, replace saturated and trans fats with monounsaturated and polyunsaturated fats found in fish, nuts, and liquid vegetable oils.
- Limit sodium to help reduce your risk of high blood pressure.

### Reach for healthy, wholesome carbohydrates.

- Fiber and sugars are types of carbohydrates. Healthy sources, like fruits, vegetables, beans, and whole grains, can reduce the risk of heart disease and improve digestive functioning.
- Whole-grain foods can't always be identified by color or name, such as multi-grain or wheat. Look for the "whole" grain listed first in the ingredient list, such as whole wheat, brown rice, or whole oats.
- There isn't a % DV for sugar, but you can compare the sugar content in grams among products.
- Limit foods with added sugars (sucrose, glucose, fructose, corn or maple syrup), which add calories but not other nutrients, such as vitamins and minerals. Make sure that added sugars are not one of the first few items in the ingredients list.

### For protein, choose foods that are lower in fat.

- Most Americans get plenty of protein, but not always from the healthiest sources.
- When choosing a food for its protein content, such as meat, poultry, dry beans, milk and milk products, make choices that are lean, low-fat, or fat-free.