

Patterns



Where do PATTERNS show up in the kitchen & garden?

sun/night

seasons

weather patterns -
using patterns to make forecasts

tempature
in cooking

succession
planting/crop
planning

colors

Leaf
patterns

Plant
Families

Does it matter what time of year to plant, does air or soil tempurature make a difference?

Cause & Effect



Where does the concept of CAUSE & EFFECT show up in the kitchen & garden?

Ecosystems -
plants with
aphids bring
lady bugs to
the garden

watering vs
not water
plants. What
happens

baking has
lots of
cause and
effect

How much water
plants need, What
happens when
water evaporates?

only watering
plants vs
using
fertilizers

differences in
measurements
and how it
affects dishes

Different heat will
cook food
differently. e.g.
Roasting, searing,
grilling, steaming

cooking new
recipes
improves
nutrition at
home

Scale,
Proportion &...

Where do SCALE, PROPORTION & QUANTITY show up in the kitchen & garden?

counting
plants/ how
much yield
crop makes
filling a raised bed
with
soil/compost/sand
mixtures

recipes

Compost:
inputs v
outputs

How much to
plant? Projecting
needs for future
harvests?

Plant/fruit
sizes and
output

Amount of plants
needed to fill a bed.
What proportion to
plant when
interplanting
multiple crops.

Measuring
planting
depth

Square
foot
gardening



Cross Cutting Concepts

Breaking down the NGSS
crosscutting concepts

**Systems &
System Models**



Where do SYSTEMS & SYSTEM MODELS show up in the kitchen & garden?

Greenhouse systems

drainage systems
for stormwater
runoff/rain
barrels

food
systems

ecosystems



Bokashi
fermentation
system for
cafeteria food
waste reduction

Decomposition
(Compost)

Water
systems!

Life
cycles

**Structure &
Function**



Where does the concept of
STRUCTURE & FUNCTION show
up in the kitchen & garden?

walk
ways in
garden

plant parts
and their
functions

Routine
Maintenance
(caring for
plants)

insect life
phases

roots

instructions
kitchen
safety

nutrients

simple
machines that
make up
garden and
kitchen tools

Where is
the water
source
located?

trellis
design

Stability & Change

Where do STABILITY & CHANGE show up in the kitchen & garden?

pests/solution

perennial plants change throughout the season, but present stability in that they come back year after year

Weather events

Climate Change

erosion

frost and thaw

The garden is always there for you <3

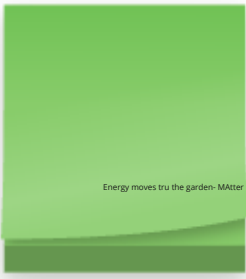


physical and chemical changes

raised beds

soil health is plant health

Energy & Matter



Where do ENERGY & MATTER show up in the kitchen & garden?

decomposition
with fungi,
bacteria

Photosynthesis

states of
matter - like
when rain is
freezing!

Greenhouse

Heat in the
garden and
kitchen
(cooking)

food
chains

Bokashi
fermentation

sun's heat
energy -
capturing in
greenhouse

photosynthesis
converting the
sun's
energy to sugar

compost

It takes a lot
of physical
energy to
grow food!

food for
energy

Asking
Questions &...

What might this practice look
like in a school garden or kitchen?

who's
eating all
my plants?!

as a group
discussion

Garden
planning:
Where should
we plant each
plant and why?

Why are these
leaves curling?
What is the
plant using
from the soil?

Developing & Using Models



What might this practice look like in a school garden or kitchen?

mimicking deer populations in outdoor space

garden/landscape mapping

examples of garden barriers

model of solar system to understand movement and angle of celestial bodies in different seasons

Sharing a crop plan or a garden layout

What structural supports are needed? Do your plants climb?

Starting seeds in a greenhouse or indoors

creating a model of an irrigation system before installing

**Planning &
Carrying Out...**



What might this practice look like in a school garden or kitchen?

testing soil temperatures to see how it affects seed growth

How can we determine if an insect is diurnal or nocturnal?

how should we try to raise or lower the temperature of the seeds?

water tests,
Soil tests and
plant tissue
testing

composting

what happens to leaves when they fall on the ground?

Observing and writing down observations/quantities

Science & Engineering Practices

Breaking down the NGSS SEPs

Analyzing & Interpreting...



What might this practice look like in a school garden or kitchen?

color seek

game

what is the most common color you see?

weather data

water recording

when do you think is the most rainy season? which months?

How might soil structure affect plant growth?

Conducting experiments

analyzing
Reading soil samples

Counting # of observations

**Using
Mathematical...**



What might this practice look like in a school garden or kitchen?

Measuring

weighing
and
distributing
harvest

counting
fruit

Harvest
yield

Measuring
planting depth
and accounting
for the height of
flower bulb

nutrients in
the soil
mesuments

How many days do
these plants need to
grow before they
can be harvested?
Based on that, when
should we start
these seeds?

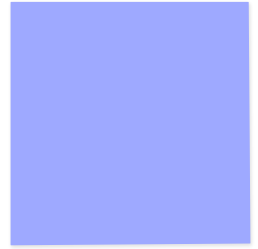
How many
plants can
we fit in this
garden bed?

Constructing Explanations &...



What might this practice look like in a school garden or kitchen?

Building structure to support plants



Labeling plants

ask the why on design of garden

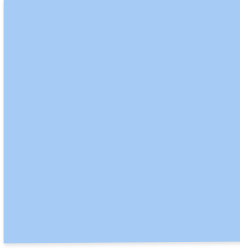
making garden/kitchen accessible for all children

How could you use this design to build something else?

**Engaging in
Argument from...**

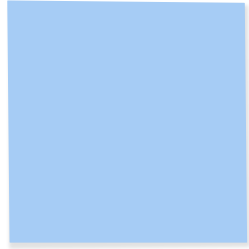


What might this practice look like in a school garden or kitchen?



organic vs
local vs
conventional
growing
practices

not agreeing
with
treatment of
pests



Dryfarming
or not

Obtaining,
Evaluating, an...

What might this practice look like in a school garden or kitchen?



Review
cooking
food
product

Comparing
different
ingredients
effect on each
other

journaling

what was your
favotie thing
you observed
in the garden
today?

think,
pair,
share

class
compassions
of
experiments in
the garden



Creating a
"heat-map"
where
students mark
observations