Using School Gardens & Nutrition to Support Visual & Tactile Learners

West Virginia University

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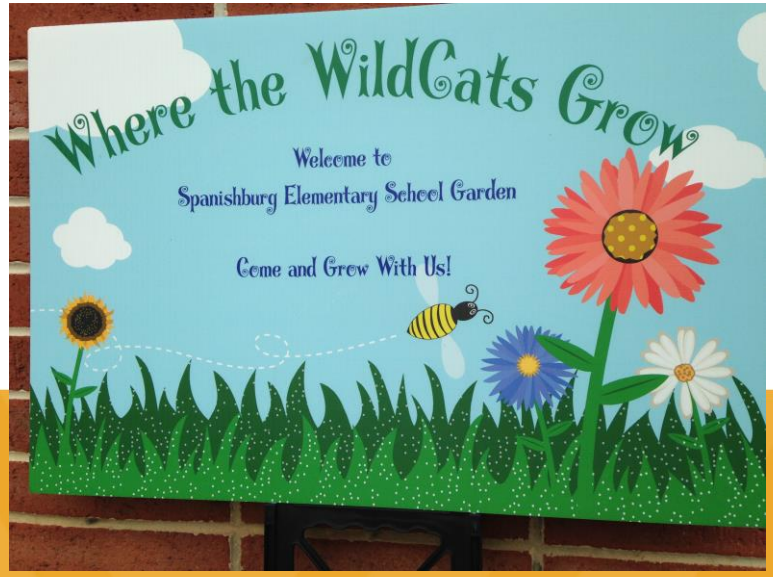
Objectives

- Connect SNAP-Ed & School Gardening
- Highlight the 3 most common learning styles
- Feature adaptations for each learning style in school gardening & nutrition curriculum



SNAP-Ed

- Federal program
- Provides funding
  - Nutritional food
  - Seeds
  - School gardens

- School Farmers Markets

WV Data

Statewide

- Time 30-90 min. sessions
- Number of sessions
  - 3% 2-4 lessons per group
  - 97% 5-9 lessons per group
- 17,822 students in 2018
- Common skills taught
  - Food shopping & resource management
  - Food preparation & food safety

- Engagement in physical activity
- Food & beverage consumption
  - Prevention of obesity & diabetes
  - ↑ fruits & vegetables in diet
  - My plate
  - Healthy portions
  - Promoting healthy weight
- Edible gardens 19,354 participants
- Kids Farmers Markets
  - 17,645 children
  - Approx. $70,580

Local Data

Nutrition Outreach Instructor

- 6 lessons per group
- 8-10 schools per year (3rd-5th gr.)
- ~1000 students/year
- Topics
  - food safety
  - ↑ fruits & vegetables in diet
  - learning the food label
  - benefits of whole grains
  - healthy choices w/ proteins and fast food
  - getting enough dairy
  - understanding food advertising.

Ag & Natural Resources Agent

- 1-6 lessons per group
- 4 counties in southern WV
- 11 school gardens
- 29 classes with strawberry beds
- 2000+ students/year
- Each lesson
  - Integration activity
  - Gardening
  - Nutrition

Local School Farmers' Markets

2019 Mercer Co. Markets

- 7 Markets scheduled
- Will cover each grade
- ~1280 students $4 each
- Topics
  - Selecting produce
  - Nutritional benefits
  - Cooking/preparation
  - Proper storage
- Markets also in neighboring counties

Survey Impact Statements 2017

- 2017 Results show that 90.8% of those surveyed have tried a new fruit or vegetable through the program
- 93.8% have tried something that they liked
- 81% **indicated they would try a vegetable they had never had before if it was served at a friend's house.**

WV Variety trails – 2019 melons

- Collaboration with WVUES research, Master Gardener volunteers, and student in Mercer Co.
- 31 varieties of watermelons, cantaloupe, and honeydew planted
- Students will monitor and collect data on pests, rainfall, harvest data and taste preference

- Farm to School
  - Melons will be used in the school
  - Surplus may be sold

Gardens

Learning Styles – Visual

Characteristics

- Prefer to sit in front
- Are often neat (appearance matters)
- Like color coding
- **Respond to illustrations diagrams and graphs**
- Get distracted by sounds

Adaptations

- Seat child to minimize distractions (noises, billboards, displays)
- **Graphing activities, Spatial arrangement**
- Studying:
  - Notepads
  - Charts
  - Color coded pens

