

Agriculture Intern Projects

Water management

- Design a Rain Garden to demonstrate the use of water management.
<https://kidsgardening.org/lesson-plans-rain-gardens/>
- Materials
 - graph paper (100 sheets \$12.56)
 - Pencil (box of 30 \$6)
 - tape measure (25 ft \$13)
 - long handle shovel (borrow EarthDance tools)
 - Ruler (Pack of 2 \$7)
 - hose or watering can (borrow EarthDance tools)
 - Print out of Water Cycle: The Rain Garden Handout
https://kidsgardening.wpengine.com/wp-content/uploads/2016/11/Rain_Garden-9_12.pdf
 - Total: \$28.56

Composting

- Building a Soda Bottle Bioreactor <http://compost.css.cornell.edu/soda.html>
- Materials
 - two 2-liter or 3-liter soda bottles (students can bring their own)
 - one smaller container, about 5-cm high, that fits inside the soda bottle (students can bring their own)
 - one Styrofoam plate or tray (100 count \$16)
 - drill or nail for making holes (borrow EarthDance tools)
 - duct tape or clear packaging tape (Pack of 6 \$14)
 - utility knife (borrow EarthDance tools)
 - insulation materials such as sheets of fiberglass or foam rubber, or Styrofoam peanuts (22.5 gal \$15)
 - fine-meshed screen or fabric large enough to cover top of soda bottle and air holes in bottom half (\$5 - \$10)
 - thermometer that will fit into the top of the soda bottle and be long enough to reach down into the center of the compost (2 pack \$12)
 - chopped vegetable scraps such as lettuce leaves, carrot or potato peelings, and apple cores, or garden wastes such as weeds or grass clippings (EarthDance or student can bring from home)
 - bulking agent such as wood shavings or 1-2 cm pieces of paper egg cartons, cardboard, or wood (collect from home or around EarthDance)
 - optional: hollow tubing to provide ventilation (10ft \$11)
 - Total: \$78
- Greens – Nitrogen Rich
 - Fruits and vegetable scraps

- Bread and grains
- Coffee grounds
- Coffee filters
- Green garden waste
- Paper tea bags with the staple removed
- Browns – Carbon Rich
 - Nut shells
 - Sawdust from untreated wood
 - Hay and straw
 - Yard trimmings (e.g., leaves, branches, twigs)
 - Wood chips
 - Leaves
 - Shredded newspaper
- What not to add to the compost pile:
 - Aluminum, tin or other metal
 - Glass
 - Dairy products (e.g., butter, milk, sour cream, yogurt) & eggs
 - Fats, grease, lard, or oils
 - Greasy or oily foods
 - Meat or seafood scraps
 - Pet wastes
 - Plastic
 - Stickers from fruits or vegetables (to prevent litter)
 - Black walnut tree leaves or twigs
 - Yard trimmings treated with chemical pesticides
 - Roots of perennial weeds
 - Coal or charcoal ash
 - Treated or painted wood
- Composting Issues
 - Bad Odor- Rotten Smell Not enough air or too much moisture; Solution-Turn pile and incorporate coarse browns (sawdust, leaves)
 - Bad Odor- Ammonia Smell Too much nitrogen; Solution-Incorporate coarse browns (sawdust, leaves)
 - Pile does not heat up or decomposes slowly Pile too small; Solution-Add more organic matter
 - Insufficient moisture; Solution-Turn pile and add water
 - Lack of nitrogen; Solution-Incorporate food waste or grass clippings
 - Not enough air; Solution-Turn pile
 - Cold weather; Solution-Increase pile size or insulate with straw or a tarp

Crop rotation

- Crop Rotation and Vegetable Families
<https://agricorps.org/wp-content/school-garden-curriculum/english/garden-lesson-guides/lesson-12-short-crop-rotation.pdf>

- Materials
 - Paper (pack of paper \$10)
 - Pencils, crayons or colored pencils (\$20)
 - Poster board (6 from Office Depot at \$8/each \$48)
 - Total \$78

Soil Health

- Earth's Interconnected Systems: Nitrogen
<https://www.soils4teachers.org/files/s4t/nitrogen-connection-learning-activity.pdf>
- Materials
 - Computer with Internet connection
 - Soil from yard or garden (may be repeated with sandbox sand)
 - 200 to 250 ml containers with air-tight seals (pack of 5 \$21)
 - Ammonium-containing fertilizer† (check label), ammonia cleaning solution (if percent is listed), or reagent grade ammonium sulfate. (\$20)
 - Nitrate-containing fertilizer† (check label), e.g., Miracle- Gro® or Peter's Professional® (\$20)
 - Sugar (\$5)
 - Nitrate water-quality test strips, e.g., Lamotte 2996®, EM Quant®, or Industrial Test Systems® (\$17 pack of 25)
 - Distilled water (1 gal \$2)
 - Total: \$85

