Reading the Garden Plan

Garden Beds: Each garden bed is divided into three sections, with each section representing one year in the garden; Seasonality: Each section (year) is divided into four seasons (fall, winter, spring, summer). The line closest to the “Year” represents the Fall season, while the line farthest from the "Year" represents Summer; Soil Nutrients: Each colored line represents the nutrient needs of the crop being grown during that particular season. For example, a dark blue line represents a crop with a very high nutrient need (tomato) while a bright blue line represents a crop that adds nutrients back into the soil (peas).
The following information serves as a resource for your use of regenerative agricultural practices in the Learning Garden. Plant nutrition, cover crop functionality, and plant families are all relevant factors that should be considered when striving to use regenerative agricultural practices.

**Plant Nutrition**

Vegetables need different amounts of macronutrients. For example, leafy greens, like spinach and arugula, need more nitrogen; root vegetables, like radishes, and fruiting vegetables, like tomatoes, need more phosphorous; and potatoes need more potassium.

**Macronutrients:** Nitrogen (N) — Leafy green growth; Phosphorous (P) — Strong roots and fruits; Potassium (K) — Strong stems and quality growth

**Cover Crops**

Using cover crops is a great way to replenish soil nutrients, reduce erosion, build organic matter, improve water retention and aeration, suppress weeds, and attract beneficial insects and pollinators.

**Buckwheat:** A quick growing cover crop that should be planted in mid-summer (July) and cultivated in early fall before plants self-seed. Buckwheat attracts lots of beneficial insect and pollinators.

**Oats:** A quick growing cover crop that’s best to plant in the early summer, often with peas. Oats take nitrogen and small amounts of phosphorous and potassium from the air and use it to replenish the soil.

**Peas:** A slow growing cover crop that’s best to plant in the fall or early summer. Peas take large amounts of nitrogen from the air and use it to replenish the soil.

**Plant Families**

"Crop Rotation" is a method of planting vegetables from different plant families in the same garden bed. For example, if you plant arugula in bed B2 in the spring, you want to avoid planting kale, collards, or other members of the *Brassicaceae* family in B2 during the summer. This practice keeps the soil and plants healthier by preventing pests and diseases from building up a tolerance to soil and plant life.

- **Asteraceae**: Lettuce
- **Brassicaceae**: Arugula, Collards, Kale, Mustards, Radishes, Turnips
- **Convolvulaceae**: Sweet Potatoes
- **Cucurbitaceae**: Cucumber, Squash
- **Fabaceae**: Beans, Peas
- **Chenopodiaceae**: Beets, Chard, Spinach
- **Lamiaceae**: Basil, Lavender, Oregano, Rosemary, Sage, Thyme
- **Liliaceae**: Garlic, Onions
- **Poaceae**: Corn, Oats
- **Polygonaceae**: Buckwheat
- **Umbelliferae**: Carrots, Cilantro, Parsley, Dill
- **Solanaceae**: Tomato, Pepper, Potatoes
Pages 3-5 break down the crop rotation garden plan (shown on page 1) by garden bed system (A, B, C). This is just one example of how a school can rotate crops in a 4-season garden plan over the course of a 3-year period. Use the same rules outlined on page 1 to read and interpret these guides.

**Soil Nutrient Key**
- **Bright:** Cover Crop
- **Gray:** Perennials/Flowers
- **Light:** Light Feeder
- **Medium:** Moderate Feeder
- **Dark:** Heavy Feeder

**Season Key**
- **Top:** Fall
- **1st Middle:** Winter
- **2nd Middle:** Spring
- **Bottom:** Summer
CROP ROTATION GARDEN PLAN

SYSTEM C

Soil Nutrient Key
Bright: Cover Crop
Gray: Perennials/Flowers
Light: Light Feeder
Medium: Moderate Feeder
Dark: Heavy Feeder

Season Key
Top: Fall
1st Middle: Winter
2nd Middle: Spring
Bottom: Summer

Crop Rotation:

Year 1:
- C1: Kale Garlic/Peas
- C2: Kale Garlic/Peas
- C3: Pea Shoots Peas Lettuce Plant Parts
- C4: Pea Shoots Peas Lettuce Peas/Oats

Year 2:
- C1: Kale Peas Radishes Peas/Oats
- C2: Turnips Peas Kale Onion/Pepper
- C3: Lettuce Peas Arugula 3 Sisters
- C4: Kale Peas Turnips Peas/Oats

Year 3:
- C1: Radishes Peas Kale Tomato
- C2: Kale Garlic/Peas Garlic/Peas Buckwheat
- C3: Lettuce Peas Arugula 3 Sisters
- C4: Pea Shoots Peas Lettuce Sw. Potato
Crop Rotation Garden Plan

Randolph Elementary

Pages 7-11 provide a layout for individual seasons in the garden over a 3-year period. We used the design of the Randolph Elementary Learning Garden to demonstrate tailoring the garden plan to fit within the design of a particular Learning Garden.

Soil Nutrient Key
- Bright: Cover Crop
- Gray: Perennials/Flowers
- Light: Light Feeder
- Medium: Moderate Feeder
- Dark: Heavy Feeder

Season Key
- Top: Fall
- 1st Middle: Winter
- 2nd Middle: Spring
- Bottom: Summer
CROP ROTATION GARDEN PLAN

RANDOLPH ELEMENTARY—FALL (3 YEARS)

Soil Nutrient Key
- Bright: Cover Crop
- Gray: Perennials/Flowers
- Light: Light Feeder
- Medium: Moderate Feeder
- Dark: Heavy Feeder

Seed Space Key
- Broadcast
- Large spacing
- Seed spacers

Season Key
- Top: Fall
- 1st Middle: Winter
- 2nd Middle: Spring
- Bottom: Summer
Soil Nutrient Key
Bright: Cover Crop
Gray: Perennials/Flowers
Light: Light Feeder
Medium: Moderate Feeder
Dark: Heavy Feeder

Seed Space Key
Broadcast / Large spacing
/ Seed spacers

Season Key
Top: Fall
1st Middle: Winter
2nd Middle: Spring
Bottom: Summer

CROP ROTATION GARDEN PLAN
RANDOLPH ELEMENTARY - WINTER (3 YEARS)
Crop Rotation Garden Plan

Randolph Elementary – Spring (3 Years)

Soil Nutrient Key
- Bright: Cover Crop
- Gray: Perennials/Flowers
- Light: Light Feeder
- Medium: Moderate Feeder
- Dark: Heavy Feeder

Seed Space Key
- Broadcast
- Large spacing
- Seed spacers

Season Key
- Top: Fall
- 1st Middle: Winter
- 2nd Middle: Spring
- Bottom: Summer
CROP ROTATION GARDEN PLAN

RANDOLPH ELEMENTARY—SUMMER (3 YEARS)

Soil Nutrient Key
Bright: Cover Crop
Gray: Perennials/Flowers
Light: Light Feeder
Medium: Moderate Feeder
Dark: Heavy Feeder

Seed Space Key
Broadcast / Large spacing
Seed spacers

Season Key
Top: Fall
1st Middle: Winter
2nd Middle: Spring
Bottom: Summer