

# A Sample “Paper Trail” of a Challenge

Based on the  
**Education By Design™**  
Classroom Model  
and the work of



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Education By Design™ is a program of Antioch New England Graduate School, Keene, NH  
Leading EDGE, LLC is the exclusive provider of EBD programming in New York State

**Knowledge "Standard":**  
**MST #4-** understand and apply scientific concepts, principles, & theories pertaining to the physical setting and living environment...  
**Intermediate.-** Living Environment #5 - organisms maintain a dynamic equilibrium that sustains life

**ACADEMIC CHALLENGE**  
**Middle School**  
Science  
(Teacher Blueprint)

**Skill/Disposition "Standard":**  
**C-DOS Standard 3a** - mastery of a foundation skill essential for success in the workplace  
**Managing Resources /Intermediate #7** - applies financial, and human factors, and the elements of time and materials to successfully carry out a planned activity.

**Question/Issue:**

How are whales *adapted* to their environment?

**Challenge:**

With the help of your teacher, arrange yourselves into well-balanced teams of three (3). Plan and create a colorful, informative, easy-to-understand bulletin board display of your own unique design about a particular whale species that interests you. Your display should reveal accurate information in response to each of the following focus questions:

- (1) What is your whale species "like" (its unique *physiology*)?
- (2) What does your whale species "do" (its different *behaviors*)?
- (3) Where in the ocean does your whale live; what *environmental conditions* exist there?
- (4) How do you think the three questions above might be related?

To assist in your planning of this project, please turn in a project planning sheet at the end of today showing the work schedule for each member of the team for the remainder of the week. You are expected to implement this plan.

Your team will have three class periods to prepare your bulletin board. Be prepared to present your final product on Friday, 2:00 PM. All members of the team will be expected to be able to answer questions about your bulletin board and whale species.

**Product criteria:**

**Bulletin Board**

*Form criteria*

- Colorful - 3-5 different colors are used effectively
- Informative - gives viewer important information about the subject
- Easy-to-understand - audience can accurately interpret information
- Design of the bulletin board is unique - does not look exactly like that of any other team

*Content criteria*

- Each focus question is addressed directly
- All information about the whale species is accurate
- Focus "concepts" (*behavior, physiology, environment, adapted, etc.*) used appropriately
- Reveals "connections" among physiology, behavior, and environment of whale.

**Evidence of:**

- **Knowledge**
- **Skill**
- **Disposition**

**Targeted "Standard(s)"/Indicator(s):**

- **Knowledge** - understands and applies scientific concepts  
*LISTEN FOR* > appropriate use of *focus concepts* in response to questions
- **Organization** - rations resources (time, people, materials) effectively  
*LOOK FOR* > each team will submit and implement a project planning sheet detailing the work schedule for each member during the week

## "Product" Checklist

Date: \_\_\_\_\_ Class Period: \_\_\_\_\_

Product Author(s):	Product Title/Name:  <b>"Whale Bulletin Board"</b>	Evaluator Name(s):
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Observed	Standard/Criteria	Possible Points	Rating
	<b>Bulletin Board - "form criteria"</b>		
	• Colorful - 3-5 different colors are used effectively		
	• Informative - gives viewer important information about the subject		
	• Easy-to-understand - most viewers can accurately interpret information just by looking at display		
	• Design of the bulletin board is unique - does not look exactly like that of any other team		
	<b>Bulletin Board - "content criteria"</b>		
	• Each focus question is addressed directly		
	• All information about the whale species is accurate		
	• Reveals "connections" among physiology, behavior, and environment of whale		
	• Focus "concepts" (behavior, physiology, environment, etc.) used appropriately		
	<b>TOTALS</b>		

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**ACADEMIC CHALLENGE**  
**Middle School**  
Science  
(Student copy)

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**Managing Resources**  
**/Intermediate #7** - applies financial, and human factors, and the elements of time and materials to successfully carry out a planned activity.

**Question/Issue:**

**How are whales *adapted* to their environment?**

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Where in the ocean does your whale live; what *environmental conditions* exist there?

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**Product Standards:**

**Bulletin Board**  
*Form Criteria*

*Content Criteria*

**Evidence of:**

- Knowledge
- Skill
- Disposition

**Targeted Standard(s)/Indicator(s):**

• **Knowledge** - understands and applies scientific concepts  
*LISTEN FOR >*

• **Organization** - rations resources (time, people, materials) effectively

**Knowledge "Standards":**  
**MST#4** - understand and apply scientific concepts, principles, & theories pertaining to the physical setting and living environment....  
**C-DOS #2** - demonstrates how academic knowledge and skills are applied in the workplace and other settings.

## **CHALLENGE SCENARIO**

**Middle School**  
Science

**Skill/Disposition "Standards":**  
**C-DOS Standard 3a** - demonstrates mastery of foundation skill ...essential for success in workplace  
**Intermediate/Thinking Skill #2** - evaluates facts, solve advanced problems, and make decisions by applying logic and reasoning skills

### **The Setting:**

You are different teams of marine biologists who have recently returned from a research expedition in the Atlantic Ocean. On this voyage you have been studying a particular whale species. Your expedition was paid for by a government grant. The grant requires that you not only do your planned research, but that you also make a presentation of your findings to educate the public. Your presentation is planned for Friday at 2:00 PM.

