

WHALE MEAT ASSESSMENT TEACHER GUIDE

The following is a generalized rubric for scoring student responses to the *Whale Meat Assessment* questions.

SCORING GUIDE FOR EVALUATION OF STUDENT RESPONSES	
SCORE	DESCRIPTION
Level 4	Student responses are clear, well-written, and include all the components of a complete answer.
Level 3	Student responses are clear, well-written, and include most of the components of a complete answer.
Level 2	Student responses show some understanding of the concepts involved.
Level 1	Student responses show little understanding of the concepts involved.
Level 0	Responses are irrelevant or nonexistent.

A Level four response should also include essential knowledge components for each question. For each of the questions, these components are listed below:

Question 1: Lesson Components

- Which whales are endangered or threatened
- Populations vary genetically
- Genetic variations can be detected by RFLP Analysis

Question 2: Lesson Components

- The use of restriction enzymes as a molecular tool
- Recognition sites are used to cut DNA into different size fragments
- Different size fragments appear on the gel
- Different populations will have characteristic banding patterns
- Comparison of known and unknown samples containing DNA using banding patterns

Question 3: Lesson components

- Restriction enzymes work as a molecular tool
- The sequence and structure of DNA can vary between populations (repeats, deletions, substitutions)
- Populations can be separated by fragment lengths and banding patterns
- Application of this knowledge to whale populations

Question 4: Lesson components

- Set up an appropriate experiment including standards and controls
- Establish a data base
- Compare patterns to draw inferences



Question 5: Lesson Components

- Detect differences in banding patterns
- The movement of fragments relates to their base pair size
- The number of bands relates to the restriction enzyme recognition sites
- Color intensity (band width) relates to the number of fragments

Question 6: Lesson components

- Make a hypothesis based on known information
- Detect differences in banding patterns by sketching a gel
- Properly label scientific data

Question 7: Lesson components

- Understand the term stakeholder
- Relate stakeholder viewpoint to a value
- Understand points of view from other perspectives

Question 8: Lesson components

- Relate to interconnectedness of living organisms
- Understand the consequences of losing a species
- Examine their own value systems

INTERNET RESEARCH ON ENDANGERED WHALE MEAT

You (or your students) may wish to find additional information about the sale of endangered whale meat.

Two recent articles of interest can be found at:

<http://www.hsus.org/ace/14157>

Evidence of Endangered Whale Meat In Japan Underscores Need for Commercial Whaling Moratorium. May 20, 2002

http://www.nature.com/nsu/nsu_pf/000706/000706-5.html

Slipping the net. Protected whales could be threatened with extinction because the legal trade in meat and blubber masks their deaths, David Adam reports. 4 July 2000

