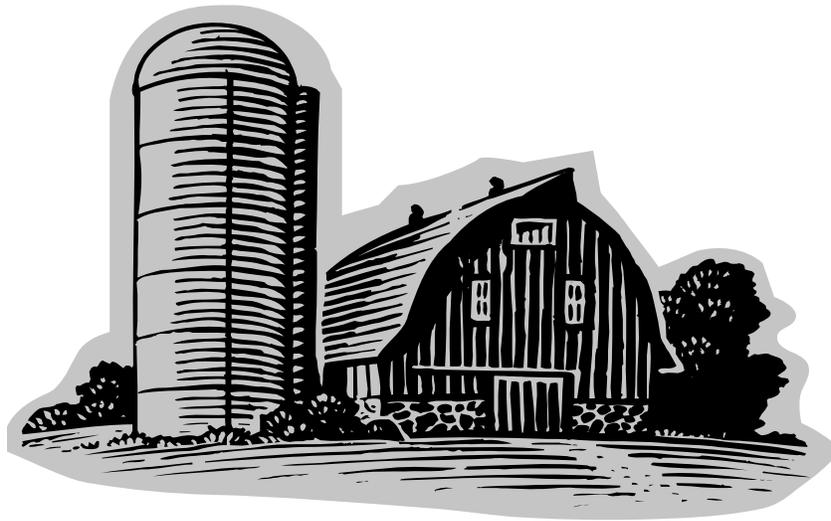


FARMERS' ALMANAC

ALMANAC THEMED ACTIVITIES



Illinois
AGRICULTURE
in the ClassroomSM

FARMERS' ALMANAC

ALMANAC THEMED ACTIVITIES

The IAITC Farmers' Almanac booklet provides activities focused on how farmers use the Farmers' Almanac as a resource to make decisions related to planting and harvesting crops. Other activities capture the almanac's Ag-themed fun and folklore.



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THINKING LIKE A FARMER

OBJECTIVE:

Students will learn what decisions farmers face in their daily lives as well as the knowledge needed to make these decisions.

Illinois Learning Standards: 1.C.3a;
10.A.2a; 10.A.2c; 12.E.1b; 13.B.2b;
13.B.2c; 15.A.3a; 17.C.2a

Illinois Assessment Framework:
1.6.08; 12.4.04; 13.4.09; 13.4.01;

BACKGROUND:

The job of a farmer requires much more than knowing about crops. Today's farmer uses computers and global positioning technology (GPS) to help determine where to plant crops. Other aspects of a farmer's job requires knowing about animal science, weather, and stock markets. Farmers use this knowledge to make decisions everyday!

MATERIALS:

- Farmer "Scenario Cards"
- Tape
- Markers or Chalk
- Paper

DIRECTIONS:

1. Start off by asking students what skills farmers need to do their jobs. Record the responses on a chalk board or large piece of paper.
2. Prepare Farmer "Scenario Cards" for student use. Sample scenarios cards are included. Each student should receive one scenario.
3. Prepare a category chart on chalk board or wall for students to place cards on. The categories represent the knowledge/skills farmers need to do their jobs. Include the following categories:
 - animal science
 - technology
 - meteorology (weather)
 - botany (plants)
 - bookkeeping
 - stock markets
 - other
4. Have students read their card aloud. Then, have students place it in a category and explain why they put it there.
5. Finally, have students read aloud "Facts, Figures, and Interesting Data about Today's Farmers" from the 2007 Farmers' Almanac along with the Technology Ag Mag available from www.agintheclassroom.org. Have students predict other changes in agriculture for the year 2020.

ADDITIONAL ACTIVITIES:

- Read Century Farm by Cris Peterson and discuss how technology has changed a farmer's job and the knowledge their job requires.
- Explore other agricultural careers by reading the Career Ag Mag available at: www.agintheclassroom.org

DISCUSSION:

- Compare your brainstorm with the answers from the activity. Did you discover anything new?
- What type of training and education do farmers need?
- What are you learning in school that might relate to a farmer's job?
- How does a farmer use technology? How do you use technology?

ADDITIONAL RESOURCES:

- Farm Facts: Lesson Plans, "Hats Off to the American Farmer" (p. 14).
- Farm Facts, "Modern Technology Make the American Farmer More Productive" (p. 21).
- Farm Facts, "American Farmers Feed the World" (p. 6).

FARMER SCENARIO CARDS

It is 2 AM. Your favorite mare is giving birth to a filly SOON! The veterinarian is 30 minutes away.

After 10 years of farming in California, you decided to relocate and farm in Illinois. You need to make decisions about what crops to plant.

It has been raining for two weeks straight. Do you plant now or wait?

