

SMALL BUT MIGHTY: MICROGREENS IN THE CLASSROOM



RESOURCES FROM IAITC



agintheclassroom.org

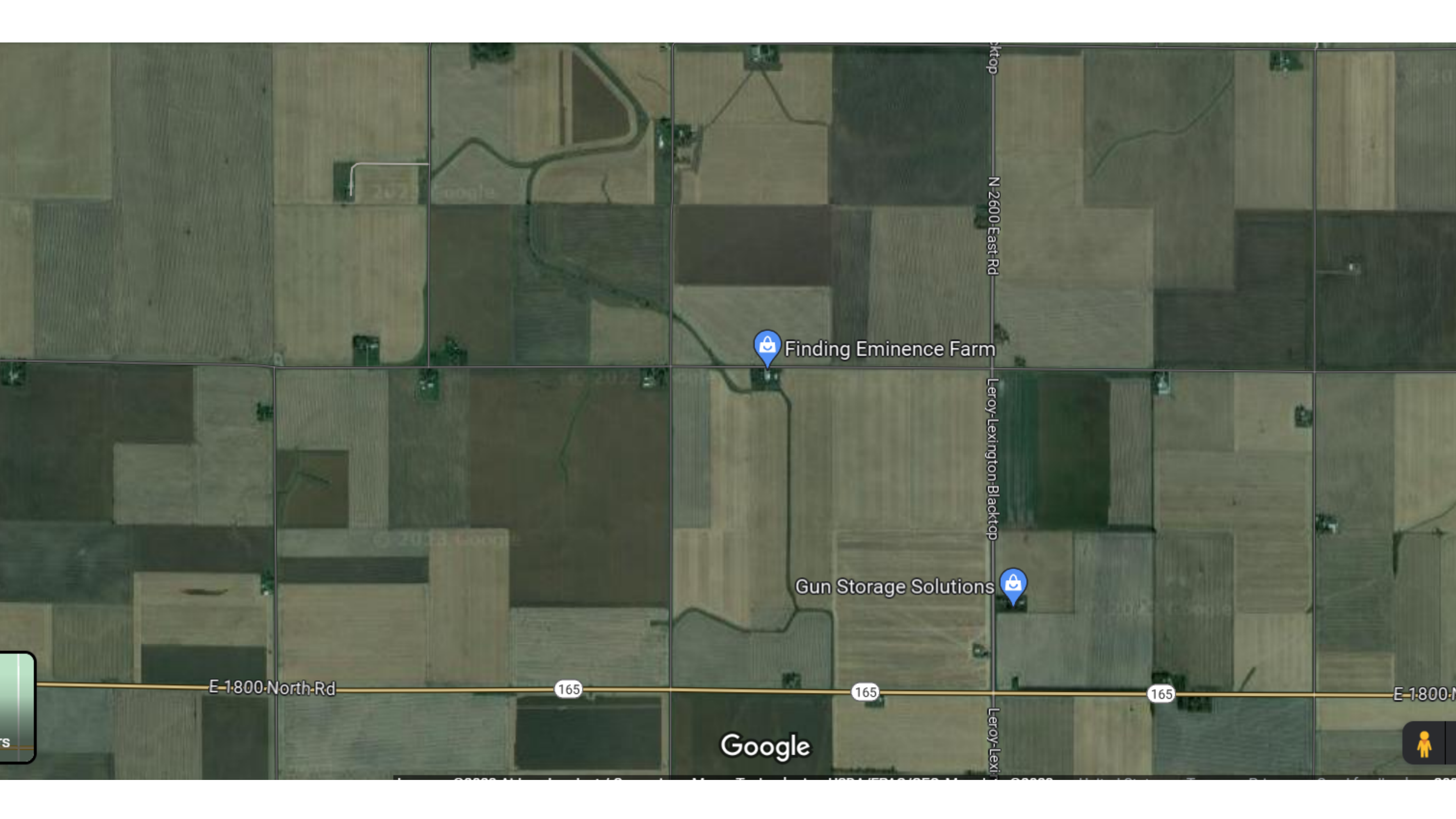


WHAT ARE MICROGREENS?

