



**Lesson Title: The Very Hungry Caterpillar Visits Montana
Grades 2-3**

Duration of Unit: 3 (45) minute periods

Brief: Students will understand which foods are grown in Montana, metamorphosis, and pollination

STAGE 1 – DESIRED RESULTS

Montana State Standards:

Science: Content Standard 3 - Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. Benchmark 3.3 ELE: C.

Common Core Standards ELA: RL.1; RL.2; RL.3; RI.6; RL.7; RL.9

Math: Content Standard 2 –A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians. Benchmark 2.1 **Content Standard 3** – Students demonstrate understanding of measureable attributes and an ability to use measurement process. Benchmark 3.4 **Content Standard 4** - A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians. Benchmark 4.5

Understanding(s)/Big Ideas:

Students will understand a variety of foods grown in Montana are part of our daily diets. Students will understand the role of metamorphosis in the life cycle. Students will understand the role of pollination to foods.

Essential Question(s):

What foods that we eat grow in Montana?
What is the link between a caterpillar and a butterfly?
What is the link between butterflies and food?

Students will know: Which grown in Montana are part of our daily diet. The steps of metamorphosis. Students will know that the butterfly has an important role in pollination.

Students will be able to: Identify foods grown in Montana. . Link larvae to butterflies. Explain the reason pollinators are important to our food. Recall the sequenced days of the week.

STAGE 2 – ASSESSMENT EVIDENCE

Performance Task(s): Pre-assessment, verbal assessment, critical thinking insights, student insights, and new understandings.

Other Evidence: Students will recall the foods grown in Montana and reasons to eat locally grown foods.

STAGE 3 – LEARNING ACTIVITIES

This hands on, minds on lesson involves food. Use your schools guidelines for safe food handling and foods exposure to children who have allergies.

Materials/Resources:

The Very Hungry Caterpillar Visits Montana

<http://agr.mt.gov/agr/Programs/AgClassroom/LessonPlans/K-3/>

Teacher Resources: Montana foods facts and activities

<http://1.usa.gov/12u0jCR>

Sheep Reporter

http://www.sheepusa.org/Online_Resources

1 – Colored copy of *The Very Hungry Caterpillar Visits Montana* for reading to students.

1 – copy of *The Very Hungry Caterpillar Visits Montana* for each student (can be non-colored copy and students can color the book)

Resealable sandwich bag with the following items:

3 – 2 inch black chenille stems (pipe cleaners)

3 - 2 inch yellow chenille stems (pipe cleaners)

1 – 4 inch black chenille stem (pipe cleaner)

1 - 4 inch yellow chenille stem (pipe cleaner)

1 - butterfly die cut or butterfly sticker

1 – 2 inch piece of clean wool (for cocoon and egg)

1 – packet of sugar (Western Sugar is a Montana product)

2 – dried cherries (available in the dried fruit section of most grocery stores)

3 – sunflower seeds (black oil sunflower seeds or unsalted sunflower seeds)

4 – pumpkin seeds (usually in the section with snack nuts)

5 – kernels of wheat (also called wheat berries which can be found in bulk foods section)

Glue – we suggest Aileen’s tacky glue (apply sparingly)

Mint Leaves – mint leaves can be taken from mint tea bags or many home gardeners have mint. The smell of mint persists into the winter, even in the dried stems!
Option: Larvae that you can order to have a butterfly garden in your classroom.

Learning Activities:

This lesson is broken down into small segments to enable student's "hands on, minds on" learning sessions. Students will need time to link the tactile materials to Montana grown foods. It is recommended that you review the Montana food sheets and activities at the website listed above before beginning lesson, and then use the foods and activity sheets to supplement your teaching methods for each of the foods covered in this book.

Pre-assessment: Pre-assess student's knowledge of foods that grow in Montana. Review the days of the week. Review sorting by size, color, and shape. Review patterns.

Phase 1. The Very Hungry Caterpillar Visits Montana

First read Eric Carle's *Very Hungry Caterpillar*, then Before reading the *Very Hungry Caterpillar Visits Montana* discuss why the title might include the state of Montana. Emphasize the fact that the variety of foods the caterpillar eats in *The Very Hungry Caterpillar Visits Montana* are all foods that we grow right here in Montana! Inform students that they will be making their own copy of the book so paying attention to each day is very important!

