How Much Does Packaging Contribute to Our Waste?

Background
In 1974, the Environmental Action Foundation published research showing that the energy used to produce the packaging used annually by McDonald’s fast food restaurants was equal to the amount of energy required to supply Boston, Washington, San Francisco and Pittsburgh residents for one year. Since the 1970s and 1980s, McDonald’s and packaging manufacturers in general, have tried to make plastic packaging more lightweight and use more recycled and recyclable materials. According to Plasticpackagingfacts.org “Since 1977, the two-liter plastic soft drink bottle has gone from 68 grams to 47 grams, representing a 31 percent reduction per bottle. This saved more than 180 million pounds of packaging in 2006—just for two-liter soft drink bottles alone. The one-gallon plastic milk jug has gone on a similar diet, weighing 30 percent less today than 20 years ago.” According to McDonald’s website, by 2020, 100% of McDonald’s packaging will be from recycled sources. McDonald’s website keeps their sustainability reports archived.

Follow the link below to learn more about McDonald’s changing business practices and sustainability goals: http://www.aboutmcdonalds.com/mcd/sustainability/sustainability_CR_reports.html.

Leading Question
Could we save energy and other natural resources by choosing one product or packaging over another?

Procedure
1. Examine the list of 17 different potato products. Discuss the questions on the handout or have students fill them out.

2. Working in pairs and using a chart similar to the potato chart, have students choose a form of fresh food to investigate at a local grocery store. Students will write and gather information to present to their classmates.

3. After the investigation, have students meet in small groups to discuss their results. Then each group shares their research reports with the teacher and class for discussion.

Evaluation
What percentage of the cost of packaged foods do you think is due to the packaging? Which of your favorite foods could you buy without packaging? How could food packaging be reduced?

Concept
Extensive packaging and processing uses up limited natural resources and increase the amount of solid waste requiring disposal.

Objective
Students will examine the complexities of food processing and packaging.

Method
Students will survey different food products.

Materials
Attached handouts

Subjects
Language Arts, Social Studies, Environmental Education, Mathematics

Skills
Applying ideas to solve problems, collaborating, researching, using mathematical and computational thinking

Time
Two classes, outside assignment

Vocabulary
Packaging, food processing, natural resources, energy

3R’s of the Common Core
Parallel Activities
K-3, Too Much Packaging
4-6, The Story of…
9-12, Packaging Preferences

Information
Packaging
Resources
Green Consumption, Consumerism and Sustainable Development

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Common Core Alignments

GRADE 7

CC.RI.7.4
Reading Informational Text:
Craft & Structure

CC.SL.7.4
Speaking & Listening:
Presentation of Knowledge & Ideas

CC.W.7.4
Writing:
Production & Distribution of Writing

CC.7.EE.3
Mathematics
Expressions and Equations

CC.7.RP.1
Mathematics
Ratios and proportional Relationship

GRADE 8

CC.RI.8.4
Reading Informational Text:
Craft & Structure

CC.SL.8.4
Speaking & Listening:
Presentation of Knowledge & Ideas

CC.W.8.4
Writing:
Production & Distribution of Writing

Classroom Activities

A. Take a field trip to a co-op. Compare the different product choices, packaging, sales methods and philosophies between conventional and cooperative shopping.

B. Research differences in nutritional value between the different foods discussed.

C. Discuss the influence of advertising and packaging design on purchasing decisions.

D. Develop a list of commonly used plastic packaging types. Have the students figure out what was used for the same purpose before plastic was readily available. What are some of the pros and cons of the two types?
How Much Does Packaging Contribute to Our Waste?

Name: ______________________________________________________ Date: _________________________

1. Which forms of the product are most highly processed and packaged?

2. Which are most expensive per pound?

3. Which form of product would you purchase if you were interested in reducing solid waste?

4. Which form of the product would you purchase if you were interested in saving money?

5. Which form of packaging do you think:
   a. Uses the most energy?
   b. Saves the most energy?

6. What are the relationships between cost and the amount of packaging and processing in a product?

7. What conclusions can you make about these relationships?

8. Looking at the product form with the most packaging, is all this packaging necessary?

9. Which packaging:
   a. Weighs the least per pound of product?
   b. Takes up the least space in the landfill?
   c. Decomposes most or least quickly?
   d. Doesn’t produce toxic materials when it breaks down?

10. Which of these products will you buy in the future? What criteria will you use for making your decisions about what to buy and what not to buy?
This Spud’s For You

<table>
<thead>
<tr>
<th>PRODUCT*</th>
<th>PACKAGE SIZE</th>
<th>PRICE</th>
<th>PRICE PER POUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Russet Potatoes</td>
<td>10 lb</td>
<td>$4.99</td>
<td>$.50</td>
</tr>
<tr>
<td>Fresh Russet Potatoes</td>
<td>5 lb</td>
<td>2.99</td>
<td>.60</td>
</tr>
<tr>
<td>Fresh Russet Potatoes</td>
<td>Loose</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>Hannaford’s Canned Sliced Potatoes</td>
<td>15 oz</td>
<td>.79</td>
<td>.84</td>
</tr>
<tr>
<td>Ore Ida Tater Tots</td>
<td>2 lb</td>
<td>2.89</td>
<td>1.45</td>
</tr>
<tr>
<td>Ore Ida Mini Tater Tots</td>
<td>1.75 lb</td>
<td>2.89</td>
<td>1.65</td>
</tr>
<tr>
<td>Hannaford’s Crinkle Cut French Fries</td>
<td>5 lb</td>
<td>3.99</td>
<td>.80</td>
</tr>
<tr>
<td>Hannaford’s Crinkle Cut French Fries</td>
<td>2 lb</td>
<td>1.69</td>
<td>.85</td>
</tr>
<tr>
<td>Small Order McDonald’s French Fries</td>
<td>2.6 oz</td>
<td>1.68</td>
<td>10.33</td>
</tr>
<tr>
<td>Medium Order McDonald’s French Fries</td>
<td>3.9 oz</td>
<td>2.17</td>
<td>8.90</td>
</tr>
<tr>
<td>Large Order McDonald’s French Fries</td>
<td>5.9 oz</td>
<td>2.29</td>
<td>6.21</td>
</tr>
<tr>
<td>Betty Crocker Mashed Potato Products</td>
<td>4.7 oz</td>
<td>1.09</td>
<td>3.71</td>
</tr>
<tr>
<td>Hannaford Potato Sticks</td>
<td>6 oz</td>
<td>1.99</td>
<td>5.30</td>
</tr>
<tr>
<td>Pringle’s Potato Chips</td>
<td>5.68 oz</td>
<td>1.79</td>
<td>5.04</td>
</tr>
<tr>
<td>Pringle’s Potato Chips 18 pack</td>
<td>12.69 oz</td>
<td>7.59</td>
<td>9.56</td>
</tr>
<tr>
<td>Lay’s Potato Chips</td>
<td>8 oz</td>
<td>2.50</td>
<td>5.00</td>
</tr>
<tr>
<td>Lay’s Potato Chips 6 pack</td>
<td>6 oz</td>
<td>2.49</td>
<td>6.64</td>
</tr>
</tbody>
</table>

*All items priced on April 18, 2016, at Hannaford’s website for online shopping in Manchester NH, McDonald’s prices for NH calculated on fastfoodmenuprices.com