There are 50 acres of farmland for sale near your property. This land was once owned by organic farmers, but would be an asset to your successful farm. Do you buy?

Soy bean prices rose to \$6.80 a bushel. Do you sell now? Or, do you wait?

Your combine just broke down. Weather predictions indicate a large hail storm next week. You need to get the combine fixed and the crops out of the field.

There is a new beetle eating your crops. What do you do?

It's tax time. You need to determine your farm's earnings for the year.

Your soybean plants are not growing very well this year. The plant color is light green and the leaves have small black spots. Is this a new plant disease?

Farming requires book and record keeping. You need a quick, easy way to organize this information.

Last year, corn was extremely profitable. Should you only plant corn?

Weather forecasters are predicting heavy rains this week. You planned on spraying fertilizer. Should you?

The price for corn keeps changing. Should you store your corn? Or, should you sell it?

A cow has a broken leg and needs care NOW. There is no time to call for help. It is up to you!

You need to get the latest information on the prices of farm products.

The last spring frost is predicted for April 14. It is April 13th and the weather is still very cold. Do you prepare to plant crops on April 15? Or, do you wait?

You are working in the fields and the temperature drops. Is a storm coming? You need current information about the weather.

You are a first-time pork farmer. Your sow just gave birth to a litter. What do you need consider?

THE FARMER'S ALMANAC SCAVENGER HUNT

OBJECTIVE:

Students will explore the contents of the Farmers' Almanac.

*Illinois Learning Standards: 1.C.2f;
2.A.2c; 2.B.2a*

*Illinois Assessment Framework: 1.4.24;
2.4.05; 2.5.14;*

BACKGROUND:

An almanac is a yearly publication, which contains weather forecasts and other information arranged according to the calendar. David Young and publisher Jacob Mann founded the Farmers' Almanac in 1818. Since then, the Farmers' Almanac has become famous for predicting weather, but also includes short stories, brain teasers, and calendars for fishing and gardening.

MATERIALS:

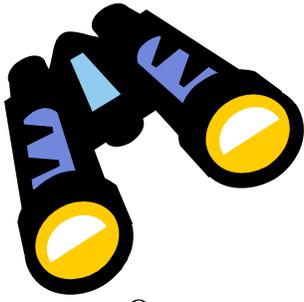
- Copies of the current Farmers' Almanac
- A Farmers' Almanac Scavenger Hunt Worksheet
- Pencils
- "Almanac Comparison Chart" worksheet

DIRECTIONS:

1. Have students complete the scavenger hunt by using the Farmers' Almanac.
2. Then, have students share their answers in a large group.
3. In a class discussion, compare and contrast an almanac to a newspaper, magazine, and their favorite book. How are they alike? How are they different? Have students complete the "Almanac Comparison Chart" to show their results.

DISCUSSION:

- What are the different sections in the Farmers' Almanac?
- Which section was your favorite? Why?
- How could you use the almanac in your daily life?
- Is there anything you would add to the Farmers' Almanac?
- How could a farmer use the almanac?



THE FARMERS' ALMANAC SCAVENGER HUNT

On your mark, get set, go! Complete this scavenger hunt and become familiar with the Farmers' Almanac. Happy hunting!

When are the best days to cut firewood in January?

When are the best days to prune trees in August?

When will planet Mars be most visible in 2007?

What should I use to prevent flyaway hair? What are other remedies for static?

When would be the “best” time to go fishing in March?

How many young farmers use cell phones? Why do more young farmers use cell phones than old farmers?

When will the first fall frost occur in Helena, Montana? What does this mean for farmers?

When in November should I plant flowers? What flowers can be planted in November?

What weather zone is Texas in? What could be planted and harvested successfully?

When will the sun set on Memorial Day? (Northern states)

When will the sun rise on Labor Day? (Southern states)

When will a full moon occur in October?

What is the name for September's full moon? How does this name relate to farmers' calendars?

What will the weather be like on your birthday? What can you plan for

AGvertising the Farmers' Almanac

OBJECTIVE:

Students will increase their familiarity with the contents of a Farmers' Almanac by creating an AGvertisement, which highlights its features and benefits for farmers.

MATERIALS:

- The Farmers' Almanac
- Paper
- Markers and crayons

Illinois Learning Standards: 1.C.2b; 3.A.2;
3.B.2a; 3.C.2a; 5.C.2a

Illinois Assessment Framework: 1.4.13;
3.5.01; 3.5.02; 3.5.03; 3.6.17; 3.6.18;

DIRECTIONS:

1. Provide students with a brief background on the Farmers' Almanac. (See scavenger hunt background).
2. Have students look through the Farmers' Almanac to become familiar with its contents, or use this activity *after* the scavenger hunt activity. This activity would serve as a great assessment.
3. Discuss why a farmer would read the Farmers' Almanac.
4. Then, discuss what an advertisement is and have students brainstorm what makes a good advertisement. Record the responses on a chalk board or large piece of paper.
5. Instruct students to create an AGvertisement targeted at farmers for the Farmers' Almanac. Have students use the "AGvertising the Farmers' Almanac" worksheet to plan their AGvertisement.
6. When finished, have students share their AGvertisement in a large group and determine which AGVERTISEMENTS would best encourage farmers to purchase the almanac. Use the students' good advertisement brainstorm for a reference.