- Young seedlings of edible vegetables and herbs
- Young and tender edible greens produced by sprouting the seeds of a variety of vegetable species and herbaceous plants
- Simply the versions of these vegetables and herbs when they are in their tiny sprout form
- The shoots of salad vegetables picked just after the first leaves have developed.
- NOT "SPROUTS"
- Enjoy with: sandwiches, salads, smoothies, soup, pizza, pesto, and more!

MY MICROGREEN JOURNEY

- 10-15 trays/week
- 52 weeks/year for past 8 years
- Sell in clamshells to grocery stores
- Sell in bulk to restaurants/catering companies
- Little bit of work, every single day
- Only year-round crop on our farm



Finding Eminence Farm

Gun Storage Solutions

E 1800 North Rd

165

165

165

E 1800 North Rd

Google

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Finding Eminence Farm
Florist



MY MICROGREEN SETUP



WHY MICROGREENS?

- According to 2014 USDA Study:
 - Many micros have 5+ times the Vitamin C, E, K, and carotenoids as adult counterparts
- Easy entry point for small-scale producers with limited space and infrastructure
- They're trendy!
- Possibility of year-round production

WHY THE CLASSROOM?

- Quick seed-to-harvest turnaround ideal for classroom schedules
- Ideal way to introduce students to wide variety of specialty crops
- Micros pair well with food from variety of cultures

CROPS TO GROW

Note: Buy seed marketed as "microgreen seeds" for cheaper AND food-grade seed

- Any "leafy green"
- Broccoli*
- Kale*
- Kohlrabi
- Turnips
- Radish*
- Swiss Chard
- Nasturtium
- Mustard
- Can mix these in same tray

- Pea*
- Sunflower*
- Popcorn*

- Basil
- Dill
- Cilantro

* → best for beginners

CROPS TO GROW



Radish - 10 days



Broccoli & Kale - 10 days

CROPS TO GROW



Pea - 10 days



Swiss Chard - 20 days

CONCEPTS TO CONNECT



PHOTOSYNTHESIS

- Variety of trials you could complete
- Does presence of light change flavor? Why or why not?
- Does number of hours with lights on influence growth?



SEED GERMINATION

- How long do seeds take to germinate?
- Does a seed need to be covered by soil?
- Does temperature affect seed germination?
- Do seeds need to be pre-soaked?
- Are all seeds of the same plant the same?
- What does a seed look like when it's germinating?
- How "strong" are seeds?



SEED GERMINATION



SEED TYPES

- How do we need to treat seeds differently?
- Do bigger seeds need different care?
- How does seed type affect growing needs?



BASIC TOOLS/SET UP



LIGHTING

LED 4' OR 8' TUBE LIGHTING RECOMMENDED



TRAYS/CONTAINERS

1020 SHALLOW W/ HOLES



2' X 4' BOTTOM WATERING TRAY



TRAYS/CONTAINERS



POTTING MEDIA



OTHER SUPPLIES



WONDER WATERER



SEED TO HARVEST



Seed	Seed Weight	Treatment	Harvest Weight
Broccoli	1.27 oz.	n/a	8-10 oz.
Kale	1.27 oz.	n/a	8-10 oz.
Pea	10 oz.	soak 6-8 hours	up to 2 lbs.
Sunflower	5 oz.	soak 6-8 hours, treat w/ hydrogen peroxide/vinegar	1 lb.

SEED TO HARVEST

Monday: Plant and Stack Micro Trays

Thursday: Unstack Trays & Top/Bottom Water

Bottom Water Once Daily

Ready to Harvest by following Wed./Thurs.

LESSON CONNECTIONS



PLANT MAZE



Science

PLANT MAZE

STUDENT WORKSHEET

Chart Your Plant's Growth

After completing your plant maze and adding your cup of planted seeds in the bottom of the maze, wait until your teacher says it is time to open up the maze. How much have your plants grown? Are they growing towards the light?