### **Your Challenge:**

From previous experience with presentations, you have learned that a high quality visual display is an essential component of any effective effort to educate the public. This display should be self explanatory and support your oral presentation. It should include interesting and accurate information concerning:

- (1) what your whale species "looks like" (its unique *physiology*);
- (2) what it "does" (its *behavior*);
- (3) where it lives in the ocean and the conditions that exist there (its *environment*);
- (4) how physiology, behavior, and environment are related and connected to each other (the *adaptations* of your species).

You understand that your presentation is supposed to educate the audience. It is very important, therefore, that you accurately explain the meaning of all the scientific terms (i.e. *physiology, behavior, environment, adaptation, etc.*) you use in language that is clear, concise, and easily understood by everyone.

It is likely that your audience will include representatives from the government agency that gave you the funding for your work. Future funding will likely be linked to the quality of your presentation. You will increase the chances of producing an outstanding presentation if you take the time to *consider the advantages and disadvantages of several different ideas* for your display before you charge ahead and begin to produce it. Be prepared to show some specific evidence that you have done this as part of your decision-making process.

# Holistic Rubric Self, Peer, Teacher

**Date:** \_\_\_\_\_ **Class Period:** \_\_\_\_\_

Product Author(s):	Product Title/Name: <b>"Whale Presentation"</b>	Peer Name(s):
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**Directions:** Under your title, please check the box of the description that most closely fits your overall evaluation of this product. Comment as appropriate.

Description	Self	Peer	Teacher	Comment
The presentation is exceptionally interesting and informative. All aspects of the life of the chosen whale species are explored accurately and in depth. Scientific terms are explained with great clarity and are supported by illustrations and examples which contribute to further understanding . Both the visual display and oral presentation can stand alone. Together, they form a superbly integrated, well orchestrated presentation which captures the imagination as well as the intellect.				
Both the visual and oral portion of the presentation convey accurate and interesting information about the chosen whale species. Each of the areas of concern (physiology, behavior, environment, adaptation) is addressed adequately. All scientific terms are explained or illustrated accurately, clearly, and in language appropriate for a public audience. The visual display is self explanatory and supports the oral presentation as a source of illustration and example.				
The components of the presentation do not accurately or adequately convey appropriate information about the chosen species of whale. Details about the species are insufficient, inaccurate, or unclear. Scientific terms are used inappropriately, inaccurately, or without sufficient explanation. The visual does not convey sufficient information to be self-explanatory and/or serves little useful purpose in support of the oral presentation. Overall the presentation is not particularly interesting or informative.				
Both the display and oral portion of the presentation are inappropriate to all levels of the task, incomplete, or missing.				

## REFLECTIVE THINKING



Name \_\_\_\_\_

Class \_\_\_\_\_

Date \_\_\_\_\_

**Directions:** Please address the following question/issue in writing. Remember to support your general statements with specific facts, details, or examples. All standards for "quality" writing apply to this piece of work.

### Question/Issue:

*Of the insights, principles, and practices you have examined, which ones are you willing to implement in your own classroom? What will their implementation look like/sound like at your grade level?*

## Self Assessment

Student Name \_\_\_\_\_

Class Period : \_\_\_\_\_

Date : \_\_\_\_\_

Project Title/Name:

**Whale Study Scenario**

Group/Team members:

**Directions:** Think about how much you contributed to the project/presentation just completed. Please respond to the statements below by circling the word which best describes your level of contribution. Please write some specific examples of your contributions which support your response.

**1. On this project I shared my ideas, opinions, and suggestions appropriately with the rest of the group.**

*rarely -- sometimes -- often -- consistently*

Describe at least one idea or suggestion that you shared -

**2. On this project I helped the group to gather and use the information/materials necessary to complete the job successfully.**

*rarely -- sometimes -- often -- consistently*

Describe one example of information or materials that you helped to gather for the project-

**3. On this project I helped the group to concentrate and stay on task.**

*rarely -- sometimes -- often -- consistently*

Describe one specific way that you helped the group to stay on task. -

**4. On this project I helped the group to meet the standards of quality that went with this project.**

*rarely -- sometimes -- often -- consistently*

Describe at least one way that you helped the group meet the standards of quality that went with this project -

Group members:

Project Name/Date:

# IP3\*

## DEBRIEFING

### COLLABORATION

**DIRECTIONS:** Please consider the quality of your collaboration in the challenge just completed. Please respond to each of the following questions.

#### IDEAS

Were all ideas heard and considered?

What might you/we do differently next time?

#### PEOPLE

Were all group members invited to participate and valued when they did so?

What might you/we do differently next time?

#### PROCESS/PROCEDURES

Was your group well organized and did it use available resources efficiently?

What might you/we do differently next time?

#### PRODUCT

Was your final product of the highest quality possible given the resources available?

What might you/we do differently next time?

