

OREGON'S

AGRICULTURAL PROGRESS

“Colorful Greens from the Purest of Seeds” Concept Map

Created by Emily Holden of Oregon State University

Description

With a climate perfectly suited for seed production, Oregon has earned the reputation for producing some of the world’s highest quality seeds. Oregon growers are working to develop practices that prevent cross-pollination in order to maintain their reputation. “Colorful Greens from the Purest of Seeds” provides a starting point for conversations about pollination, plant breeding and cooperation.

The concept map will improve students’ literacy and comprehension. The concept map encourages students to reach a higher level of Bloom’s Taxonomy of Cognitive Thinking. Concept mapping is used before, during and after reading to provide students with a way of focusing their reading and connecting like concepts.

Time Estimate

One 45- to 50-minute class period

Student Outcomes and Objectives

- Students will summarize why seed production is an important industry in Oregon.
- Students will explain the effects of cross-pollination.
- Students will examine the debate over genetically modified organisms.
- Students will investigate how growers are preserving Oregon’s dominance of the seed industry.

Standards

Science

H.4D.5: Describe how new technologies lead to scientific inquiry are responsible for changes in the ways people live and work.

H.4D.6: Evaluate how ethics, public opinion and government policy influence engineers and scientists and how their results impact human society and environment.

Language Arts

EL.HS.RE.01: Read at an independent and instructional reading level appropriate to grade level.

EL.HS.RE.02: Read and understand a wide variety of informational text.

EL.HS.RE.05: Match reading to purpose.

EL.HS.RE.06: Understand and use a variety of comprehension strategies as needed, such as summarizing, class and group discussions and making predictions.

EL.HS.RE.08: Understand, learn and use new vocabulary that is taught through informational text.

EL.HS.RE.15: Read magazines and news stories.

EL.HS.RE.19: Identify and summarize sequence of events, main ideas, facts, supporting details and opinions.

EL.HS.RE.20: Clarify understanding of informational texts by creating graphic organizers.

Career-Related Learning Standards

CS.PM.02: Plan, organize, and complete assigned tasks on time, meeting standards of quality.

CS.HS.01: Locate, process and convey information using traditional tools.

Materials

- Copies of [“Colorful Greens from the Purest of Seeds”](#) from the 2009 issue of *Oregon’s Agricultural Progress* magazine, a special issue on Food in Oregon
- Copies of the “Colorful Greens from the Purest of Seeds” Concept Map.

Vocabulary

Cross-pollination: to fertilize a flower with the pollen from a different organism.

Genetically Modified Organism (GMO): organisms with artificially altered genetic information that provides a desired characteristic.

Isolation Zones: areas surrounding a seed crop where farmers do not plant organisms that could cross-pollinate with the seed crop.

Organic: grown without the use of chemicals and avoiding adverse effects in the surrounding ecosystem.

Procedure for “Colorful Greens from the Purest of Seeds” Concept Map

- 1) Hand out copies of the concept map to students.
- 2) Read over the concept map as a class, to give students a focus for their reading.
- 3) Have students read the article “Colorful Greens from the Purest of Seeds”.
 - a. Students can use their concept maps to take notes as they read.
- 4) After students have completed the reading and taken a few minutes to take notes on their concept map, conduct a class discussion to help students fill in blanks.

*There are other possible answers for completing the map

**“Colorful Greens from the Purest of Seeds”
Concept Map**

Seed Production:

Why produce seeds in Oregon?

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Pinning maps

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Why worry about cross-pollination?

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What seeds are grown in Oregon?

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“Colorful Greens from the Purest of Seeds” Concept Map Example

Seed Production: *farming crops to harvest the seed, not the final product. For example, carrot seed farmers harvest the seed, not the carrot.*

Why produce seeds in Oregon?

- *Location on the 45th parallel*
- *Fertile soils*
- *Mild wet winters = growth and flowering*
- *Long dry summers = ripe and dry seed*

Pinning maps

- *Have prevented cross-pollination so far*
- *Are voluntary: farmers mark their seed crops with a pin on the map, and other farmers cooperate*
- *Maps are found in Linn and Benton counties*

Why worry about cross-pollination?

- *Wind and bees can carry pollen.*
- *Years of research go into the breeding of new plant species, and a cross-pollinated gene can hamper these efforts.*
- *Genetically modified species have been introduced with a new set of genetic information.*
- *Foods sold as organic must not contain any GMOs.*

What seeds are grown in Oregon?

- *Central Oregon = carrot seed*
- *Columbia and Snake Basins = corn and bean seed*
- *Willamette Valley = spinach, chard, lettuce, cabbage and broccoli seed*