Learning Styles – Visual

- Square foot gardening

Learning Styles – Auditory

Characteristics

- Prefer to sit where they can hear but may not pay attention when things are being written
- Do not care about matching
- **Often hum or talk (even to themselves)**
- May show no interest in graphs, charts or puzzles

Adaptations

- Work in quiet areas
- Offer class discussion and oral reading of material
- Ask questions aloud
- **Encourage them to ask questions**
- Studying:
  - Record notes & replay
  - Use rhymes, mnemonics, repetition

Learning Styles – Auditory

- Group Activities - Seed packets

Learning Styles – Kinesthetic

Characteristics

- Prefer to sit near the edge where they can get up easily
- **Must be active, often fidget**
- Remember complex tasks performed but may have trouble recalling what was discussed or seen
- May speak with their hands

Adaptations

- Use all senses for learning
- **Provide hands-on practical learning**
- Ask student to teach other children what they have learned
- Studying:
  - Writing & practicing
  - Play acting or modeling
  - Provide breaks

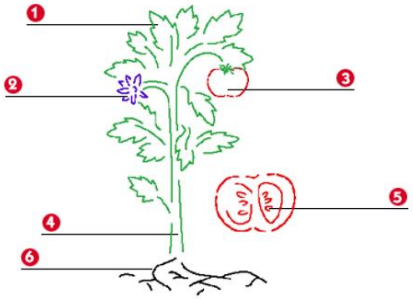
Learning Styles – Kinesthetic

Planting

Activities for Visual Learners

Labeling

Label the parts of the plant:

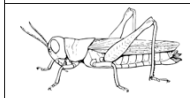
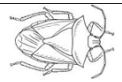
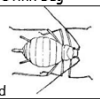


What plant is this? _____

Name a vegetable that you eat for each plant part:

Stem	Leaf	Root	Seed	Fruit	Flower
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Identification Activities

Insect	How Does It Affect Garden	Helper or Pest
 Ladybug	Eats insects including many harmful garden pests such as aphids	Helper (Some forms of lady beetles have become a nuisance to homeowners when present in significant quantities in their homes)
 Grasshopper	Chews on leaves and flowers of garden plants	Pest
Honeybee 	Pollinates plants including many of the fruits and vegetables we eat	Helper
Japanese Beetle 	Eats leaves, fruits, and roots of plant	Pest
Praying mantis 	Eats aphids, grasshopper, fruit flies, moths, and crickets	Helper
 Stink bug	Attacks fruits and vegetables by piercing small holes	Generally a Pest (Some species of stink bugs eat other insects and can be beneficial)
 Aphid	Attacks fruits and vegetables by piercing small holes	Pest

