

Show What You Know - Plant Growth



Illinois State Goal and Learning Standard. This lesson is correlated to the following State Goal and Learning Standard.

Illinois State Goal:

1 – Read with understanding and fluency.

Illinois Learning Standard:

1, C – Comprehend a broad range of reading materials.

Illinois Learning Benchmark:

1, C, 2d – Summarize and make generalizations from content and relate to purpose of material.

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Explain corn products and by-products.
2. Identify various corn products and by-products.
3. Explain soybean products and by-products.
4. Identify the parts of a soybean and their functions.

Materials needed:

- ✓ Illinois Farm Bureau Agriculture in the Classroom Soybean AgMag.
www.agintheclassroom.org
- ✓ Illinois Farm Bureau Agriculture in the Classroom Corn AgMag.
www.agintheclassroom.org
- ✓ ELA Lesson 1 – Show What You Know for both corn and soybeans student worksheets (one pre- and one post-test for each student).

Terms:

- ▶ **Biodegradable** - substances capable of being degradable or broken down.
- ▶ **Biodiesel** - fuel made from soybean diesel mix.
- ▶ **China** - the nation that introduced soybeans to the United States. China now uses more American soybeans than any other country.

Additional terms on next page.....

- ▶ **Cotyledon** - stores food for the developing embryo and is the first part of the plant that emerges from the soil.
- ▶ **Ethanol** - fuel made from corn.
- ▶ **Flake** - soybean product used to make animal feed and soy flour.
- ▶ **George Washington Carver** - inventor and plant scientist who began to study new uses for peanuts and soybeans in 1904.
- ▶ **Hull** - outer covering of the soybean seed.
- ▶ **Japan** - country that buys special types of soybeans to use for tofu and soymilk.
- ▶ **Processing** - changing grain into a variety of products such as livestock feed, cosmetics, fireworks, paints, detergents, and so much more.
- ▶ **Protein** - a basic nutritional requirement for all living things.
- ▶ **Radicle** - first observable sign of soybean growth that repairs and builds body tissue, the primary root.
- ▶ **Renewable** - easily replaceable.
- ▶ **Trifoliolate** - plants with leaves that grow in groups of three.

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have students complete **ELA Lesson 1 – Show What You Know for both corn and soybeans student worksheet** to ascertain their knowledge of plant production and agricultural products and by-products.

After the pre-test is graded, students will read the Corn and Soybean AgMags to help them answer questions on the post-test **ELA Lesson 1 – Show What You Know for both corn and soybeans student worksheet**.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvements.

Application: Classroom discussion of the objectives and student questions will also assist in applying the concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives. The post-test will evaluate students' gained knowledge.

Show What You Know - Soybean Student Worksheet

Match the term to its definition.
All of the terms are found in the Soybean Ag Mag.



- | | | |
|----------------------|----|--|
| ___ 80,000 | A. | A pea-sized legume that grows on bushy plants, 3 – 5 feet tall. |
| ___ Biodiesel | B. | A common use of soybeans for newspapers. |
| ___ China | C. | The average soybean plant has ___ number of pods per plant. |
| ___ Chocolate | D. | Nickname given to soybeans because it's made into many things. |
| ___ Cotyledon | E. | The country of origin for soybeans. Now uses more America produced soybeans than any other nation. |
| ___ Flake | F. | First observable sign of soybean growth, becomes primary root. |
| ___ George W. Carver | G. | Easily replaceable within one's lifetime. |
| ___ Hull | H. | Plants with leaves that grow in groups of three. |
| ___ Japan | I. | Product removed from the soybean to make soaps, candles, crayons, paints and fuel for busses. |
| ___ Miracle Crop | J. | The first part of the plant that emerges from the soil. |
| ___ Soybean Oil | K. | The outer covering of the soybean seed. |
| ___ Protein | L. | A favorite food that contains soy. |
| ___ Radicle | M. | An inventor who started studying different uses of the soybean in 1904. |
| ___ Renewable | N. | The number of newspapers in the US that use soy inks. |
| ___ Soybean | O. | Country that buys special soybeans to use for tofu and soymilk. |
| ___ Soy ink | P. | Soy is very high in this nutrient, it repairs and builds body tissue. |
| ___ Trifoliate | Q. | Number of crayons made from one bushel of soybeans. |
| ___ 60-80 | R. | A special kind of fuel made from soybean oil. |
| ___ 2,000 | S. | Fuel made from corn. |
| ___ Ethanol | T. | A soybean product that is used to make animal feeds & soy flour. |

Show What You Know - Soybean

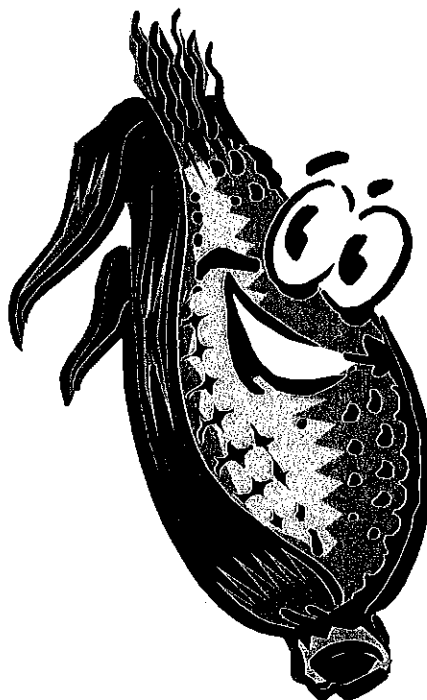
ANSWER KEY

Match the term to its definition.
All of the terms are found in the Soybean Ag Mag.