Directions

Draw your plant maze as it actually looks after building, including your cup of seeds. Using a different color each day, draw your plant's growth below. Don't forget to fill in your key with the correct colors and numbers!

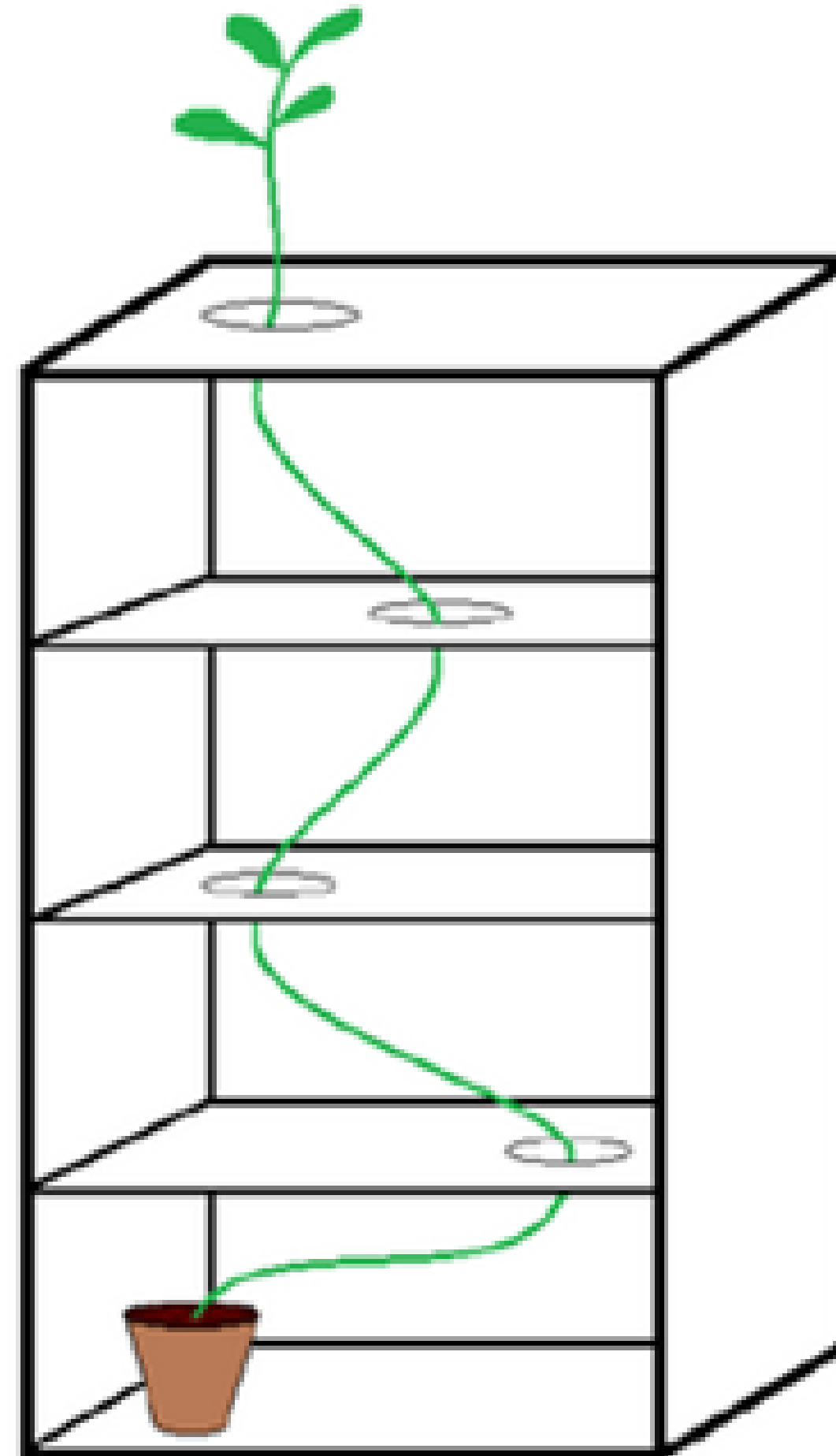
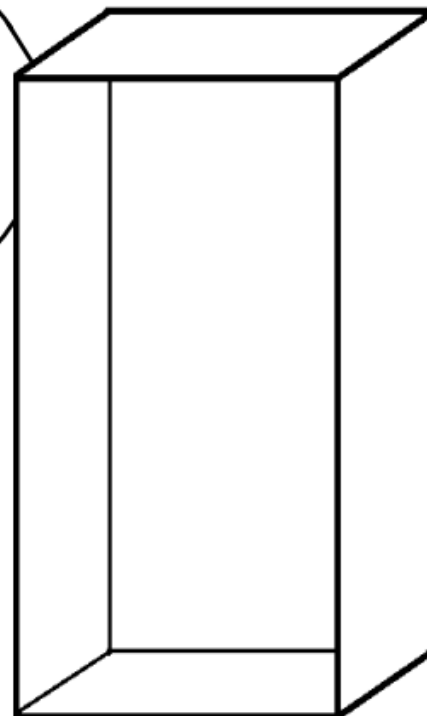
KEY