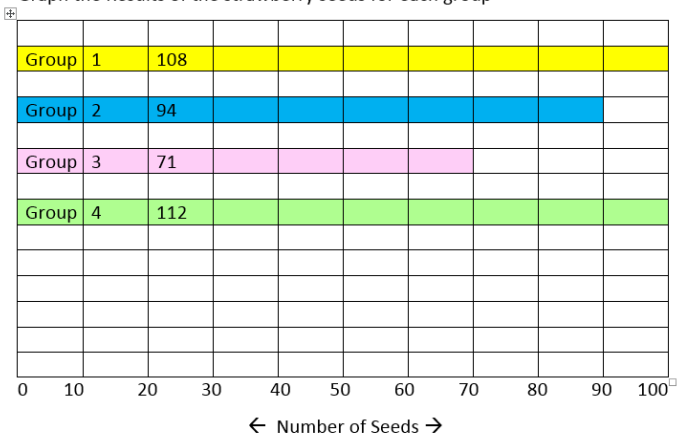
Activities for Visual Learners

Graphing & diagrams

Seed Predictions

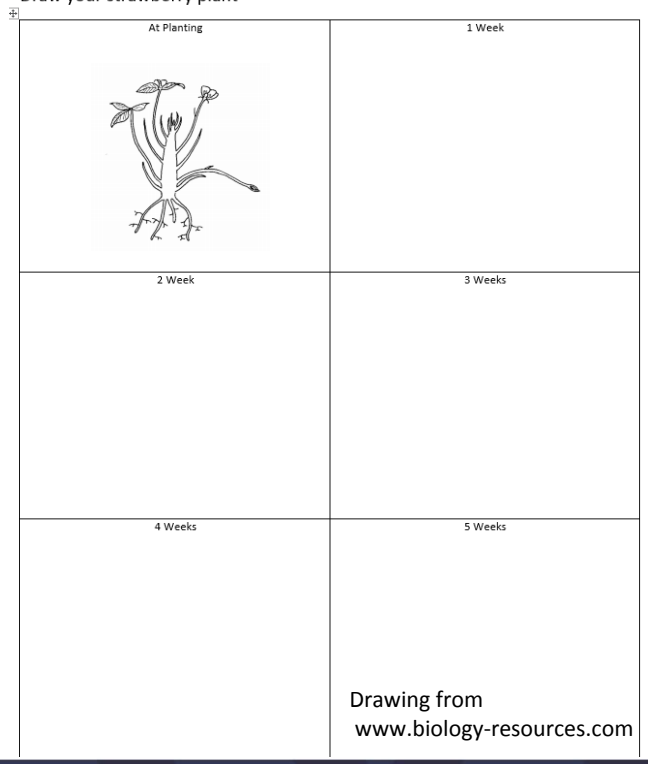
Fruit/Vegetable	Number of Seeds	
	Your Guess	Actual
Apple	4	8
Orange	6	14
Pumpkin	30	108
Blueberry	14	11
Strawberry	80	94

Graph the Results of the strawberry seeds for each group



Student drawings

Draw your strawberry plant



Drawing from
www.biology-resources.com

Activities for Auditory Learners

Verbal Hypothesis/Explanation

1- Sensational Seeds

Activity 1 Hypothesis/Essential Questions:

1. How long will it take for the seeds to sprout?

2. Which one will sprout faster? (circle)

   CORN **BEAN**

   Follow-up question later….
3. If it doesn't sprout why not? (What environmental condition wasn't correct?)

Activity 2 Hypothesis/Essential Questions:

1. What will happen to the seeds when the jars are turned are turned on their sides? (Which direction will the sprouts grow?)

2. Which direction will the roots grow?

3. Why do you think this happened?

Games - BINGO

B	I	N	G	O
		Free Space		

***Randomly** place 24 of the following words on your bingo board:*

Plant	*Bird*	*Flower*	*Water*	*Seed*	*Nutrients*	*Dark*	*Air*
Sun	*Happy*	*Snow*	*Soil*	*Stem*	*Sunshine*	*Bee*	*Fly*
Day	*Night*	*Big*	*Animal*	*Tree*	*Rain*	*Grow*	*Root*

Activities for Auditory Learners

Attend a tour of Community Garden

Interview Producers

Activities for Kinesthetic Learners

Plan/Shop for a Meal on Budget

Measuring & Constructing Beds

Activities for Kinesthetic Learners

Conducting Experiments

Weather and Water movement

Activity 2 - Celery Hypothesis/Essential Questions

1. Which stalk of celery do you think will "drink up" the most water?
   With leaves or the one Without Leaves

2. Color the dye on the celery.
   With leaves Without Leaves

3. Why do you think this happened?

Constructing Projects

Making a rain gauge

A rain gauge is a tool for rainfall. Knowing the direction of the wind helps famers understand whether crops have enough water to grow or if irrigation is needed.

Build Your Own Weather Tool!
Use the materials and follow the directions below.

Materials

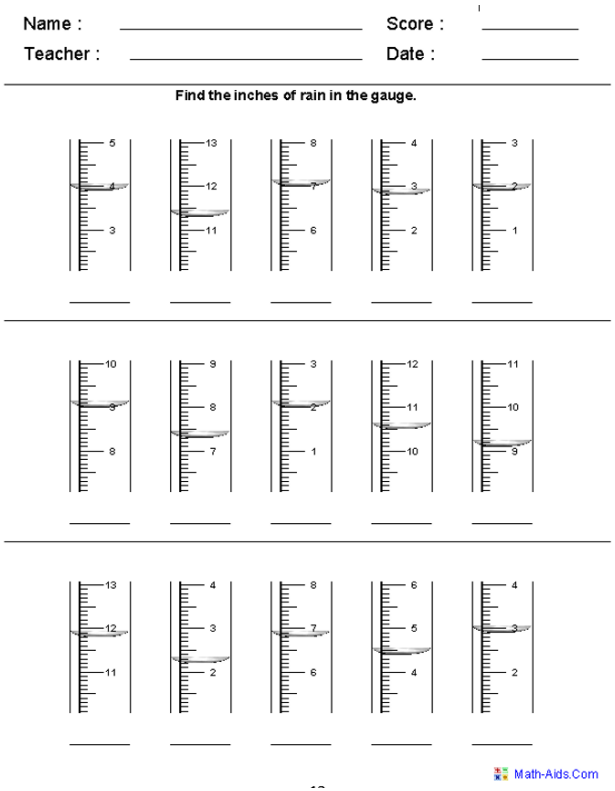
- Empty plastic soda bottle
- Scissors
- Handfuls of clean pebbles, gravel, or marbles
- Masking tape
- Ruler
- Permanent marker
- Paper and pencil

