INDOOR GARDENING IN ALASKA SCHOOLS
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AG in the Classroom is a national program to assist teachers in making students aware of the role of agriculture in our lives.

Funded in part by the U.S. Department of Agriculture and each respective state, AG in the Classroom programs serve students in grades K-12. Each program presents factual information about farming.
Wait, AITC is NOT Farm to School?

Goals:

• Help students gain a greater awareness of the role of agriculture in the economy and society to support wise agricultural policies.

• Help students understand the farm sources of their food, fabric and flowers.

• Provide educators with resources to teach about Agriculture in their communities.

Goals:

• Increase local foods in school cafeterias

• Educate and engage kids in their local food system

• Support local producers
What about 4H and FFA?

- Community based organization run through Cooperative Extension offices at Land Grant Universities.
- Extra-curricular, often afterschool clubs, or fully outside of school clubs.
- Develop citizenship, leadership, responsibility and life skills of youth through experiential learning programs and a positive youth development approach.

- Works with mostly High School age students to become a leader in the agriculture community.
- Inter-curricular part of a school. There are 20 Chapters in different AK locations, sometimes integrated into the school day through courses offered at the school.
- Also includes Natural Resource education.
- National Competitions
What does AK AITC Offer?

- Provide assistance to teachers and educators who wish to incorporate Agricultural Literacy into their lessons.

- Curriculum materials and educational resources. Available at the FSWCD office but can be mailed upon request.

- Website: www.agclassroom.org/ak

- 2.5 to 4-day educator workshops.

- Outreach Events
- Conferences
- AK Agriculture Day
- Website Management
- Taste of AK Grown Events
AITC webpages

www.agclassroom.org/ak

www.agclassroom.org
Welcome to the National Agricultural Literacy Curriculum Matrix

Search the Matrix

Browse the Matrix

The National Agricultural Literacy Curriculum Matrix is an online, searchable, and standards-based curriculum map for K-12 teachers. The Matrix contextualizes national education standards in science, social studies, and nutrition education with relevant instructional resources linked to Common Core Standards. Search our instructional, classroom-ready resources now! After you find what you need, consider storing them in your personal binder — MyBinder! Create a MyBinder profile now, or login.

Submit a Resource to the Matrix

We are always looking for quality resources! Submit an innovative lesson plan or relevant companion resource today!

Keyword Search Lesson Plans & Companion Resources
Agriculture in the Classroom

Alaska Agriculture in the Classroom

Agriculture in Alaska is amazing and quite different from agriculture in many other places. Yes, Alaska has some extreme temperatures, but because it also gets more hours of daylight in the summer, some crops actually grow better in Alaska.

FSWCD is the coordinator for the Alaska Ag in the Classroom program (AK AITC). Alaska Ag in the Classroom is a statewide program. Alaska Ag in the Classroom is a 501c3 educational program begun by the Alaska Farm Bureau to help Alaska’s students understand that farms are the source of their food and flowers, as well as fabrics and fuels.

What Is Ag in the Classroom

Education

- Educators Page
- AG in the Classroom
  - Alaska Ag in the Classroom Lessons
- Project Learning Tree
- Project WET
- Schoolyard Habitats
- After School Programs
3rd-Other

- AK Ag write and color book
- AK Grown Fresher by Far
- AK Farms in Song (DVD available)
- Alphabet Soup Activities
- V is for Vegetable
- A Garden Plot with Peter Rabbit

K-3rd Plant

- Apples in AK
- Tap a Tree
- Mighty Seeds
- Plants-Sunlight
- Pumpkin Story
- Greenhouses
- Leaf Observation

4th-6th Animal

- Hairy Kitty Cat Genes
- Hairy Kitty lab sheet
- Hairy Kitty pre-test
- Is a Muskox and Ox?
- Reindeer adaptations
- Reindeer fact vs fiction
- Sheep
- Potatoes

4th-6th Other

- Agriculture and Alaska
- AG Popups
- What is Agriculture Research Service
- Dirt Who Needs It
- Earth Apple
- Farming the Great Land
- Where Does it Grow?

