DATE: NAME: CLASS:

CHAPTER 2

Comparing Available Energy

BLM 1-18

Goal • Record your data from Find Out Activity 2-1B, Comparing Available Energy.

What to Do

Use this chart to record your data from Find Out Activity 2-1B on page 65 of your student book.

Pyramids of Energy			
Temperate Deciduous Forest Energy Pyramid	**Energy Present (kcal/m²)**	**Length of Paper Strip (mm)**	**Energy Lost as Heat (kcal/m²)**
Producers			None
Primary consumers			
Secondary consumers			
Tertiary consumers			
Coniferous Forest Energy Pyramid	**Energy Present (kcal/m²)**	**Length of Paper Strip (mm)**	**Energy Lost as Heat (kcal/m²)**
Producers			None
Primary consumers			
Secondary consumers			
Tertiary consumers			

Sc10 Ch2
Handouts

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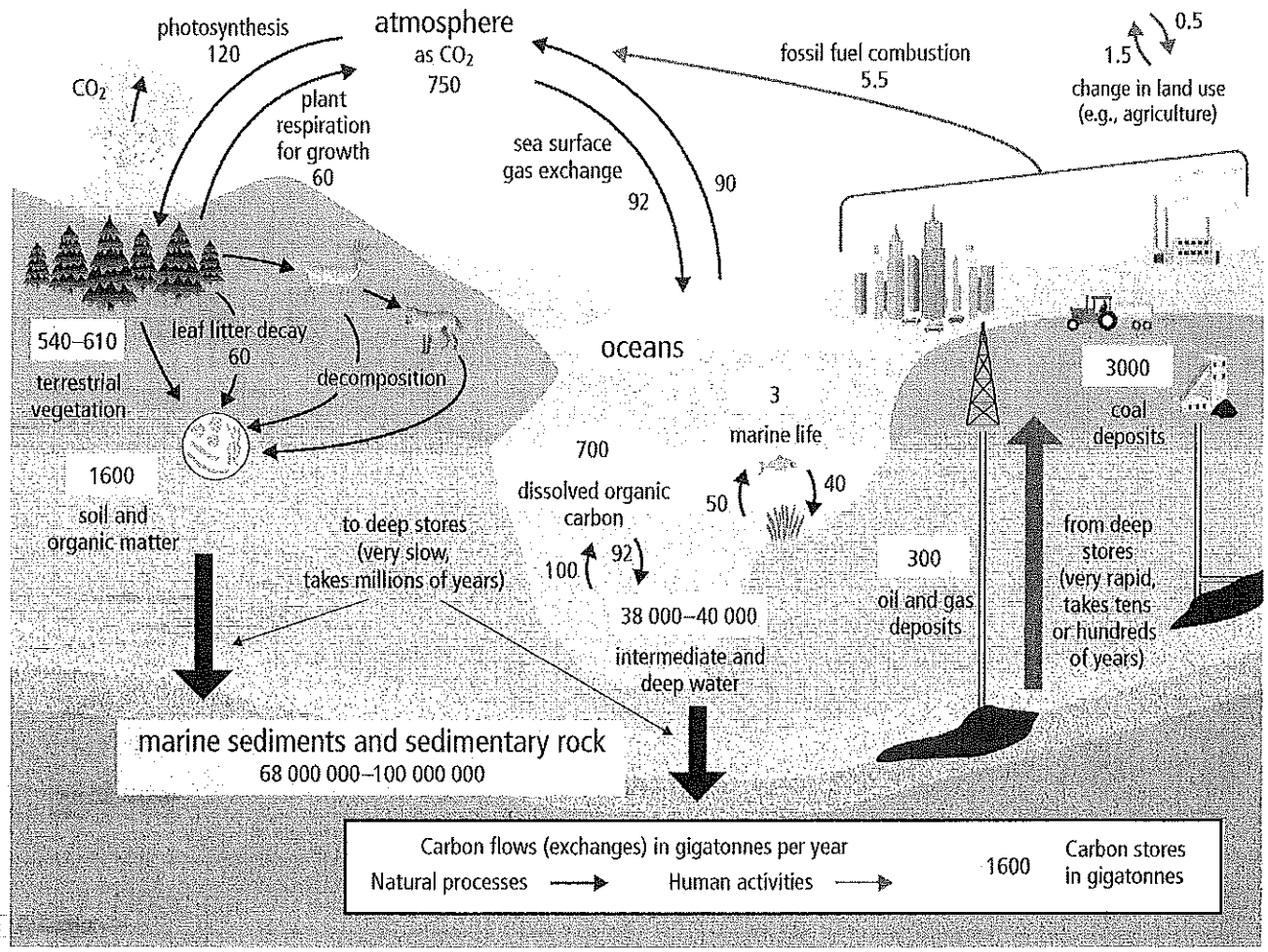
CHAPTER 2

The Carbon Cycle

BLM 1-19

Goal • Use this page to review the carbon cycle.