- 1st check, ___ days since planting
- 2nd check, ___ days since planting
- 3rd check, ___ days since planting
- 4th check, ___ days since planting
- 5th check, ___ days since planting

REFLECTION QUESTIONS

How did light affect the growth of your plant?

Was your prediction from the first page correct?
What are some other things that would affect the growth of the plant?



TOPS & BOTTOMS



PLANT PARTS LOGIC PUZZLE

Science

PLANT PARTS LOGIC PUZZLE

Designed to help students understand the parts of vegetables.

Grade Level: 3-5

Length of Lesson: 30 minutes

Objective: By the end of the lesson, students will have a better understanding of the parts of plants and vegetables.

Materials:

- Scissors
- Glue or tape
- Copies of the puzzle

Standard: 3-LS-1-1

Cut out the plant part labels on the next page and match them to the corresponding vegetables below according to which part we eat. Each one will fit!

Time to go shopping at the Farmers Market and put your knowledge to the test! Arrange the Vegetable Cards into the shopping bag below so that "like" plant parts are touching each other (i.e. - stems touching stems, roots touching roots).

Illinois AGRICULTURE in the Classroom.


root	stem	seed	flower
root	leaf	seed	flower
root	leaf	fruit	flower
stem	leaf	fruit	seed
stem	seed	fruit	

Vegetable Cards:

- Artichoke (Root)
- Asparagus (Stem)
- Carrot (Root)
- Broccoli (Flower)
- Corn (Seed)
- Cucumber (Fruit)
- Spinach (Leaf)
- Tomato (Fruit)

Shopping Bag:

INS AND OUTS

 Science

Grade Level
K-4

Length of Lesson
30 minutes

Objective
By the end of this lesson, students will have a better understanding of plant parts, and which parts of plants we eat.