4th-6th Plant

- Balsa Plant
Alaska Indoor Growing Curriculum

Introduction to Curriculum - Why Grow Indoors?
Introduction to Curriculum
Introductory Presentation - Powerpoint
Alaska Science Standards and GLEs
NGSS Topics Overview
Journaling

Soil Growing Systems
Reading a Seed Packet Lesson
Starting Plants in the Classroom
Salad Container Greenhouse Lesson
Indoor Gardening Lighting Systems Handout
Window Sill Garden Lesson
Transplanting Lesson

Soil and Nutrients
Garden Soil Exploration Lesson
NAITC The Right Diet for Your Plants Lesson
NAITC Plant Nutrition Deficiencies Lesson
- Nutrition Deficiencies in Alfalfa Handout
- Humanity Against Hunger Handout
Chemistry in Plant Nutrition and Growth Lesson

Plant Growth and Plant Processes
Do You Know the Parts of Plants? Lesson
Integrating Ag Activities into Cross-Curriculum Requirements

• Reading/Language Arts
• Math
• Writing
• Social Studies
• Science/Health
• Art
Why Garden in Schools?

Teachers Know It
Research Shows It

84.3% of teachers exposed to school gardens think gardens help students learn more effectively.
(Skelly and Bradley 2000)

www.csgn.org/research
“Participants in a school garden program experienced significant gains in overall GPA in math and science.” (Murphy 2003)

“Students engaged in hands-on gardening lessons showed increased positive attitudes towards content material and learning in general.” (Bell 2001; Waliczek 2003)
Community and Social Development

Studies show that school gardening increased self-esteem, help students develop a sense of ownership and responsibility, help foster relationships with family members, and increase parental involvement.

Outdoor Garden Problems in Alaska Schools

**Summer**
- Teachers on vacation
- Ongoing care for garden
- Volunteer vs. paid
- Time til harvest
- Where does harvest go?
- Kids don’t see growing plants

**Fall-Winter-Spring**
Indoor Gardening Curriculum

Alaska Indoor Gardening Curriculum

- Hydroponics
- Aquaponics
- Plant Growth
- Seeds
- Composting & Food Waste
- Soil

Sponsored by Fairbanks Soil and Water Conservation District, Alaska Botanical Garden, & Alaska Division of Agriculture. Funded by The Alaska Farm Bureau and the National Agriculture in the Classroom Fire Up Grant
Why the Need?

1. 95-98% of Alaska’s food is shipped in.

2. Growing interest in our state, especially in our remote village communities, to develop and support alternative methods of food production.

3. Outdoor school gardens in Alaska are often not practical.

4. Teaching students how to grow their own food = Food Security.
Afterschool Program
National AITC Grant

Alaska Ag in the Classroom received a 2017 Fire Up grant from National Ag in the Classroom to develop an Indoor Gardening Curriculum, and to train facilitators from around Alaska to provide educator workshops and assist with the implementation of projects.
Who Was There?

- Alaska Botanical Garden – Patrick Ryan
- Alaska Farm to School – Jodie Anderson
- Alaska Pacific University - Megan Faller
- Chena Hot Springs Resort – Jake Scott
- Homer Soil and Water Conservation District – Heidi Chay
- Kenai Soil and Water Conservation District – Kyra Wagner
- Southeast Island School District – Cody Beus
- UAF Cooperative Extension Service in Juneau – Darren Snyder
- UAF Cooperative Extension Service in Palmer – Lee Hecimovich
- UAF Reach-Up Program - Sally Keiper
Alaska Indoor Growing Curriculum

Introduction to Curriculum - Why Grow Indoors?
Introduction to Curriculum
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  - Humanity Against Hunger Handout
Chemistry in Plant Nutrition and Growth Lesson

Plant Growth and Plant Processes
Do You Know the Parts of Plants? Lesson
Other Grants We Have Received

1. Additional National AITC grant in July of 2018 to continue the project, develop and improve the curriculum and do more teacher workshops.