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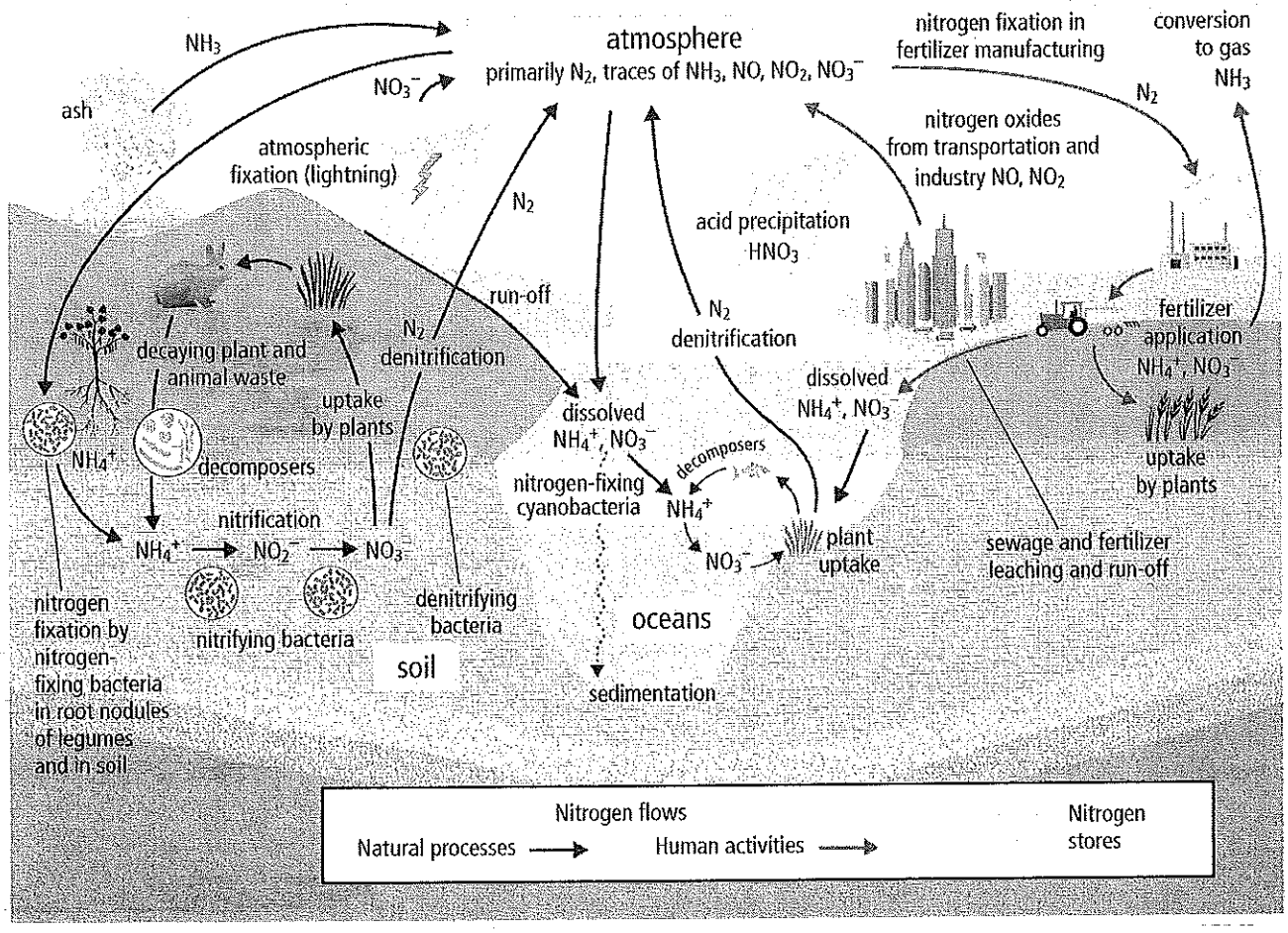
DATE: NAME: CLASS:

CHAPTER 2

The Nitrogen Cycle

BLM 1-21

Goal • Use this diagram to review the nitrogen cycle.