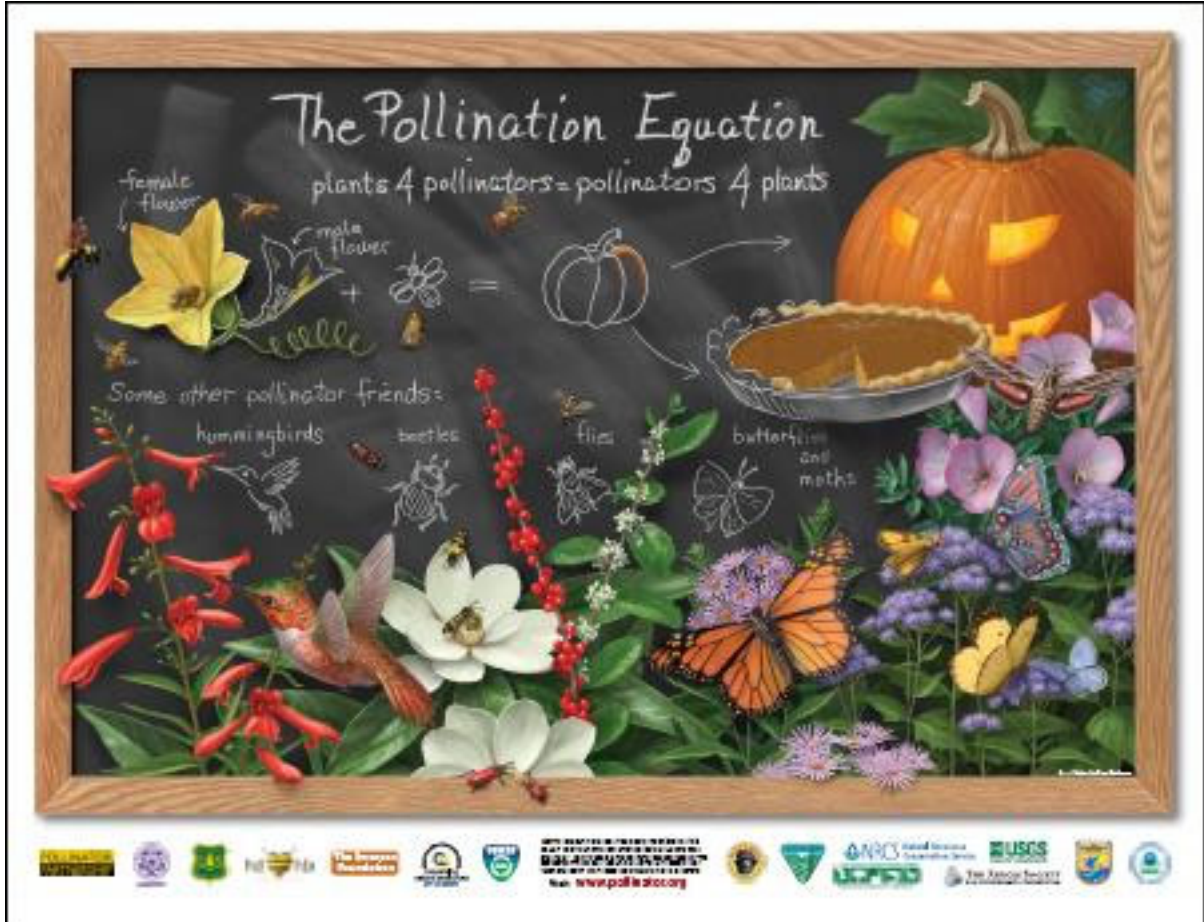
Notes:

Phase 2: After reading the book explore metamorphosis

Discuss the huckleberry bush from page two of the book as a natural resource, and all the foods that can be made from huckleberries. Equip students with the key ideas of the stages of life in the caterpillar/butterfly life cycle. Introduce or review metamorphosis and complete your choice of metamorphosis lessons. Explore the issue of pollination in the life cycle of food production. Discuss the role of butterflies and moths to pollination

