

A BLUEPRINT FOR A CHALLENGE:

Creating a classroom "problem to solve"



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ACADEMIC CHALLENGE

(Student copy)

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
Rule criteria

Form criteria

Content criteria

Evidence of:

Targeted Standard/Indicator(s):

- Knowledge
 - Skill
 - Disposition
- **Knowledge** - understands and applies scientific concepts
 - **Organization** - rations resources (time, people, materials) effectively

**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

**Skill/Disposition
"Standard":**

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.

ACADEMIC CHALLENGE
Middle School
Science

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**Product
criteria:**

Bulletin Board

Rule criteria

- Completed by Friday, 2:00 PM
- Colorful - 3-5 different colors are used effectively
- Design of the bulletin board is unique - does not look exactly like that of any other team

Form criteria

- Informative - gives viewer important information about the subject
- Easy-to-understand - audience can accurately interpret information

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/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

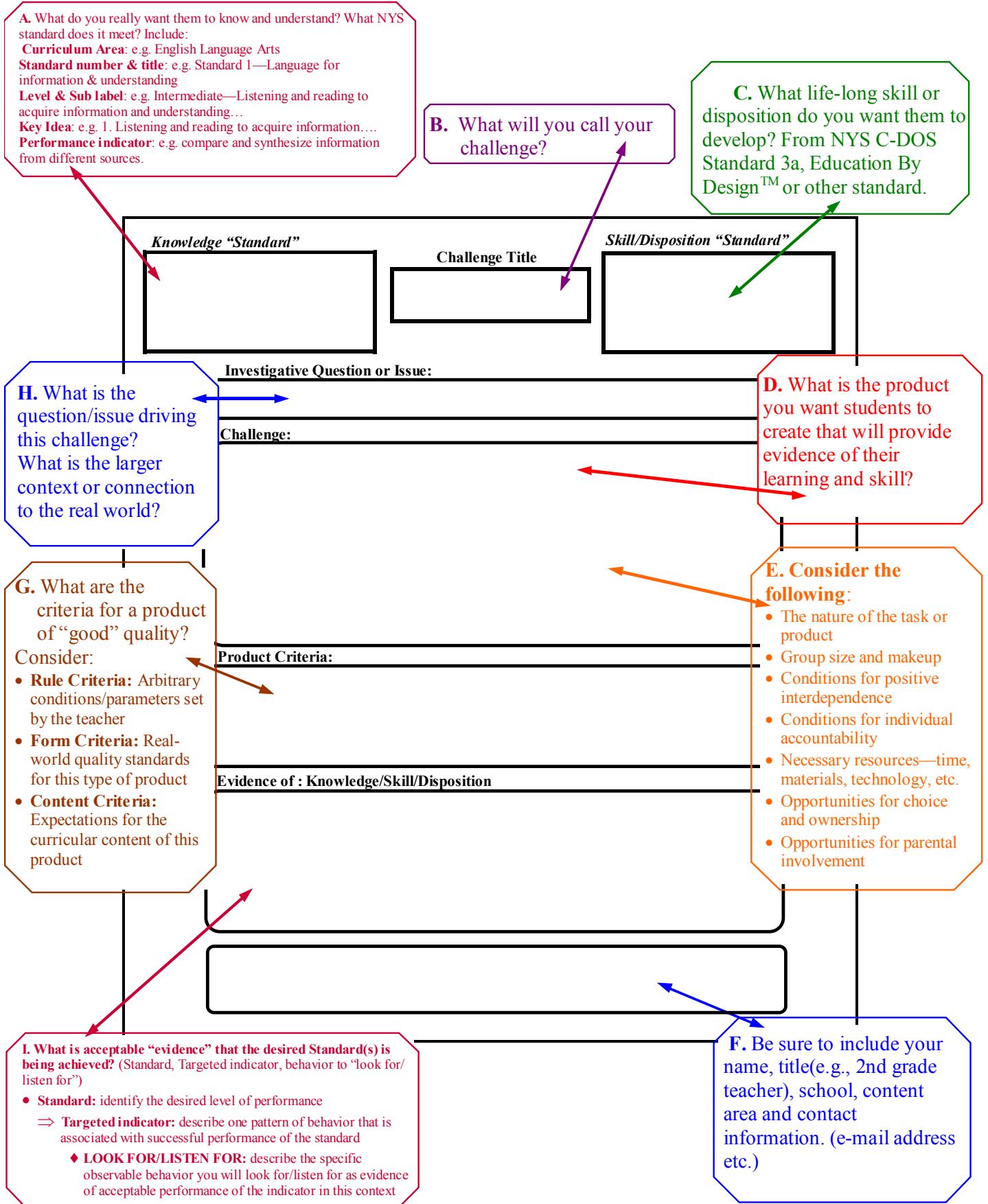
<h2 style="margin: 0;">Product Quality Checklist</h2>

Date: _____ Class Period: _____

Product Author(s):	Product Title/Name: “Whale Bulletin Board”	Evaluator Name(s):
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Observed	Standard/Criteria	Possible Points	Rating
	Bulletin Board - "rule criteria" <ul style="list-style-type: none"> • Completed by Friday, 2:00 PM 		
	<ul style="list-style-type: none"> • Colorful - 3-5 different colors are used effectively 		
	<ul style="list-style-type: none"> • Design of the bulletin board is unique - does not look exactly like that of any other team 		
	Bulletin Board - "form criteria" <ul style="list-style-type: none"> • Informative - gives viewer important information about the subject 		
	<ul style="list-style-type: none"> • Easy-to-understand - most viewers can accurately interpret information just by looking at display 		
	Bulletin Board - "content criteria" <ul style="list-style-type: none"> • Each focus question is addressed directly 		
	<ul style="list-style-type: none"> • All information about the whale species is accurate 		
	<ul style="list-style-type: none"> • Reveals "connections" among physiology, behavior, and environment of whale 		
	<ul style="list-style-type: none"> • Focus “concepts” (behavior, physiology, environment, etc.) used appropriately 		
	TOTALS		

Blueprint For A Challenge (annotated)



Blueprint For A Challenge

Knowledge "Standard"

Challenge Title

Skill/Disposition "Standard"

Investigative Question or Issue:

Challenge:

Product Criteria:

Evidence of : Knowledge/Skill/Disposition

IDEAS FOR CREATING CONDITIONS OF *POSITIVE INTERDEPENDENCE*

- limit available materials
- limit time
- assure that everyone has a unique set of information (jigsawing)
- pick students to make the presentation just prior to the start of the presentation
- give group grades/evaluations (with caution)
- assign rotating roles or responsibilities
- select a single paper or product from the group to evaluate
- use role playing
- give group rewards for group accomplishments
- have students within the group plan individual responsibilities and document their fulfillment
- design a challenge which is too complex or comprehensive for one person
- use an open class format which encourages exchanging of information among groups
- set decision-making criteria for small group work which necessitates inter-group or whole class decision-making

Thoughts on Individual Accountability

How are you going to hold each individual accountable for their contribution? How are you going to make an effort to eliminate “hogs” (those who take over and want to do everything) and “logs” (those who just lay there and want to do nothing)?

- ask them to keep project logs that keeps track of their contributions. If they can't tell you what they have contributed then they can't get credit.
- use self and peer assessments
- debrief in terms of who contributed what to their effort
- let “hogs” know that they are as guilty as “logs” if they do everything and don't make every effort to delegate and share tasks
- use traditional quizzes or tests after the challenge