

Cluster 5

Henry Ford and His Magic Soybeans

Lessons:

1. Growing a Car
2. Using Resources

Guiding Question:

What are the benefits of renewable resources?

Michigan Benchmarks for Science and Social Studies

Elementary	Middle School
II.1.E.3	II.2.MS.4
II.1.E.5	II.2.MS.6
III.5.E.4	III.5.MS.5
V.1.E.6	
Social Studies	Elementary Social Studies
I.1.LE.2	I.4.LE.3
I.2.LE.3	II.3.LE.3
I.2.LE.4	IV.2.LE.3

Growing a Car

Activity:

Research Henry Ford and his connection to the soybean industry.

Purpose:

- a. Develop an awareness of Henry Ford's contribution to the soybean industry.
- b. Stimulate an interest in the soybean and its versatility.

Background:

Henry Ford developed a laboratory in which he hoped to produce a car from farm products and thereby found many other uses for soybeans. Ford hoped to see a time when industry would conserve the non-renewable resources by using farm products. In trying to bridge farm crops and industry he coined the term "chemurgy" (KEM-ur-jee). Henry wanted to help the farmers by discovering ways in which their crops could be used for industry thereby making farming profitable.

Materials:

- SoyNews
- Paper for poster

Time:

30 minutes

Procedure:

1. Group News Program: "SoyNews presents..."
 - a. Divide the class into groups to put together a newscast about Henry Ford and the soybean.
 - b. Provide the SoyNews article for students. They could get additional information by doing a web search (Henry Ford + Soybean). Props could be used if desired.
 - c. Allow time for the groups to perform their newscast.
 - d. Discuss what they learned.
What did they find to be most interesting?
What was the biggest surprise?
2. Time Line
 - a. Use "Growing a Car" article to create a time line poster. Individual time line posters could be made or divide the class into groups and assign each group a particular year to make a poster.
 - b. Create a large classroom time line with the group or individual posters.
 - c. Discuss what they learned.
3. Make a connection with Cluster 1 activities in which the students searched for items that were found to have soybeans as an ingredient.
4. Comprehension Questions
 - a. Have students answer the questions in page 56 in complete sentences using the information from "Growing a Car".
 - b. Distribute the preprinted note cards to groups for discussion.

Growing a Car questions

1. What is the main idea of the article "Growing a Car"?
2. Give two reasons that Henry Ford was famous?
3. What does the word chemurgy mean?
4. What did Ford want to see industry do?
5. Name some products from the article that soybeans are found in?
6. Write an interesting fact that you learned about Henry Ford.

Answers:

1. The main idea of "Growing a Car" article is that Henry Ford developed a laboratory in which he hoped to produce a car from farm products and thereby found many other uses for soybeans.
2. Henry Ford was famous for inventing a car, starting the Ford Motor Company, and researching the soybean.
3. Chemurgy means to use farm crops in industry.
4. Ford hoped to see a time when industry would conserve the non-renewable resources by using farm products.
5. Soy products mentioned were: base for paint, plastic buttons for horns, milk, ice cream, whipped topping, molded plastic.
6. Answers will vary

Name: _____

Answer the following in complete sentences in reference to the article "Growing a Car".

1. What is the main idea of the article "Growing a Car"? _____

2. Give two reasons that Henry Ford was Famous? _____

3. What does the word chemurgy mean? _____

4. What did Ford want to see industry do? _____

5. Name some products from the article that soybeans are found in. _____

6. Write an interesting fact that you learned about Henry Ford. _____

Using Resources

Activity:

Explore the resources needed to make soy biodiesel.

Purpose:

Understand the types of resources and strengthen the idea that soybeans are renewable resources and have a positive effect on our environment.

Background:

Henry Ford was very interested in conserving non-renewable resources by using farm products. He had scientists experiment with many crops to try to connect industry and farming. We use resources to get or create the things we want. The different kinds of resources available to us are:

1. Natural resources
2. Renewable resources
3. Non-renewable resources
4. Human resources
5. Capital resources

Materials:

- SoyNews
- Resources worksheet page 59

Time:

30 minutes

Procedure:

1. Read and discuss information on kinds of resources from the SoyNews.
2. Using soy biodiesel as an example, complete the chart with the information given on page 59.
3. Discuss charts and resource placement.
4. Make the connection: Henry Ford was concerned for the environment and felt that there was a need to conserve non-renewable resources. What are some things Henry Ford did that shows you he was concerned for the environment?

Answers for page 59:

Natural Resources

Renewable: Soybeans

Non-renewable: Soil, Water, Sunshine

Human Resources: Truck Drivers, Farmers, Factory Workers

Capital Resources: Diesel Engines, Trucks, Roads, Farm Equipment,
Processing Plant

Name: _____

Since the days of the horseless carriage, people have been trying to find a better way to run vehicles. In 1936 soybean oil was first documented being used as diesel fuel. Biodiesel can be made from any vegetable or animal fat, however soybean is the most practical here in the U.S.

Soy biodiesel will help to answer four problems:

1. Biodiesel is a renewable resource. More soybeans can be grown every year. Biodiesel could give the United States the chance to make their own fuel and not have to import so much oil from other countries.
2. Soybeans are nontoxic and biodegradable.
3. Biodiesel would help the economy because the jobs and money would stay in the United States.
4. Biodiesel is better for the environment and human health.

Below is a list of items that would be needed to make biodiesel. Write the Resources under the correct heading.

Trucks	Farmers	Farm Equipment	Processing Plant
Truck Drivers	Diesel Engine	Soil	Factory Workers
Soybeans	Roads	Water	Sunshine

Renewable	Natural Resources	Non-renewable
_____		_____
Capital Resources		_____
_____		_____
_____		Human Resources
_____		_____
_____		_____
_____		_____