After finishing metamorphosis, give each student their copy of the book and their bag of supplies. Reread pages one and two of the book.. Instruct each student a take only the two inch piece of wool from their bag. Have them grab each end of the 2 inch section and try and tear the wool in half, discuss the strength of wool fibers. Discuss the origin of wool and use any lessons you chose from the *Sheep Reporter*. Next have the students pull off a few strands of wool and roll them into a tiny ball, this will be used to replicate an egg on page two. The rest of the wool should be rolled into a tight cylinder shape and placed back in the bag. Have students glue the small ball of wool they made earlier onto the white spot on the huckleberry bush on the left. Ask students take out all two inch black and yellow chenille stems. Students should twist one black stem with one yellow stem to make caterpillars. Students will have three separate caterpillars, they should glue one onto the white space shaped like a caterpillar on the huckleberry bush on the right hand side of page 2. Return the other two caterpillars to the bags as they will be used

later in the book. Discuss the egg and caterpillar in context and review of the metamorphosis lesson. An informative poster showing the pollination equation can be seen at <http://www.pollinator.org/pollinationequation.htm> You may request a poster by contacting Montana Agriculture in the Classroom (lbrenneman@mt.gov)
Example Poster:



Notes:

Phase 3: Montana foods

Remind students that the activities will be taking them through foods that are grown in Montana. Many of the foods we eat are grown right here in Montana.

We can eat more local foods by shopping at Farmer's Markets and checking our grocery stores for locally grown foods. By doing this we also reduce our carbon footprint. Note: According to the Leopold Center the average food has traveled 1500 miles before we place it on our plate. http://www.leopold.iastate.edu/pubs/staff/ppp/produce_chart.html



Critical thinking time, "What would happen if we ate more local foods?"

Ask students to take all of the seeds out of their sandwich bag.

They should have the following:

3 – sunflower seeds

4 – pumpkin seeds

5 – kernels of wheat (also called wheat berries)

Math moments: sequence, graph, measure! This is a great time to integrate any math activities that your class is working on!

Ask students to take from the baggie the sugar which was made from a vegetable grown right here in Montana! Refer to Food Facts and Activities for more information on sugar beets!

As students to take from the baggie the fruit which is grown here in Montana. Refer to Food Facts and Activities for more information on Montana's sweet cherries.

Time to identify, sort, and glue! Instruct students to glue the correct food items to the correct fruit, flower, or vegetable picture on page three of the book. Students will also glue the second caterpillar to the caterpillar shape near the wheat. Remind students that the wheat is used to make bread, cereals, snacks, etc.

Set page three aside to dry, and turn to page four. Page four illustrates many of the foods that we grow in Montana. Glue the last two inch caterpillar just above the crescent moon.

Math moments: graphing! Graph the number of fruits, vegetable, dairy products, poultry products, beef products, and pork products represented on this page.



Critical thinking time, “Explore and predict the outcome of a graph using the criteria above.

Turn to page five of the book and make note of how much larger the caterpillar is! Mint leaves may be glued onto the leaves of this page. Instruct students to take the four inch chenille stems and twist them together for the final caterpillar, which is to be glued on page five in the caterpillar blank on the mint leaves. Turn to page six and note the size of the caterpillar. Discuss the growth of the caterpillar to food consumption.



Critical thinking time, “How can you describe the changes in the caterpillar?”

Turning to page 7, review metamorphosis. Students will glue the cylinder of wool onto the cocoon shape in the apple tree.

Turn to page 8, students can place their butterfly anywhere on this picture. Discuss the cycles

of metamorphosis, and that the butterfly will now pollinate more flowers, keeping the cycle repeating.

Notes:

Assessments:

Phase 4: Student Insights

Allow students to evaluate their work and its implications. Review through the critical thinking questions throughout the unit. Assess students for a deeper understanding of the key terms.

Phase 5: New Understandings

Provide opportunities to rethink and revise their understandings about what foods grow in Montana, the choices of the foods we eat, and the importance of the pollinator in the food system.

Lesson Extensions: Graph the food which was discussed in the book by dividing it into the same groups as MyPlate; protein, dairy, vegetable, fruit, and grains.

Partial listing of foods for examples sourced from:

http://www.fruitsandveggiesmorematters.org/?page_id=1600

Montana Department of Agriculture, Agriculture in the Classroom

<http://agr.mt.gov/agr/Programs/AgClassroom/>