RUBRIC FOR AGVERTISING THE FARMERS' ALMANAC

Benefits for Farmers

10 Points: Lists 4 or More Benefits

7 Points: Lists 3 Benefits

5 Points: Lists 2 Benefits

3 Points: Lists 1 Benefits

0 Points: Lists NO Benefits

Illustrations

5 Points: Illustrations are creative, neat, and Ag-themed

3 Points: Illustrations creative and Ag-themed.

0 Points: Little illustrations, no Ag-theme.

Slogan

5 Points: Slogan is creative, attention grabbing, and prominently placed in ad.

3 Points: Slogan is creative and attention grabbing.

0 Points: Slogan is neither creative or attention grabbing

Other Almanac Features

5 Points: Lists 2 or more other features.

3 Points: Lists 1 other feature.

0 Points: Does not list other features.

AGvertising the FARMERS' ALMANAC

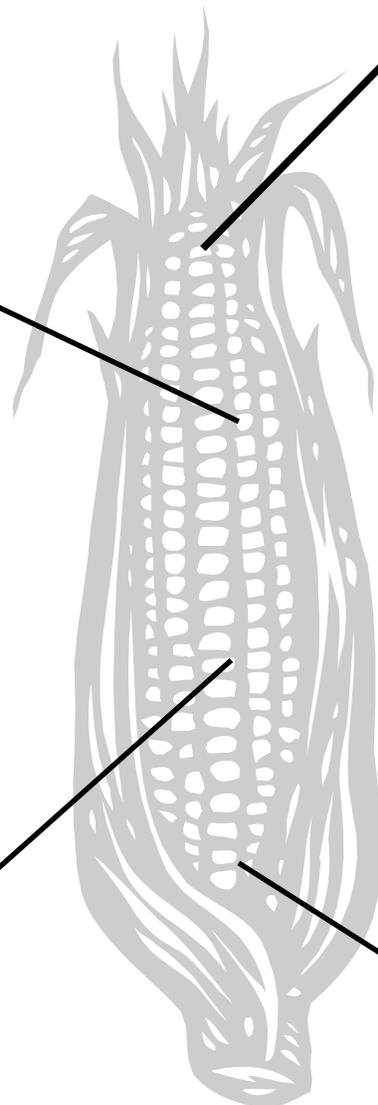
After reviewing the Farmers' Almanac, it is time to create an advertisement for the almanac, which highlights its features and benefits for farmers. Use this worksheet to plan your advertisement. Your grade will be based on how well you develop the categories listed below.

BENEFITS FOR FARMERS
(10 Points)

SLOGAN
(5 Points)

ILLUSTRATIONS
(5 Points)

OTHER ALMANAC FEATURES
(5 Points)



THROUGH THE YEAR WITH THE FARMER'S ALMANAC



OBJECTIVE:

Students will explore the calendars included in the Farmers' Almanac and understand how the calendar and seasons are important in agriculture. This activity will also strengthen students' understanding of months, days, and holidays.

MATERIALS:

- Blank calendar pages for current year
- The Farmers' Almanac
- "Mark Your Calendars" Worksheet

*Illinois Learning Standards: 5.A.2b;
12.E.1b;. 16.b.1b; 17.B.2a; 17.C.1b*

Illinois Assessment Framework: 12.4.40

DIRECTIONS:

1. Use the "Mark Your Calendars" worksheet or create your own. This worksheet includes a list of events or dates from the Farmers' Almanac that you would like students to mark on their calendars. Find more Ag-themed months and events at: <http://123child.com/act>.
2. Provide students with blank calendars, the "Mark Your Calendars" worksheet, and the Farmers' Almanac.
3. Instruct students to use the Farmers' Almanac to find and mark the dates from the worksheet on their calendars.
4. Finally, read Farming and then discuss what farmers do during each season. Have students mark their calendars with this information.

ADDITIONAL ACTIVITIES:

- Encourage students to personalize their calendar by writing down their own birthday, important holidays, or family events. As the year progresses, students could discuss what occurs during each month.
- Use the Illinois Agriculture in the Classroom Calendar to share Ag-themed facts.
- After reading Harvest Year, have students mark their calendars according to what products are produced each month.