Materials Needed

- Scissors
- Glue or tape
- Copies of Ins and Outs cards

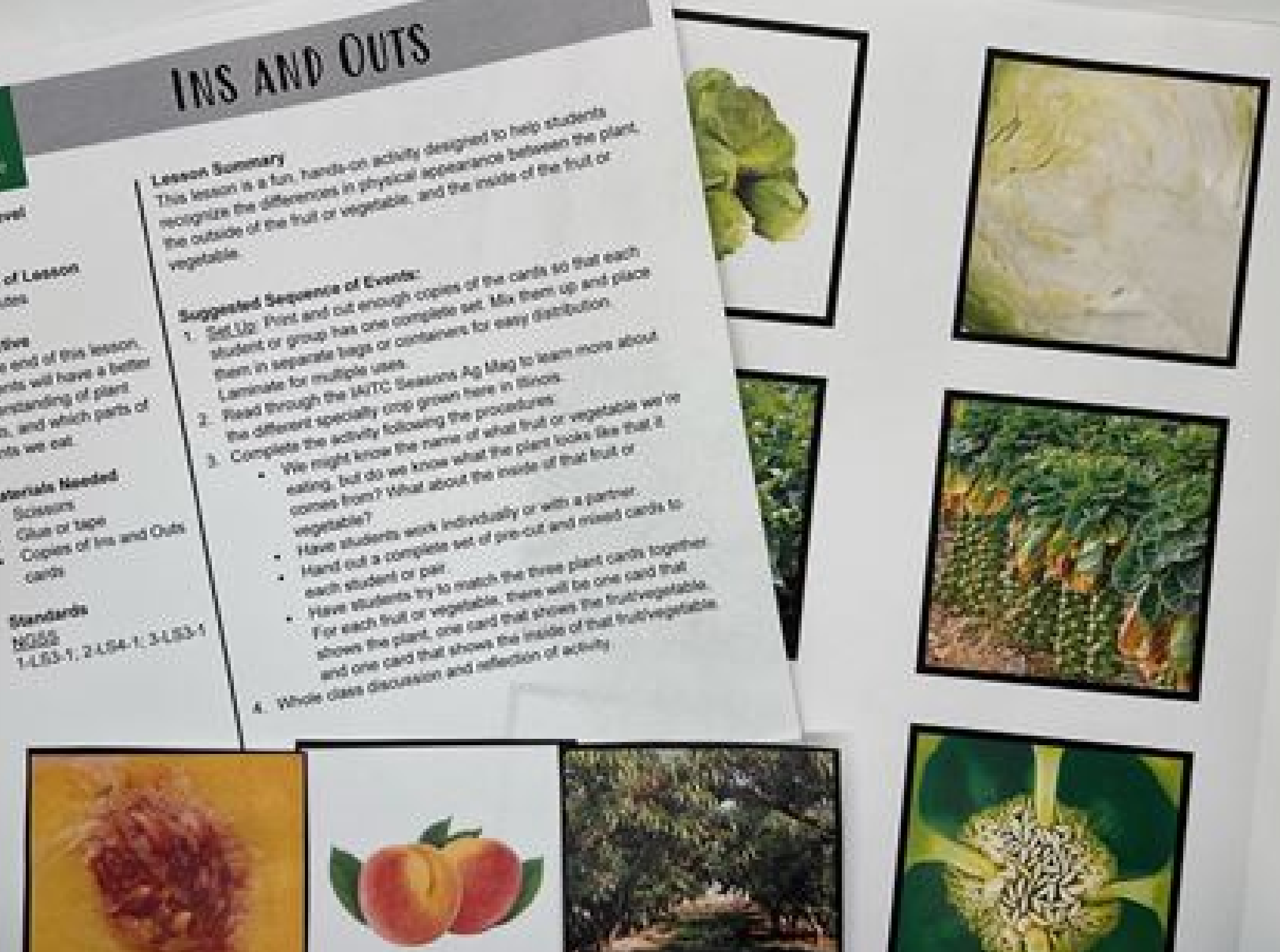
Standards
NGSS
1-LS3-1, 2-LS4-1, 3-LS3-1

INS AND OUTS

Lesson Summary
This lesson is a fun, hands-on activity designed to help students recognize the differences in physical appearance between the plant, the outside of the fruit or vegetable, and the inside of the fruit or vegetable.

