“Bone Up On Beef” Anticipation Guide

Created by Emily Holden of Oregon State University

Description
In “Bone Up On Beef,” writer Tiffany Woods poses questions about the beef industry to OSU beef researchers. The researchers address the differences between natural, organic, grass-fed and grain-finished beef and discuss rangeland management. The article provides students with a snapshot of where the beef industry is and what it is moving toward.

The “Bone Up On Beef” Anticipation Guide will increase students’ literacy and comprehension skills. The guide will activate prior knowledge, give students a direction for their reading and raise curiosity. Completing the guide encourages students to reach a higher level of Bloom’s Taxonomy of Cognitive Thinking and allows teachers to recognize and address student misconceptions about the food-testing industry.

The Anticipation Guide is a series of questions or statements about the article that students utilize to indicate agreement or disagreement. After reading the article, they may change or maintain their position, citing evidence from the text.

Time Estimate
One 45- to 50-minute class period

Student Outcomes and Objectives
- Students will examine the differences in natural, organic, grass-fed and grain-fed beef production.
- Students will interpret current research in the effect of genetics on beef production.
- Students will investigate the relationship between beef production and riparian management.
- Students will explore current research on stress management in beef cattle.

Standards
Science
H.2E.4: Evaluate human impacts on environmental quality and sustainability.
H.4D.5: Describe how new technologies that 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.
Language Arts Continued
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 “Bone Up On Beef” from the 2009 issue of Oregon’s Agricultural Progress magazine, a special issue on Food in Oregon
• Copies of the “Bone Up On Beef” anticipation guide.

Vocabulary
Genetics: study of how characteristics are passed from one generation to another.
Grain-finished: Calf was fed grain for the last part of its life, usually 150 days.
Grass-fed: The animal was fed only grass or grass products from birth to slaughter, the only exception being its mother’s milk until weaning.
Marbling: fat that is intermixed within the muscle.
Natural: the animal was raised in a natural way. This definition varies from producer to producer.
Niche market: part of a larger commercial market where profitable and specialized commodities are bought and sold.
Organic: grown without the use of chemicals and avoiding adverse effects in the surrounding ecosystem. Was also bred using organic breeding processes.
Riparian: area surrounding a natural body of water.
“Bone Up On Beef” Anticipation Guide Procedure

1) Hand out the anticipation guide to students.
2) Have students complete the left side of the guide before reading.
3) Hand out the copies of the “Bone Up On Beef” article.
4) Instruct students to read the article and take additional notes as they go.
5) Conduct a discussion where you compare before and after results.
   a. Focus your discussion on evidence provided in the text.
b. "Bone up on Beef" Anticipation Guide

<table>
<thead>
<tr>
<th>Before Reading: Agree or Disagree</th>
<th>Statement</th>
<th>After Reading: Agree or Disagree</th>
<th>Evidence and Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To be classified as &quot;grass-fed,&quot; beef cattle are allowed to eat up to 25% of their diet from grain or other supplements. Why?</td>
<td></td>
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<td></td>
<td>Most beef eaten by American consumers is grass-fed. Why?</td>
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<td></td>
<td>The only thing that affects meat quality is what the farmer feeds the cow. Why?</td>
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<td>Many ranchers work at protecting the environment on their ranches, especially riparian areas. Why?</td>
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*Adapted from Dr. Travis Park of Cornell University*
### “Bone up on Beef” Anticipation Guide Example

<table>
<thead>
<tr>
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<th>Statement</th>
<th>After Reading: Agree or Disagree</th>
<th>Evidence and Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To be classified as “grass-fed,” beef cattle are allowed to eat up to 25% of their diet from grain or other supplements. Why?</td>
<td>disagree</td>
<td>Beef classified as “grass-fed” can be fed only grass and other roughage from birth until slaughter, except for milk before they are weaned.</td>
</tr>
<tr>
<td></td>
<td>Most beef eaten by American consumers is grass-fed. Why?</td>
<td>disagree</td>
<td>Grass-fed beef is still a niche market.</td>
</tr>
<tr>
<td></td>
<td>The only thing that affects meat quality is what the farmer feeds the cow. Why?</td>
<td>disagree</td>
<td>The requirements for production of quality meat are being studied by OSU researchers.</td>
</tr>
<tr>
<td></td>
<td>Many ranchers work at protecting the environment on their ranches, especially riparian areas. Why?</td>
<td>agree</td>
<td>OSU has been researching this issue for many years.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Today many ranchers only graze riparian areas when they are least vulnerable to damage.</td>
</tr>
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