DISCUSSION:

- During what time(s) of year are you busy? Your family?
- During what time(s) of year are farmers busy? How do these times relate to seasons and weather?

BOOK INFORMATION:

- Harvest Year by Cris Peterson ISBN #1563975718
- Farming by Ann Love, Jane Drake, and Pat Cupples ISBN #1553374215



MARK YOUR CALENDARS!

FIND THE DATES FOR THE EVENTS AND HOLIDAYS LISTED BELOW. THEN, MARK THE DATES ON YOUR CALENDAR!

USING THE FARMERS' ALMANAC

- Spring Begins
- Father's Day
- First Spring Frost for Chicago, IL
- Election Day
- Earliest Sunset of the Year
- Memorial Day
- Summer Begins
- Labor Day
- Last Spring Frost for Chicago, IL
- Autumn Begins
- November's Full Moon
- Winter's Midpoint
- Day Light Savings Time Begins
- Earliest Sunrise of the Year
- Summer's Midpoint
- September's Harvest Moon
- Veteran's Day

USING OTHER RESOURCES:

- National Pig Day
- National Egg Month
- National Ice Cream Day
- National Popcorn Poppin' Month
- America Recycles Day
- Earth Day
- National Agriculture Week
- National Dairy Month
- National Blueberry Month
- Pizza Week
- Chocolate Month
- Garden Month
- Farmer's Day
- Farm Animal Day
- World Egg Day
- Read an Almanac Month

SUN

MON

TUE

WED

THU

FRI

SAT

AG RIDDLES

OBJECTIVE:

Students will research various agricultural topics and then create their own Ag-themed riddles based on what they learned.

Illinois Learning Standards: 1.C.2d; 3.A.2;
3.C.2a; 5.A.2b; 5.C.2a; 15.A.2a

Illinois Assessment Framework: 1.4.12; 1.4.14;
1.4.15; 1.4.20; 3.5.01; 3.5.02; 3.5.03; 3.5.02

BACKGROUND:

The Farmers' Almanac also features a section called "Brainteasers and Riddles," which includes puzzles and games for entertainment. One of the puzzles, called "What am I?" includes clues. From these clues, a reader guesses the object or animal. Sections such as these capture the tradition and flavor of the Farmers' Almanac. Here is an Ag-themed example:

I contain yeast.
You eat about 23 pounds of me each year.
I start with a dough made of wheat.
Milk from cows makes my favorite topping.

What am I?: Pizza

MATERIALS:

- A variety of Ag Mags
- Paper
- Pencils
- The Farmers' Almanac

DIRECTIONS:

1. Share the Farmers' Almanac "What am I?" riddle and the Ag-themed riddle with students.
2. Provide students with Ag Mags, pencils, and paper. Have students select and read about a topic. Students should record facts and big ideas about their topic on a concept web.
3. Using information from their concept webs, instruct students to develop their own "Who am I?" Ag-themed riddle using the Ag Mags.
4. Then, have students try to guess the answers to each riddle.

DISCUSSION:

- What did you learn about agriculture in IL?
- How does agriculture impact your life? Food? Products



WEATHER WISDOMS

OBJECTIVE:

Students will record their own Ag-themed weather observations to create a book of "Weather Wisdoms."

*Illinois Learning Standards: 3.A.1;
12.E.1b; 25.A.1d*

*Illinois Assessment Framework: 3.3.01;
3.3.02; 3.3.03; 3.3.04; 12.4.40*

BACKGROUND:

The Farmers' Almanac often includes bits of wisdom and folklore related to agricultural life. The 2007 edition of the Farmers' Almanac includes folklore with an agricultural theme. For example, "It's a hot day on the farm when popcorn pops on the stalk." Although printed more for humor these days, farmers often used their personal observations to predict the weather. Over time, technology took the place of these observations, but the folklore is still fun to revisit.

Here is a list of popular weather folklore:

- Dark clouds in the west, stay home and rest.
- When bees stay close to the hive, rain is close by.
- When teeth and bones and bunions ach, expect the clouds to fill the lake.
- Animals and people have quick tempers when a low pressure area is moving in.
- The higher the clouds the better the weather.

ACTIVITY ONE: WEATHER FOLKLORE

1. Share the weather folklore with students. Inform them that farmers often used observations such as these to predict the weather.
2. Ask students to share every-day observations they have made related to weather.
3. Then, have students make their own "Weather Folklore," by writing down their every-day weather observations. Encourage students to use an Ag-theme and create an illustration to go along with their sentence.
4. Have students share their observations and discuss whether or not other students have made similar observations.