- | | | |
|---------------------------|----|---|
| N 80,000 | A. | A pea-sized legume that grows on bushy plants, 3 – 5 feet tall. |
| R Biodiesel | B. | A common use of soybeans for newspapers. |
| E China | C. | The average soybean plant has ___ number of pods per plant. |
| L Chocolate | D. | Nickname given to soybeans because it's made into many things. |
| J Cotyledon | E. | The country of origin for soybeans. Now uses more American produced soybeans than any other nation. |
| I Flake | F. | First observable sign of soybean growth, becomes primary root. |
| M George W. Carver | G. | Easily replaceable within one's lifetime. |
| K Hull | H. | Plants with leaves that grow in groups of three. |
| Q Japan | I. | Product removed from the soybean to make soaps, candles, crayons, paints and fuel for busses. |
| D Miracle Crop | J. | The first part of the plant that emerges from the soil. |
| I Soybean Oil | K. | The outer covering of the soybean seed. |
| P Protein | L. | A favorite food that contains soy. |
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| A Soybean | O. | Country that buys special soybeans to use for tofu and soymilk. |
| B Soy ink | P. | Soy is very high in this nutrient, it repairs and builds body tissue. |
| H Trifoliate | Q. | Number of crayons made from one bushel of soybeans. |
| C 60-80 | R. | A special kind of fuel made from soybean oil. |
| Q 2,000 | S. | Fuel made from corn. |
| S Ethanol | T. | A soybean product that is used to make animal feeds & soy flour. |

Show What You Know - Corn Student Worksheet

- _____ is made from crude oil, which is made from plants that died millions of years ago. It is not a renewable resource.
 - Ethanol
 - Alcohol
 - Gasoline
 - Ethaline
- Ethanol is:
 - a high performance fuel made from corn
 - a renewable resource
 - made in Illinois
 - all of the above
- There are ___ type(s) of corn grown in Illinois.
 - 1
 - 2
 - 3
 - 4
- The type of corn that is used for the corn on the cob that we eat is called:
 - field corn
 - sweet corn
 - popcorn
 - Indian corn
- This type of corn is used to feed animals and make products like glue, sandpaper and medicines. It is also used to make corn sweetener, corn starch, corn meal and corn oil.
 - field corn
 - sweet corn
 - popcorn
 - Indian corn



Show What You Know - Corn Student Worksheet (continued)

6. **Corn can be made into a special plastic that will break down into little pieces that become part of the soil. This type of product is called:**
- a) biodegradable
 - b) non-renewable
 - c) non-degradable
 - d) biotoxic
7. **A nickname for the region where most of the corn is grown in the United States is:**
- a) the prairie belt
 - b) the Midwest belt
 - c) the farm belt
 - d) the corn belt
8. _____ **means changing grain into a variety of products such as livestock feed, cosmetics, fireworks, paints, detergents and so much more.**
- a) Research
 - b) Milling
 - c) Processing
 - d) Separating
9. **There are more than ____ products made from corn in the grocery store.**
- a) 1,000
 - b) 2,000
 - c) 3,000
 - d) 4,000
10. **Ethanol is good for the environment because**
- a) it cuts down on air pollution caused by automobiles
 - b) it is made from corn which we grow each year
 - c) it helps the Earth's supply of crude oil last longer
 - d) all of the above

Show What You Know - Corn

ANSWER KEY

1. _____ is made from crude oil, which is made from plants that died millions of years ago. It is not a renewable resource.

- a) Ethanol
- b) Alcohol
- c) **Gasoline**
- d) Ethaline

Answer found in Gas Up By Pumping Corn

2. Ethanol is:

- a) a high performance fuel made from corn
- b) a renewable resource
- c) made in Illinois
- d) **all of the above**

Answer found in Gas Up By Pumping Corn

3. There are ___type(s) of corn grown in Illinois.

- a) 1
- b) 2
- c) **3**
- d) 4

Answer found in This Food Is on the Fast Track

4. The type of corn that is used for the corn on the cob that we eat is called:

- a) field corn
- b) **sweet corn**
- c) popcorn
- d) Indian corn

Answer found in This Food Is on the Fast Track

5. This type of corn is used to feed animals and make products like glue, sandpaper and medicines. It is also used to make corn sweetener, corn starch, corn meal and corn oil.

- a) **field corn**
- b) sweet corn
- c) popcorn
- d) Indian corn

Answer found in This Food Is on the Fast Track

Show What You Know - Corn

ANSWER KEY (continued)

6. Corn can be made into a special plastic that will break down into little pieces that become part of the soil. This type of product is called:

- a) **biodegradable**
- b) non-renewable
- c) non-degradable
- d) biotoxic

Answer found in Plant to Plastic in No Time Flat

7. A nickname for the region where most of the corn is grown in the United States is:

- a) the prairie belt
- b) the Midwest belt
- c) the farm belt
- d) **the corn belt**

Answer found in The Belt that Circles the World

8. _____ means changing grain into a variety of products such as livestock feed, cosmetics, fireworks, paints, detergents and so much more.

- a) Research
- b) Milling
- c) **Processing**
- d) Separating

Answer found in How Corn is Made Into the Things You Use Everyday

9. There are more than ____ products made from corn in the grocery store.

- a) 1,000
- b) 2,000
- c) 3,000
- d) **4,000**

Answer found in Andy They're Off

10. Ethanol is good for the environment because

- a) it cuts down on air pollution caused by automobiles
- b) it is made from corn which we grow each year
- c) it helps the Earth's supply of crude oil last longer
- d) **all of the above**

Answer found in Gas Up By Pumping Corn