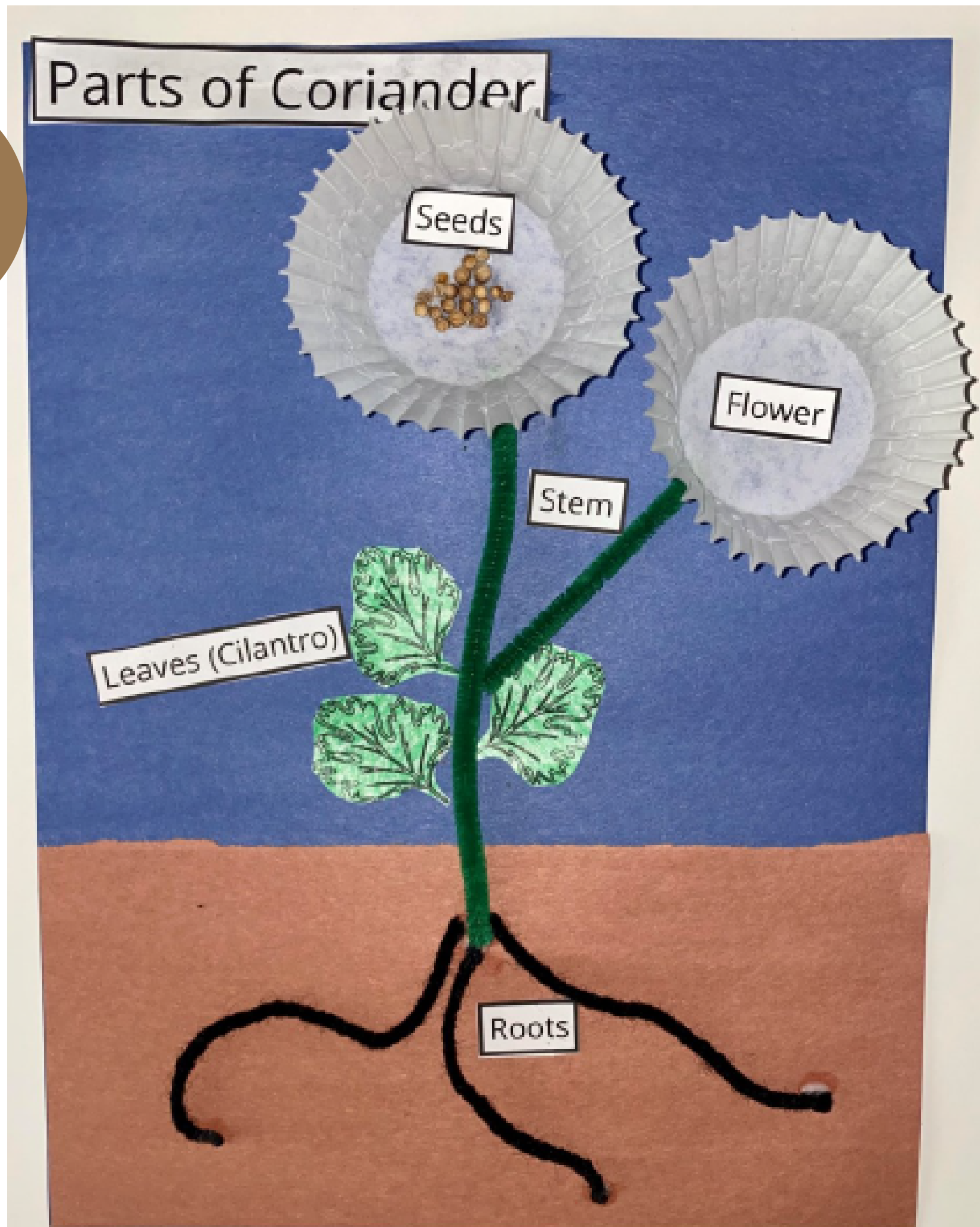
Suggested Sequence of Events:

1. **Set-Up:** Print and cut enough copies of the cards so that each student or group has one complete set. Mix them up and place them in separate bags or containers for easy distribution. Laminates for multiple uses.
2. Read through the WTC Seasons Ag Mag to learn more about the different specialty crop grown here in Illinois.
3. Complete the activity following the procedures:
 - We might know the name of what fruit or vegetable we're eating, but do we know what the plant looks like that it comes from? What about the inside of that fruit or vegetable?
 - Have students work individually or with a partner.
 - Hand out a complete set of pre-cut and mixed cards to each student or pair.
 - Have students try to match the three plant cards together. For each fruit or vegetable, there will be one card that shows the plant, one card that shows the fruit/vegetable, and one card that shows the inside of that fruit/vegetable.
4. Whole class discussion and reflection of activity.