ACTIVITY TWO: FARM WEATHER FUN

1. Share examples from "It's a Cold Day on the Farm when..." and "It's a Hot Day on the Farm when..." by Deborah Tukua in the 2007 Farmers' Almanac.
2. Students can create their own "Farm Weather Fun" sentences and create pictures to represent their sentences. Or, have students complete the following sentence starters:

It's a hot day on the farm when...
It's a cold day on the farm when...
It's going to rain on the farm when...
It's going to snow on the farm when...

3. Have students share their sentences and illustrations with a large group.
4. Combine the “Weather Folklore” writings and “Farm Weather Fun” worksheets to make a Weather Wisdoms book for your classroom’s library or reading area.

ADDITIONAL ACTIVITIES:

- Have students ask parents and other people in the community if they know of any other sayings about weather.
- Popular weather folklore may vary from one culture to another. Compare weather folklore from several different cultures.
- Have a presenter visit your classroom to share a historical perspective of weather and the impact it had on early settlers.
- Have students construct their own weather measuring instruments and record their observed weather data. Discuss how instruments and technology changed weather predicting. Great directions to make your own weather station available at: <http://www.fi.edu/weather/todo/todo.html>.

DISCUSSION:

- What would it be like if you used *only* your observations to determine what the weather is going to be like?

CALEB WEATHERBEE

OBJECTIVE:

Explore the accuracy of the Farmers' Almanac in predicting weather forecasts.

Illinois Learning Standards: 5.A.2b;
6.B.2a; 10.A.2a; 10.A.2c; 10.A.2b;
11.A.2c; 12.E.2a; 17.A.2b; 17.C.2a

Illinois Assessment Framework: 6.4.10;
10.4.01; 10.4.02; 10.4.03;
11.4.04; 12.4.41; 12.4.42; 12.4.43

BACKGROUND:

Caleb Weatherbee is the name given to all Farmers' Almanac forecasters. "Caleb Weatherbee" prepares forecasts two years in advance using a "secret" formula based on sun spots, the planets and the moon. The Farmers' Almanac claims 80 to 85% accuracy for the forecasts. These predictions are important for farmers' planting and harvesting schedules. Farmers plant crops in the spring between the months of April and May, but rain and cool weather often delay planting.

DIRECTIONS:

1. Select 3 or 4 past calendar days for the current year, such as January 1, 2007.
2. Divide students into 7 different groups. Assign each group with a zone from the United States Zoned Weather Map in the Farmers' Almanac.
3. Have students select two states within their assigned zone.
4. Then, students will research both state capital's recorded weather conditions for the dates selected above as well as important state information (climate and crops).
5. Ask students to compare the recorded weather conditions with the predictions in the Farmers' Almanac. Have students assign the points to each comparison and total scores based on the following scale:

- 1 Point: Prediction *Mostly* Matches Recorded Weather Condition .
.5 Point: Prediction *Somewhat* Matches Recorded Weather Condition
0 Points: Prediction *Does Not* Match Recorded Weather Condition

Here is an example to show how the ratings scale works using Springfield, IL:

Date	Recorded Weather Conditions	Predicted Weather from Almanac	Rating
Jan 1 2007	High: 39 degrees Low: 30 degrees No precipitation	Light snow	0
Jan 6 2007	High: 45 degrees Low: 34 degrees No precipitation	Light snow continues then clearing	0
Jan 15 2007	High: 36 degrees Low: 18 degrees Precipitation 0.06 in	Clearing, cold	.5

6. Have students report their findings to the class and record these findings on a chart to determine an overall accuracy percentage for the *Farmer's Almanac*. To calculate the percentage, have students add up all the ratings and divide by 42, which is the total number of recorded weather conditions.

ADDITIONAL ACTIVITIES:

- Have a farmer visit your classroom to discuss the effect weather has on various agricultural operations. The class could develop a list of questions ahead of time.
- Create the Water Cycle Bracelet available from: www.agintheclassroom.org
- Create a nation-wide agriculture charm for the classroom by having students place objects representing each state's agriculture products.
- Read Harvest Year as a great way to summarize each state's agricultural products.
- Have students keep a Weather Journal, which includes their own weather predictions, the actual weather conditions, and the *Farmer's Almanac's* predictions. These journals would be a great way to examine how the weather changes according to seasons and tests the almanac's accuracy year-round.

DISCUSSION:

- What if you could predict the weather? How would you?
- What if you knew the weather on the first day of school?
- Why do farmers pay close attention to the weather?
- What would happen to our food supply if farmers pay attention to the weather?
- How might these results impact a farmer's decision to plant or harvest crops?
- What crops are planted in your states?
- How does the climate impact planting crops in your states? Find specific examples.