2. EPA EE Regional Grant with UAF – In April of 2018
   • 2 years of funding
   • Develop online training modules for 4H leaders
   • More workshops and in-classroom assistance

3. Alaska Farm Bureau – Has given us additional support to provide more workshops.
Soil Gardening Systems
Salad Container Greenhouses
Transplanting
Science Journals
Hydroponic Gardening

Hydroponics is a method of growing plants in water without soil. The water must be enriched with nutrients and the plants need some type of inert medium to support the root system.

- Hydroponics comes from the Greek language and it literally means let the water do the work.
- "hydro" means "water"
- "ponos" means "work".

Soil-less growing!
6 Types of Hydroponic Systems

• Passive Wick System
• Deep Water Culture System – Floating Platform System
• Nutrient Film System – Gutter Hydroponics
• Continuous Drip System
• Ebb and Flow System
• Aeroponic System
Simple and Affordable for Schools

Requirements for Inclusion in the Curriculum

• Low Cost Construction
• Minimal Space Requirements
• Functional
• Easy to Maintain
• Safe
Simple Floating Platform Hydroponic System Using a Fish Tank
Old Salmon in the Classroom Tanks

2014-2015 Salmon in the Classroom

Alaska Department of Fish and Game Sport Fish Aquatic Education Program
Simple Floating Platform Hydroponic System Using a Storage Tub
Aquaponics is the combination of aquaculture (fish farming) and hydroponics (growing plants in media other than soil).
Nutrient Film Technique Systems

• Also known as gutter hydroponics
• Nutrient Solution washed on to plant roots
• Reservoir contains nutrient solution which is pumped through system using a water pump
Aeroponic Systems
Hydroponic Grow Tower

- Simple construction using hardware store 5 gallon plastic buckets and lids.
- Uses 2 square feet of space to grow large amounts of leafy veggies.
- Uses continuous drip system with a pump system in the lower reservoir bucket.
- Does require power tools, but all can be prepared in advance before assembly.
- Costs less than $300 in supplies to build.
Indoor Gardening Workshop 10/2018
Grow Tower Success
Recent Workshops in Fairbanks and Kenai
Pearl Creek Elementary School
Pearl Creek Elementary School
Grow Tower
Anchorage Children’s Victory Gardens
Goldenview Middle School Hydroponics
Destination Mars:
Growing Food in Harsh Environments

USGS Geologic Map of Mars
Looking Forward: Full Curriculum Integration

<table>
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Monday</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Friday HYDROPONICS</th>
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<tr>
<td>6</td>
<td>Earthquake Hazards</td>
<td>Mercalli and Magnitude Scales</td>
<td>Pasta Quake Lab</td>
<td>Earthquake Machine</td>
<td>Landslides &amp; Liquification Lab</td>
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<td>Earthquake hazard maps, preparedness and community resilience</td>
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<td>Earthquake Hazards</td>
<td>Boss Model &amp; Build a Better Wall</td>
<td>Tsunami lab</td>
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<td>Food source for emergency</td>
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<td>8</td>
<td>Volcanic Hazards</td>
<td>Volcanoes &amp; Volcanic hazards</td>
<td>Volcanic Ash Lab</td>
<td>Monitoring Volcanoes</td>
<td>Food sufficiency</td>
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<td>11</td>
<td>Review &amp; Assessment</td>
<td>Wrap up &amp; Review</td>
<td>Test</td>
<td>Wrap up hydroponics for semester (harvest, etc)</td>
<td>No School</td>
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</tbody>
</table>

Notes:
- Food source for emergency
- Food sufficiency
- volcanic ash plant growth
Juneau 4H Program
Indoor Gardening Workshops
Coming Soon

• Palmer – TBD
• Homer – Summer 2019

More next fall.

Ag in the Classroom Workshops
Coming Soon

• Fairbanks - June
• Delta - May
• Additional?
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