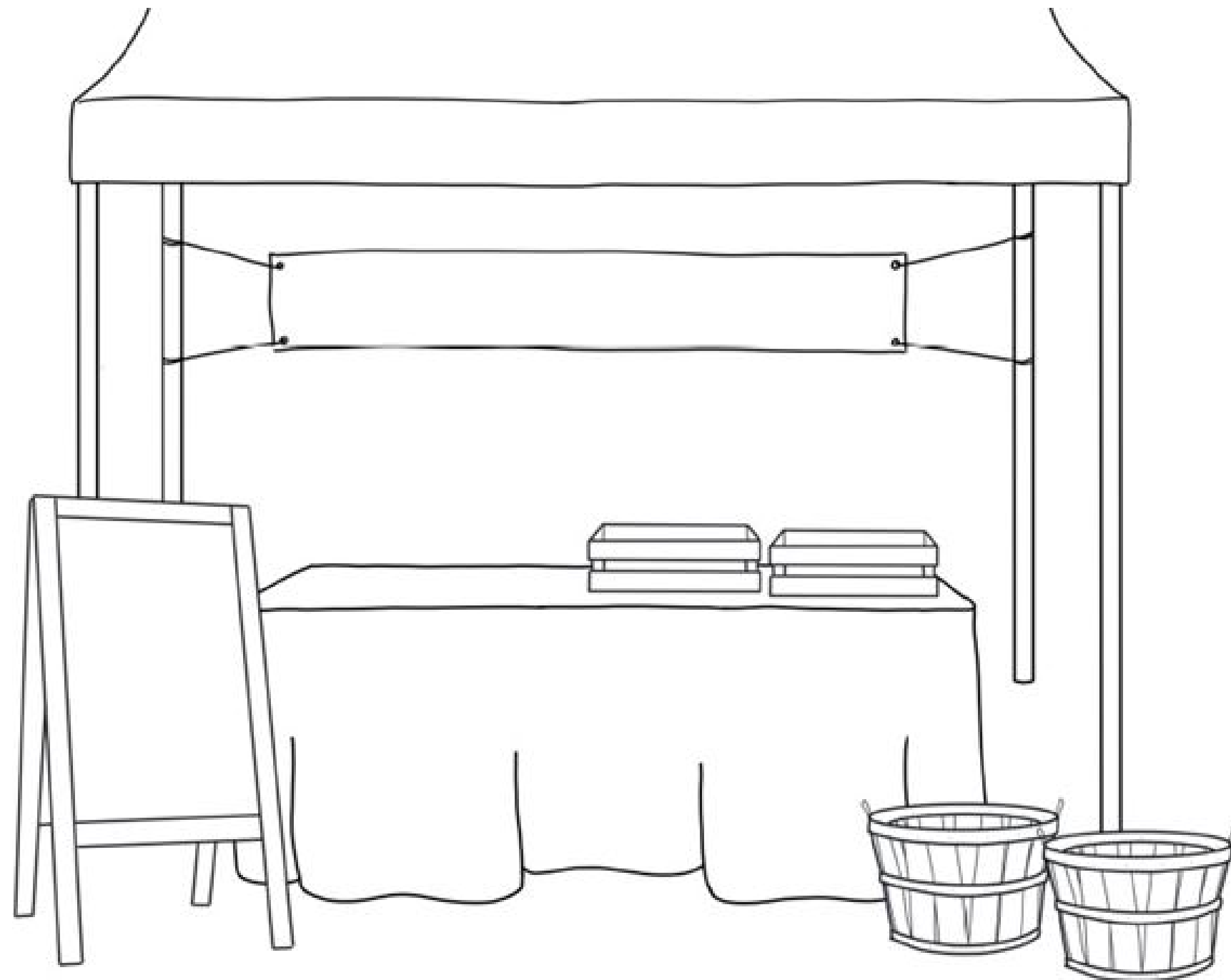


The collage features several images: a bunch of green leafy vegetables, a close-up of a light-colored vegetable interior, a field of green crops, a close-up of a plant's root system, a close-up of a red and yellow fruit, a peach, a field of trees, and a close-up of a green vegetable's internal structure.

CILANTRO CUISINE



FARMERS MARKET BOOTH



EROSION SIMULATOR





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