ADDITIONAL RESOURCES:

- Recorded weather forecasts from: <http://www.weather.com>
- Water Ag Mag
- State Agricultural Profiles from: http://www.agclassroom.org/teacher/ag_profiles.htm
- State Maps and Facts from: <http://www.enchantedlearning.com/usa/cities>
- Harvest Year by Cris Peterson

WEATHER RECORDS

FOR JANUARY 8-14 2007

ZONE 1: CHARLESTON, WV

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
High: 53° F Low: 33° F	High: 40° F Low: 33° F	High: 36° F Low: 25° F	High: 52° F Low: 22° F	High: 60° F Low: 41° F	High: 60° F Low: 54° F	High: 38° F Low: 33° F
Precip 0.28 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 0.03 inches	Precip 0.16 inches	Precip 1.11 inches	Precip 0.39 inches

ZONE 2: SPRINGFIELD, IL

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
High: 44° F Low: 29° F	High: 41° F Low: 34° F	High: 40° F Low: 36° F	High: 52° F Low: 36° F	High: 54° F Low: 29° F	High: 36° F Low: 29° F	High: 38° F Low: 33° F
Precip 0.0 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 0.03 inches	Precip 0.73 inches	Precip 0.48 inches	Precip 0.84 inches

ZONE 3: RALEIGH, NC

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
High: 67° F Low: 41° F	High: 55° F Low: 30° F	High: 44° F Low: 28° F	High: 50° F Low: 24° F	High: 63° F Low: 36° F	High: 69° F Low: 48° F	High: 73° F Low: 50° F
Precip 0.36 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 1.11 inches	Precip 0.39 inches

ZONE 4: DES MOINES, IA

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
High: 53° F Low: 33° F	High: 40° F Low: 33° F	High: 36° F Low: 25° F	High: 52° F Low: 22° F	High: 60° F Low: 41° F	High: 60° F Low: 54° F	High: 38° F Low: 33° F
Precip 0.28 inches	Precip 0.0 inches	Precip 0.0 inches	Precip 0.03 inches	Precip 0.16 inches	Precip 1.11 inches	Precip 0.39 inches

CALEB WEATHERBEE

WEATHER RECORDING CHARTS

STATE: _____

CAPITAL: _____

DATE	RECORDED WEATHER CONDITIONS	PREDICATED FORECAST	RATING

STATE: _____

CAPITAL: _____

DATE	RECORDED WEATHER CONDITIONS	PREDICATED FORECAST	RATING



JACK FROST AND THE CROPS: 2-IN-1 ACTIVITY

Background: Farming is governed by the seasons. For example, corn's growing season begins at the last frost in the spring and ends when the first fall frost occurs. The last frost gives farmers an indication as to when they can plant in early spring. The first frost means the end of the growing season. Because of frost, farmers must time planting and harvesting carefully. A late spring frost means having to replant crops, while an early fall frost may damage crops and reduce the amount produced for the year. Farmers use the Farmers' Almanac to help predict the first and last frost and make decisions about planting and harvesting.

ACTIVITY 1: HOW FROST FORMS

OBJECTIVE:

By using the Farmers' Almanac, students will explore frost as well as the impact it can have on a farmer's crops and their food supply.

Illinois Learning Standards: 11.A.2b;
12.C.2b; 12.E.2a; 17.B.2a

Illinois Assessment Framework:
11.4.01; 11.4.02; 12.4.14; 12.4.39;
12.4.43

BACKGROUND:

Frost is a light deposit of small thin ice crystals that form on cold objects when water vapor changes directly into a solid. Frost occurs when a layer of air comes in contact with a surface having a temperature below freezing. With moist air and below freezing temperatures, frost could form on field corn and soybean plants. This freezing disrupts a plant's life and causes it to be black and limp when thawed out by the sun.

MATERIALS:

- 2 tin cans without a lid (Condensed soup cans)
- Rock salt or table salt
- Crushed ice

DIRECTIONS:

1. Have students make predictions of which can will form frost.
2. In one tin can, put mixture of crushed ice about half full and 4 tablespoons of salt.
3. Mix this can well for about 30 seconds and then let sit.
4. In the second can, put only crushed ice and cool tap water. Fill the can about half way full of ice and then put just enough tap water in the can to cover the ice.
5. Observe the frost forming on the outside of the can with the ice and salt mixture. Compare this with the liquid moisture on the outside of the can which contains ice only.

BRIEF EXPLANATION OF RESULTS:

In the first can, the salt wants to absorb water to make a salt solution. To do that, salt must melt the ice into water. The heat required to melt the ice comes from the ice itself. This effect is caused by a chemical reactions between salt and the ice. It might sound strange, but melting the ice actually makes it cooler. The salt water mixture inside the can gets below freezing, so the moisture in the air that collects on the outside of the can will freeze. This is why frost forms!

