

## WHAT GOES AROUND COMES AROUND!

**WebQuest Description:** This webquest was designed with the intention to be used by teachers with students in the Science classroom to enhance learning of the Nitrogen Cycle. This webquest consists of activities and tasks that takes the student on an adventure on the processes occurring in the nitrogen cycle. This webquest places an emphasis on understanding the importance of maintaining nitrogen balance to sustaining life in our ecosystem.

**Grade Level:** 9-12

**Curriculum:** Science

**Keywords:** Nitrogen Cycle, Pacific Islands, environment, ecosystem, blue baby syndrome, eutrophication, leaching and acid rain

**Published On:** 2010-11-07 15:19:38

**Last Modified:** 2010-11-06 15:49:40

**WebQuest URL:** <http://zunal.com/webquest.php?w=76216>

### Introduction

Image Source adapted from <http://www.talktalk.co.uk/reference/encyclopaedia/hutchinson/m0008077.html>~ WELCOME TO THIS WEBQUEST ~Today

you will embark on an exploration of the Nitrogen Cycle. You will delve into the processes by which the element nitrogen gets recycled within our ecosystem. You will also learn about human activities and natural disaster that can change the nitrogen balance causing detrimental effects to our environments and health.

Central to the understanding of this concept is your ability to relate the importance of maintaining nitrogen balance in your environment to sustaining life in your community. The short video shown below highlights some of the drastic issues that are threatening our environment as a result of an imbalance in the nitrogen level present in our ecosystem due to various human activities. Scroll down and click play to watch the video. In this quest, you will be given some tasks to complete to help you learn and understand the Nitrogen Cycle and its significance to life. Simply click on the template "Task" on the left to take you there.

### Tasks

(Image Source: Fiji ONE News) Task 1: Discovery Task

You will be required to study in detail the main processes within the Nitrogen Cycle that is responsible for recycling the element Nitrogen within our ecosystem. Exploring the Nitrogen Cycle can be done through watching a few animations and videos. You will be required to attempt a few quizzes and fun games in order to test and evaluate your understanding of the Nitrogen Cycle.

Task 2: Evaluation Task

You will be given an article reporting various human activities that affects the Nitrogen Cycle and its consequences on the surrounding environment. You are required to download a worksheet where you will answer the questions given using the article provided. Task 3: Journalistic Task

You will provide a report on "The elevated number of Blue babies as a result of poor Water Quality". This report will be based on your information gathering skills and ability to collate information and provide a short report on Blue-baby Syndrome. Your report will go on this week's newspaper to help raise public awareness within your country.

### Process

Image Source: <http://mwrc.bio.cmich.edu//nitrogen.htm>

Activity

#1: EXPLORING THE NITROGEN CYCLE

You will explore the Nitrogen Cycle by watching a few animations and video. Make your own note by focusing on the name of the processes, what happens in each process, the microorganism responsible for each process and the significance of this cycle to life on earth.

Scroll down to Resources and click on Resource 1 to watch an animation of the Nitrogen Cycle. After watching the first animation, click on Resource 2 and Resource 3 to watch the second animation and the video on Nitrogen Cycle if you still want to learn more about this cycle.

Once you have read watched the animations and video, find out how well you understand the Nitrogen Cycle by attempting Quiz #1 and Quiz #2.

For further readings on this concept, click on the readings in Resource 9 and 10.

#### Activity #2: HUMAN ACTIVITIES ENDANGERING THE NITROGEN CYCLE

In this activity, you will study about some of the human activities that may affect the Nitrogen Cycle. An imbalance in the Nitrogen Cycle has been found to have drastic environmental and health effects. Download Resource 6 which is an article that reports the various human activities that's endangering the Nitrogen Cycle. Also download Worksheet 1 (Resource 7) and fill it in using the information from the article. Study carefully the human activities reported in the article and the consequences it entails.

When you have completed Worksheet 1, download the Marking Key (Resource 8) and evaluate how well you master the effect of the stated human activities on your environment.

#### &nbsp;Activity #3: NEWS REPORT – “BLUE BABY SYNDROME”

You are required to carry out a journalistic task where you will investigate and write a short report on the case of “Bluebabies”. Read through Resource 11 which reports a case of elevated number of bluebabies in Gaza. Study the causes of this health disorder by reading through Article 3 and Article 4 (Resource 12 and Resource 13) and write a report to be published on this week’s newspaper to help raise the awareness of your community on the causes and symptoms of bluebabies.

Your news report must show clearly how the nitrogen cycle and balance in your ecosystem is related to causing “Blue-baby Syndrome”.

Once you have written your news report, download the Marking Criteria in Resource 14 and check your report against the criteria of a good newsreport that will raise public awareness of this issue.

## Evaluation

Use the rubric below to evaluate your understanding of the concept of the nitrogen cycle.

&nbsp;

Beginning  
1

Developing  
2





(Image Source: <http://www.teachersdream.co.za/>) This site was designed as an assessment component of ED350 for teacher educators at the University of the South Pacific. Its intention is to aid teachers and students in the Pacific Island Countries in teaching and learning of the Nitrogen Cycle. Our group created this webquest for Science/Biology Class at Form 5 and Form 6 level. This site covers details on the processes of the Nitrogen Cycle and its significance to sustaining life in the Pacific. It also covers possible human activities that threaten our ecosystem by imposing drastic effects on the Nitrogen Cycle. SUGGESTIONS FOR TEACHING Apart from teaching Nitrogen Cycle using a scenario type of learning as shown in this webquest, we also suggest other alternative ways of teaching nitrogen cycle. These include: 1. Persuasion Tasks This goes beyond simple retelling, whereby students build a case based on what they have read. This could come in the form of a presentation, writing a letter or designing a video. 2. Scientific Tasks Have students carry out scientific investigations using the internet to make hypothesis based on understanding the background information. Test hypothesis by gathering data from pre-selected sources and determine whether the hypothesis were supported and describing the results and implications in standard scientific report.

#### **Standards**

#### **Credits**

#### **Other**