



Don't Let Me Die--Adaptations

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Grade Level:

Middle School

Don't Let Me Die

Purpose:

To provide appropriate adaptations for the model organisms to survive in their environment.

This activity was designed with intermediate (grades 5, 6) students in mind, but can be modified for primary and high school level with minimal changes to materials, questions and follow-up.

Objectives:

Students will be able to:

- work in small groups.
- create an adaptation, using supplied materials.
- demonstrate the use of the adaptation in its environment.
- explain how their adaptation helped their organism survive **or** why it did not survive.

Materials:

Adaptations: for use in groups of three to five students; provide a tub with the following supplies for **each** group:

- wax paper
- duct tape
- scotch tape
- cotton balls
- *tweezers
- Saran wrap
- rubber bands
- paper towels
- packing peanuts
- *small candle
- tin foil
- gauze
- Vaseline
- *scissors
- *matches

*see **Safety**

Environments:

Prepare ahead of time for each group:

- 2 250 or 400ml beakers of water
- 1 250 or 400ml beaker of milk
- 1 250 or 400ml beaker of Karo syrup
- 2 (margarine tub-size) blocks of ice

Model organisms:

Have the following items (in a tub for each group) ready to give out as model organisms:

- 1 sugar cube
- a feather
- 1 shredded-wheat biscuit
- a cardboard cube (~ “1 x 1”)
- rock salt granules (~6-10 if small)
- 1 miniature candy bar
- a small marble

Others: for final objective: poster paper, markers

Preparation and Procedure:

For you to know...

- Use of this lab is intended for small groups.
- This activity can be used as an introduction to adaptations or as a culmination to a unit on adaptations.
- This is a very versatile activity and fun, keeping in mind that it will also build cooperation, communication skills, and problem-solving skills.
- Look at the **‘Materials’** as this is where most of the preparation is necessary (i.e., ice blocks).
- The lab should be given at least two days (35-40 minutes each day).
- If this lab seems too easy or too difficult for your grade level, **adapt** the materials and/or environments to suit the students’ level!

And them to find out...!

- Ask the students a lead in question about something we have on our bodies as an adaptation like, “What are eyelids used for?” or “Why do we have eyebrows?” or “What do fingernails do for me?”
- After discussion (try to use the word “adaptation”), give each group their model organism tub and their adaptations tub. Instruct them to look at the environments in which the model organisms must survive (see Student section). You can assign specific environments to each model organism or allow the students to match them.
- Show the students their purpose and objectives (see Student section), instruct them to plan first and have it approved before proceeding with the materials.
Day 1 - try to have first two objectives completed, third can be done or not.
Day 2 - complete the third objective (if not done already) begin last objective or take another day for that.
- Groups will generate a presentation of their results to the rest of the class.

Safety:

1. Take precautions for the use of matches and lighting candles in your lab!

2. Discuss how the tweezers and scissors are to be used.

Questions to Ask:

1. What would happen to us if there were no adaptations?
2. What is the most important adaptation?
3. Is there anything on the earth that does not need adaptations?
4. Where do adaptations come from?
5. Can we get rid of or change adaptations?

Where do we go from here:

The students might enjoy generating a list of adaptations needed for themselves if they were to live in a different environment.

Before or after this activity, watch a short segment of an adventure/survival movie, ie. *Far From Home*. Cue it up to a part in the movie that would be full of choices in looking for adaptations necessary for the boy, the dog and other living things, like the trees or plants, to survive. Only watch enough to grab their interest and then have the students list or discuss the adaptations they saw (don't let them just look at the person and/or animals).

Suggestions for Assessment:

- oral presentation with data/results of the activity, from the group
- crossword puzzle (clues of adaptation define an environment) for each student or in pairs
- written report - student must provide information on that animal's adaptations.

References and Resources:

Far from Home. Borsos, Phillip, 1995. 20th Century Fox/FoxVideo. Beverly Hills, CA

Don't Let Me Die Student Worksheet

Purpose:

Show what types of adaptations might arise for your model organisms that would allow them to survive in their environment.

Objectives:

- You must work together.
- Create an adaptation for your model organisms using the supplied materials.
- Test the use of the adaptation with the model organism in its environment.
- Explain, using a poster, how your adaptation helped the model organism survive **or** why it did not survive.

Definition: Adaptions are genetic characteristics that allow an organism to survive and reproduce in a particular environment. Organisms do **not** acquire adaptations after they are born.

For the Record: The characters in each of the following scenarios are not real and neither are their stories. But if they were real organisms, you might be able to use your scientific knowledge to predict which organisms were born with characteristics that would allow them to survive in a new environment. If these organisms survive and reproduce, they will pass this characteristic on to their young.

You have:

- The *Rock Salt* has been forced out of its own environment because of a developing community. It is pushed to a region of solid ice.
 - **Don't let it** dissolve or melt its environment or it will die. (That is, show what kind of characteristic your "rock salt" might have that would allow it to survive in this environment.)
- The *candy bar* was relocated after a killer bacteria was identified in its original environment. It was determined that in order to prevent the bacteria from following, it had to go to an icy region.
 - **Don't let it** get cold or it will die.
- The *sugar cube* once was safe from the dangers of the water. Now heavy rains in the higher regions are pushing flood waters into the area. With no place else to go, the water will come.
 - **Don't let it** get wet or it will die.
- The *marble* has been chased from the comforts of its island by an overpowering predator. The climate of and around the island is perfect so it must go live on the water.
 - **Don't let it** sink or it will die.
- The *feather* is living in the city with other feathers and a huge explosion has sent a toxic syrup everywhere.
 - **Don't let them** get sticky or they will die.

- The *shredded wheat biscuit* migrates from a region on a mountain to a valley below four times a year, but now a river of milk has forged a gorge that *it* must swim each time.
 - ***Don't let it*** get wet and soggy or it will die.
- The *cardboard square* lives in the dark caves of a dormant volcano. Now after many years the volcano is beginning to erupt. It likes the warmth but will not leave the dark caves. The volcano spews fire and ash into the cave areas now and then.
 - ***Don't let it*** get burned or it will die.