On the other can, dew forms because the mixture of the melting ice and water is just at freezing and the temperature outside the can is warmer causing the dew to form.

DISCUSSION:

- Which can had frost form on it? Which can had dew form on it?
- When have you observed frost form? Where did you see it?
- Brainstorm: What might frost do to a farmer's crops?

ADDITIONAL RESOURCES:

- Pictures of frost damage to corn and soybeans available from: <http://www.kingcorn.org/news/articles.05/RefrigCorn-0429.html> and http://www.agry.purdue.edu/ext/corn/news/articles.01/Frost_Corn_Soy-0418_Gallery.html
- A brief, informative article from Iowa State University's Extension Office on Corn and Soybean Frost Damage: www.extension.iastate.edu/Publications/PM1635.pdf
- Explore the water cycle by reading the Water Ag Mag.

ACTIVITY 2: THE LAST FROST: IT'S TIME TO PLANT!

OBJECTIVE:

Students will study what crops each state produces and the importance of planting these crops according to the weather. At the end of this activity, students will understand how a severe frost could impact the fruits and vegetables at their grocery store.

Illinois Learning Standards:
12.E.2a; 17.A.3a; 17.B.3a;
17.B.2a; 17.C.2a

Illinois Assessment Framework:
12.4.39; 12.4.40; 12.4.41;
12.4.42; 12.4.43

BACKGROUND:

The last spring frost means the start of the planting season. When the last spring frost occurs is different according to location. The US map can be divided into distinct bands as to when the last spring frost occurs.

MATERIALS:

- Current year of the Farmers' Almanac
- Blank map of the United States
- Crayons, color pencils, or markers
- US Maps with Major Cities
- Farm Facts "America the Bountiful" poster

DIRECTIONS:

1. Assign students with a state to research. Instruct students to look up and record information what crops their state produces along with information about the state's climate. *Please note that these students could use the same states from the Caleb Weatherbee activity.*
2. Then, have students predict when a farmer would plant crops in their state and record this date.
3. Provide students with the list of selected cities in this packet along with the blank United States map.
4. Have students plot the cities on the map by using longitude and latitude.
5. Next, have students color each city area according to their last frost dates using the following color code:

May 30 or After: Orange
April 30 to May 30: Green
March 30 to April 30: Blue
February 28 to March 30: Purple
January 30 to February 28: Pink

6. Compare the students' guess about when to plant crops in their state and the last Spring frost dates in the Farmers' Almanac. Discuss how the students' decision about when to plant crops impacted what products are or are not available.

DISCUSSION

- Review what crops each state produces.
- What could a bad frost do to the fruits and vegetables at your grocery store?

ADDITIONAL RESOURCES:

- State Agricultural Profiles from: http://www.agclassroom.org/teacher/ag_profiles.htm
- State Maps and Facts from: <http://www.enchantedlearning.com/usa/cities>
- Color-coded map for Last Spring Frosts from <http://www.bhg.com/bhg/category.jhtml?catref=cat170004>

SELECTED CITIES FOR FROST MAP

LOCATION	LATITUDE	LONGITUDE
Birmingham, AL	44° N	106° W
Phoenix, AZ	33° N	112° W
Sacramento, CA	38° N	121° W
Denver, CO	39° N	104° W
Hartford, CT	41° N	72° W
Tallahassee, FL	30° N	84° W
Savannah, GA	32° N	81° W
Cedar Rapids, IA	42° N	91° W
Boise, ID	43° N	116° W
Chicago, IL	41° N	87° W
Lexington, KY	37° N	84° W
Alexandria, LA	31° N	92° W
Baltimore, MD	39° N	76° W
Grand Rapids, MI	42° N	85° W

LOCATION	LATITUDE	LONGITUDE
Jefferson City, MO	38° N	92° W
Vicksburg, MS	32° N	90° W
Las Vegas, NV	36° N	115° W
Albany, NY	42° N	73° W
Allentown, PA	40° N	75° W
Charleston, SC	32° N	79° W
Memphis, TN	35° N	90° W
Austin, TX	30° N	97° W
Ogden, UT	41° N	111° W
Seattle, WA	47° N	122° W
Milwaukee, WI	43° N	87° W
Clarksburg, WV	39° N	80° W
Sheridan, WY	44° N	106° W



LOGIC PUZZLES: PLANTING SEASON AND THE ALMANAC

OBJECTIVE:

Students will complete an Ag-themed logic puzzle based on planting season in Illinois.

Illinois Learning Standards: 10.A.2c

*Illinois Assessment Framework:
10.4.01; 10.4.02*

BACKGROUND:

Logic puzzles and brainteasers are another unique feature of the Farmers Almanac. These puzzles are another example of the entertainment and agricultural folklore captured in the almanac. The theme for this logic puzzle is planting season.

