WELCOME!

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MINNESOTA SCHOOLYARD GARDEN COALITION

- Stewardship team members (4)
- Curriculum and training subgroup members
- Mission: Provide education, share resources, build capacity, and advance policies for schoolyard gardens throughout Minnesota.
AGENDA

• Brief introduction and splitting in to two groups.
• 40 minute rotations: Each group will get an overview of choice lessons from each of us.
• We will reconvene to discuss.
• Q&A session to follow.

• POST IT NOTES:
  As you are participating take some time to write on a post it what you think would work at your site and what you think would NOT work
GROUPS

- Come on up and grab a popsicle stick! When you do state whether or not you are a

  SEED

  SPROUT

  TREE

When it comes to schoolyard gardening.
BUILDING CURRICULUM

• Where do we start?
• STANDARDS
• AHHHHHHHHHHH!!!!!

• You can ALWAYS find a standard
THE EDIBLE SCHOOLYARD BERKELEY
ABOUT THIS LESSON:

• Using Brassicas genus to teach selective breeding, observation skills, writing skills, note taking skills, and you name it.

• **Language Objectives:** Students will use observation to identify and write similarities and differences between plants and leaves of the *Brassica* genus. Students will use Cornell notes to identify characteristics of *Brassica* plants.

• **Science Objectives:** Students will define selective breeding and identify brassicas as an example of this process.

• **Social Emotional Learning Objective:** Engage in conversation as peers. Enjoy the school garden as a classroom. Taste fresh produce from the garden. Share a meal they have made with their classmates. Identify and execute roles in a group setting.
STANDARDS

- High School Science:
  - BENCHMARK: 9.4.3.3.3 Artificial Selection
  - Recognize that artificial selection has led to offspring through successive generations that can be very different in appearance and behavior from their distant ancestors.

- BENCHMARK: 9.4.4.1.3 Contributions of Cultures
  - Describe contributions from diverse cultures, including Minnesota American Indian tribes and communities, to the understanding of interactions among humans and living systems.

- BENCHMARK: 9.4.4.1.1 Biotechnology Risks & Benefits
  - Describe the social, economic and ecological risks and benefits of biotechnology in agriculture and medicine.

- Middle School Science:
  - BENCHMARK: 7.4.4.1.1 Selective Breeding
  - Describe examples where selective breeding has resulted in new varieties of cultivated plants and particular traits in domesticated animals.
ESSENTIAL QUESTION

• What is selective breeding and what characteristics have been isolated by this process in plants of the genus *Brassica*?
WHAT DO BROCCOLI, CAULIFLOWER, BRUSSELS SPROUTS, AND CABBAGE HAVE IN COMMON?
THE SAME SPECIES

BRASSICA OLERACEA

• Make observations (The mustard Family worksheet)
These are all *Brassica oleracea*
SELECTIVE BREEDING

• (also called artificial selection) is the process by which humans breed other animals and plants for particular traits

• *Brassica oleracea* Originates from the Atlantic seaboard of Europe and the Mediterranean. It has been used as a vegetable for more than 2500 years and through selective breeding for particular characteristics of the plant, six main vegetables have been produced from this one species.
**BRASSICACEAE - MUSTARD FAMILY**

**Edible Genera:**

*Brassica*
- kohlrabi
- mustard
- canola oil (rape seed oil)
- *cabbage*, head of leaves
- *kale*, without a head
- *cauliflower*, flower buds
- *brussels sprouts*, axillary buds
- *broccoli*, flower buds
- *rutabaga*, roots
- *turnip*, roots
- *chinese cabbage*, leaves
- *bok choy*, leaves
Edible Genera:

*Armoracia rusticana*

*horseradish*, root used to flavor foods

*Eruca stiva*

*arugula*

*Nasturtium officinale*

*watercress*

*Raphanus sativus*

*radish*

*daikon*
Brassicas are flowering plants widely used in the human diet around the world.
• Vegetables of many types: roots, stems, leaves, buds, flowers
• Condiments and pickles: mustard, wasabi, horseradish, kimchee, sauerkraut.
• Animal feed and fodder
• Oilseed and meal, canola oil
**BRASSICACEAE - MUSTARD FAMILY**

**Distinguishing Features:** Leaves are alternate and simple. Flowers usually present in a raceme inflorescence, with individual flowers having 4 sepals, 4 diagonally opposed petals, and 6 stamens that are tetradsynamous--4 long stamens and 2 outer short stamens. The ovary has two locules divided by a replum or false partition. The ovary produces specialized fruit, either the narrow silique or a short silicle in which the seeds are separated into two chambers by the replum.

*Silique*

*Raceme*

*Various silicles*
BRASSICA FLOWERS BELONGS TO THE CRUCIFER FAMILY.

Why do you think it is called the Crucifer family?
WRITE SUMMARY RESPONSE TO ESSENTIAL QUESTION

- Share
IN THE KITCHEN

• ESTABLISH ROLES
  • use laminated roles, rotate, more than one student per role if needed

• USE REAL TOOLS
  • teach responsibility and ownership

• EAT AS A GROUP
  • Wait until EVERYONE has their food

• DISCUSS STUFF!
  • Use discussion points to facilitate healthy, fun discussions
KITCHEN ROLES

- Materials Management
  - Clean countertops with sanitizer rag and empty sanitizer sink
  - Move dishes to dish area
  - Storage of food (prepared food storage and ingredient storage/return)
  - Compost bucket
  - All sinks are clear of debris
KITCHEN ROLES

• Preparation/Recipe Maestro
  • Cutting
  • Washing
  • Recipe following/conversions/etc.
  • Cooking
  • Work directly with sous chef
KITCHEN ROLES

• Dishes
  • Gather supplies/materials for preparation crew
  • Running ALL dishes and cutting boards, etc. through dish washer
  • Squeegee dish are and make sure it is clean with no debris in sink
  • Drain dish water
  • Turn dishwasher off
KITCHEN ROLES

• Sous chef/taster
  • Leader of the group
  • Managing the team/keeping people on their task
  • Recipe following
  • Overseeing the cooking
  • Final tasting and recommending changes to recipe
SIMPLE RECIPE...NO KITCHEN NEEDED

• CHINESE CABBAGE SALAD
• 4 cups thinly sliced Chinese cabbage
• 1 Tbsp. sugar
• 1/2 tsp. salt
• 1/4 cup white vinegar (preferably rice vinegar)
• 2 tsp. Chinese-style sesame oil
• Add sunflower seeds or sesame seeds if desired
• Mix all ingredients together lightly and serve.
• Serves 4