Directions

1. Carefully use the scissors to cut the top of the bottle off at the wide part just below where it begins to get narrow.
2. Put the pebbles in the bottom of the bottle—these will help keep it from getting blown over if it's windy.Turn the top of the bottle upside down—make sure there's no cap on it. It's going to act like a funnel—and place it in the bottom part of the bottle, pointing downward. Line up the cut edges and tape them together so the top part is held firmly in place.
3. Use a long piece of tape to make a straight vertical line from the top edge of the bottle to the bottom. Use the marker to draw a line on the vertical piece of tape just a little above the top of the pebbles. This will be the bottom of your rain gauge.
4. Set the ruler against the vertical tape so that the "0" line lines up with the bottom mark. Use the marker to mark every quarter-inch (or, if you want to get fancy, every eighth-inch) along the piece of tape. Then label the inches from bottom to top. (Alternatively, you can mark centimeters and half-centimeters instead.)
5. Set the bottle on a level surface and pour some water in until it reaches the bottom mark. Your rain gauge is now ready to go.
6. Put the rain gauge outdoors in a location that it's not likely to get too windy, where the gauge isn't likely to be disturbed. There shouldn't be anything hanging over the gauge that could either block any rain or make extra raindrops drip into the bottle (like a tree or a power line or the edge of a roof).
7. Pay attention to the forecast. On a day that you're likely to get rain, make sure the water in the bottom hasn't evaporated below your bottom mark; if it has, refill it to that mark.

Activities for Multiple Learning Styles

Taking, Charting and Discussing Measurements



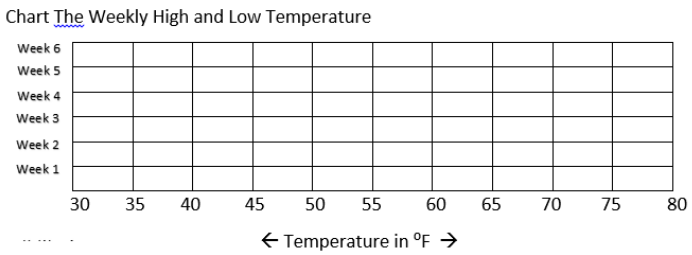
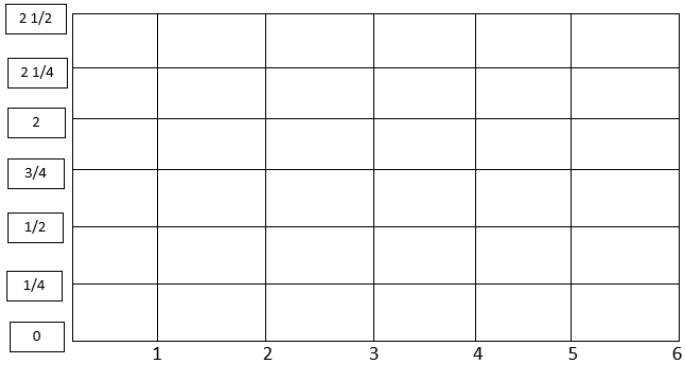
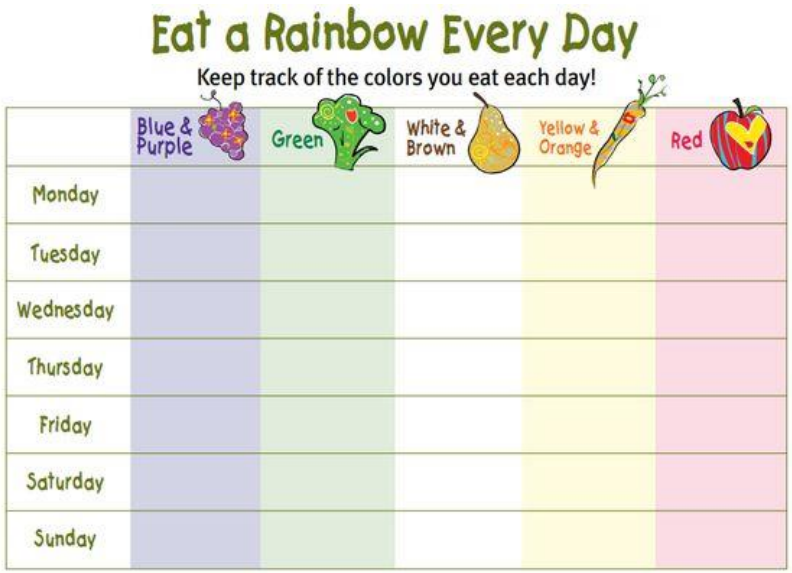