MATERIALS:

- “Planting Season” worksheet
- Pencils
- Paper

DIRECTIONS:

1. Share the Illinois planting season information with students.
2. Introduce the “Planting Season” worksheet and have students complete the logic puzzle.
3. Then, have students share the answers to the logic puzzle. Encourage students to explain how they found the answers.

Answers: Who Planted First? - Connie; What Did the Farmer Do?: Al, Pumpkins; Bob, Soybeans; Clark, Corn; Dave, Wheat



PLANTING SEASON LOGIC PUZZLES

WHO PLANTED FIRST?

Doris, Barbara, Jane, Eva, and Connie are Illinois farmers. In April, they planted field corn. But, who planted first? To find out, use the clues below to place the farmers in correct order.

- Connie planted before Eva.
- Doris planted her crops fourth.
- Jane planted after Eva and before Doris.
- Eva planted before Doris.
- Barbara planted after Doris.

Farmer _____ planted field corn first.

WHAT DID THE FARMER DO?

Al, Bob, Clark, and Dave are Illinois farmers. During the spring, each farmer worked in the fields. But, what did each farmer do? The chart below helps you identify what you have learned from each clue. When you find a true match, write **yes** in the appropriate box. When you have proved something false, put an **X** in the box.

FARMER	PLANTED CORN	PLANTED SOYBEANS	HARVESTED WHEAT	PLANTED PUMPKINS
AL				
BOB				
CLARK				
DAVE				

- Al lives in Morton, IL, which is _____ Capital of the World. He planted this fruit.
- Clark's crop can be used to make ethanol.
- What Bob planted can be used to make crayons, Tootsie Rolls, and tofu.
- Dave's crop can be used to make bread and pasted an is harvest using a combine.

ADDITIONAL ALMANAC ACTIVITIES

WRITING: ALMANAC AUTHORS

Students can try their hand at writing for the *Farmer's Almanac* by writing Ag-themed short stories. After reading books for AITC's "Top Ten List" or our Ag Mags, students will be inspired to write about agriculture. Check out the Horse Short Story packet for a great example

READING: BEN FRANKLIN'S ALMANAC

Now that your students are familiar with the almanac style, read Ben Franklin's Almanac: Being a True Account of the Good Gentleman's Life by Candace Fleming. This book features a year-by-year chronology of Benjamin Franklin's interests and accomplishments in American society, such as Poor Richard's Almanac.

SCIENCE: PLANET AND MOON OBSERVATIONS

While studying the solar system, use the Farmer's Almanac as an observation guide to help determine when the planets are visible as well as solar and lunar eclipses. Check out "The Planets" and "Eclipses" section in the almanac.

SCIENCE: WEATHER 101

Study different aspects of the weather such as storm clouds, weather fronts, and seasons. Discuss how this would impact farming and production. Check out Nature Activities: Weather Watcher by John Woodward for over 30 weather related activities.

SCIENCE: MOON PHASES AND WEATHER

The weather predictions in the Farmer's Almanac are made two years in advance using a "secret" formula based on sun spots, the planets, and the moon. Use the Farmer's Almanac as a reference tool when discussing how astronomy and in particular moon phases influence the Earth's weather patterns.

SOCIAL STUDIES: THE ALMANAC HISTORY

Have students research the history of the Old Farmers' Almanac, the Farmer's Almanac, and Poor Richard's Almanac. How did they get started? How are their histories alike/different? Which almanacs have their origins in agriculture?

REFERENCES

Geiger, Peter and Sondra Duncan, eds. Farmers' Almanac. Lewiston, ME: Almanac Publishing, 2007.

Love, Anne, Jane Drake, and Pat Cupples. America at Work: Farming. Toronto: Kids Can Press, 1998. ISBN# 1553374215

Peterson, Cris. Century Farm: One Hundred Years on a Family Farm. Honesdale, PA: Boyds Mills Press, 1999. ISBN# 1563977109

Peterson, Cris. Harvest Year, Honesdale, PA: Boyds Mills Press, 1996. ISBN# 1563975718.

AVAILABLE FROM THE AMERICAN FARM BUREAU FEDERATION:

www.fb.org

Farm Facts: Lesson Plans, "Hats Off to the American Farmer" (p. 14).

Farm Facts, "Modern Technology Make the American Farmer More Productive" (p. 21).

Farm Facts, "American Farmers Feed the World" (p. 6).

Farm Facts "America the Bountiful" poster

ILLINOIS AGRICULTURE IN THE CLASSROOM RESOURCES

www.agintheclassroom.org

The Water Ag Mag

See the website for:

The Careers Ag Mag and the Technology Ag Mag



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