Permaculture

- Permaculture Design Elements Game
<https://www.permaculturedesign.earth/elementscards>
- Materials
 - Print Paper for Cards
 - Poster

Organic Farming

- Organic VS Conventional Farming
<https://healthyplanet.us/wp-content/uploads/2014/04/LessonPlanOrganicvsConventionalFarming.pdf>
<https://healthyplanet.us/healthy-growing/resources/garden-based-lessons/garden-based-lessons-and-curriculum/project-based-lessons/organic-vs-conventional-farming/>
- Materials
 - Poster board or TriFold board
 - Markers/Pens/Pencils/Colored Pencils

Organic Pest Management Practices

- Formulate your own organic pesticides (Neem Oil Spray)
- Create a Poster comparing organic and non-organic pest management practices

- Materials
 - Neem Oil (\$17 16 fl oz)
 - Spray bottle (16oz \$10 4 pack)
 - Poster
 - Pen/Pencils/Markers/Colored Pencils
 - Total: \$27

Sustainable distribution models

- Research sustainable distribution models throughout Saint Louis; Choose a farm/business that does not currently practice sustainable distribution practices and design a way for them to switch to a sustainable distribution model
- <https://www.agility.com/en/blog/what-is-green-distribution-a-guide-to-sustainable-logistics/>
- Materials
 - Computer/Internet for research
 - Poster
 - Markers/Pens/Pencils/Colored Pencils

Small Scale Crop Planning

- Use the Crop Planning template <https://beginnergardenertips.com/free-printable-garden-planner/>; copy to poster and design your own crop planning guide for your garden.
- Materials
 - Poster
 - Markers/Pens/Pencils/Colored Pencils
 - Computer/Internet for research

Square-Foot gardening

- Introduction to Square-foot gardening <https://web.uri.edu/mastergardener/files/Square-Foot-Gardening-Presentation.pdf>
- Design your square foot garden on paper <https://www.gardenorganic.org.uk/sites/www.gardenorganic.org.uk/files/Square%20Foot%20Gardening%20Activity%20Pack.pdf>
- Actually start your square foot garden in a raised bed <https://www.gardenorganic.org.uk/sites/www.gardenorganic.org.uk/files/resources/fflp/A59-Setting-up-a-square-foot-garden.pdf>
- Materials
 - Raised bed (??? Using a bed at Innovation)
 - Soil (Stl Composting \$27-\$35 per cubic yard;
 - String (\$8)
 - Stick pins (\$7)

- Measuring tape
- Seeds (\$30)
- Paper (12x12)
- Total: \$115

Medicinal Herbs

- Herbal Tincture

<https://achs.edu/blog/2017/07/25/how-to-make-a-tincture-herbal-medicine/> ●

Research the different types of herbs and their benefits. Choose a herb that you would like to make a tincture of.

- Make a small poster showing herb botanical name and common name, list the uses of the herb, planting season, germination time, dosing of tincture, side effects, and precautions ●

<https://mysticalmagicalherbs.com/2015/10/04/how-to-make-a-vinegar-tincture/> ● Design a poster showing your research

- Materials

- Braggs Apple Cider Vinegar (128 fl oz \$35)
- Dried Herb
- Mason jar (12 oz pack of 4 \$15)
- Strainer or cheesecloth (9 sq ft \$10; strainer \$10)
- Poster
- Markers/Pens/Pencils/Colored Pencils
- Total: \$60

Marketing

- Video tape a commercial for your farm/garden to attract customers.

- Research different ways to market a farm/garden and rate them, 1 being the most effective method and so forth. Explain why you rated each method the way you did. ●

Design a poster showing your research

- Materials

- Video/Camera phone (student may use their own phone)
- Poster
- Markers/Pens/Pencils/Colored Pencils

Value added products

- Choose a crop and come up with 5 different value added products you can create from that specific crop.

- Research profit of each value added product; make sure to think of what other things it will take to make that one product. Price each additional product and decide if it is profitable or not.

- Make your 5 value added products to show examples for presentation

- Design a poster showing your research.

- Poster
- Markers/Pens/Pencils/Colored Pencils

- Added ingredients or things needed to make value added products (will vary \$50)

Farm to table

- Create a meal plan for a week using crops that are grown at EarthDance.
- Compare benefits of buying in-store or from a farm ●

Choose one dish to make from your meal plan ● Design a poster showing your research and your meal plan. ● Materials

- Poster
- Markers/Pens/Pencils/Colored Pencils
- Produce from farm
- Other ingredients to make meal, if needed (\$50)