Chart the Weekly Rainfall (to the nearest half inch)



Activities for Multiple Learning Styles

Combining steps in an activity



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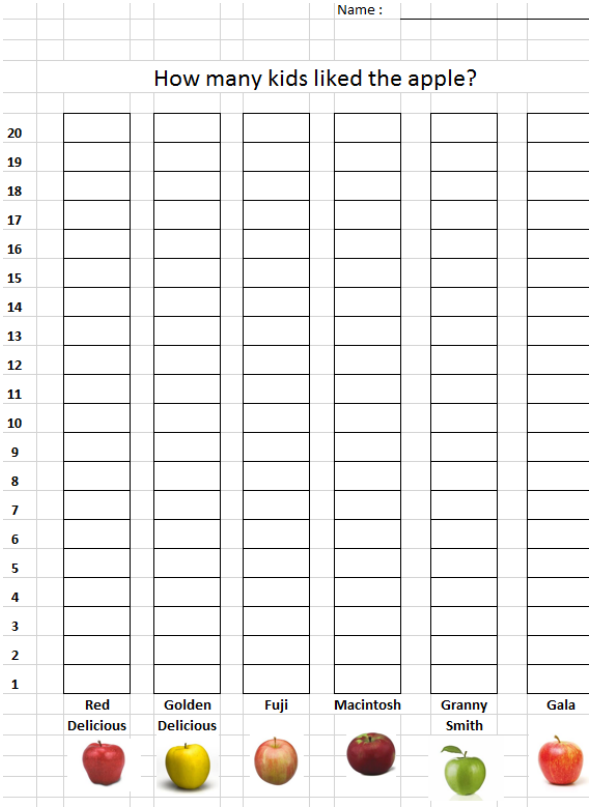
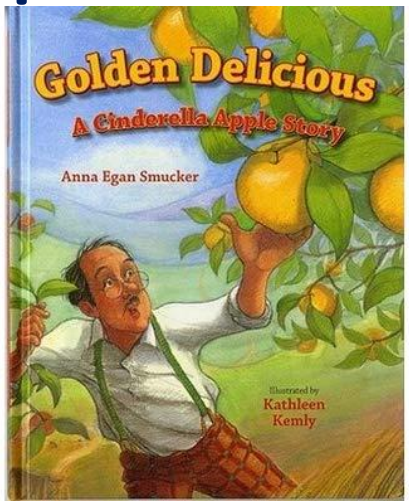
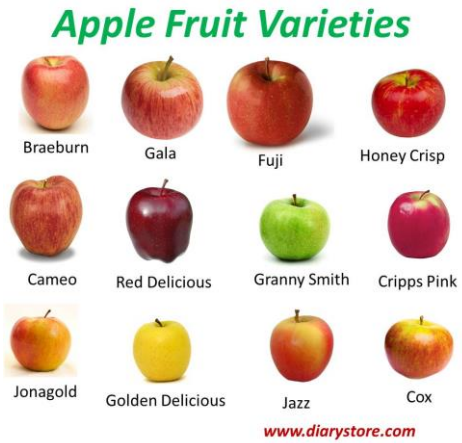
Activities for Multiple Learning Styles

Combining steps in an activity







Disabilities affect learning styles
(oversimplified)

- **Dyslexia** – affects visual learning and processing
- **Attention Deficit Hyperactivity Disorder (ADHD)** - ↓ ability to pay attention and complete tasks while ↑ fidgeting
- **Audio Processing Disorder (APD)** – affects ability to listen, understand and process spoken language
- **Visual processing disorder (VPD)** – affects ability to process information received visually
- **Sensory Processing Disorder (SPD)** – affects ability to process information received through sensory input (including hypersensitivity and hyposensitivity)

Disabilities affect learning styles
(oversimplified)

- **Dyscalculia** – affects ability to understand numerical and mathematical calculations
- **Dysgraphia** – affects ability to write readable, clear, and coherent sentences and have (including issues with word spacing, left-to-write writing, and even writing what they are thinking
- **Autism Spectrum Disorder (ASD)** – complex disorder that ranges from mild to severe and may affect developmental communication, social skills, sensitivity to sensory stimuli and may or may not be be associated with repetitive or ritualistic behavior

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