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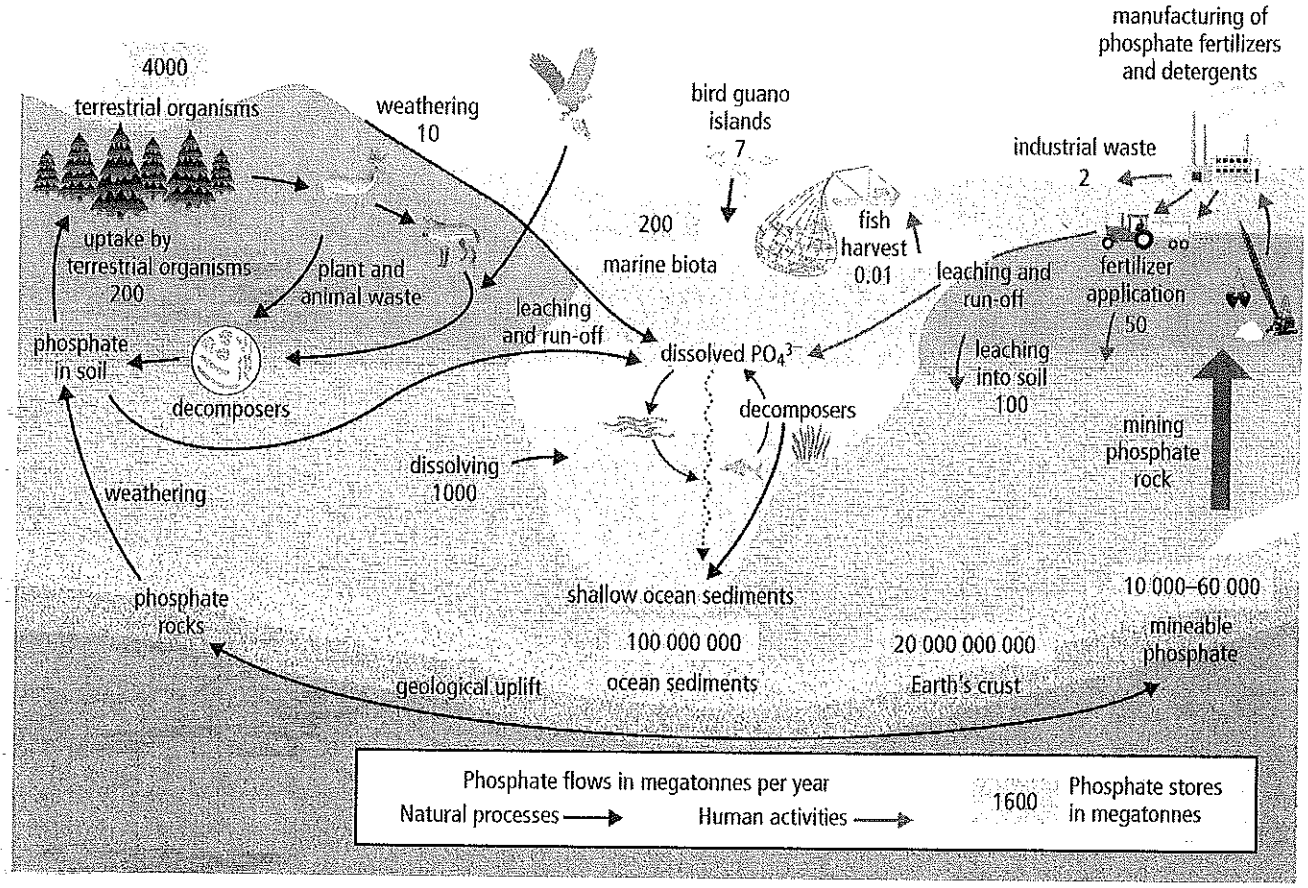
CHAPTER 2

The Phosphorus Cycle

BLM 1-24

Goal • Use this diagram to help you study the phosphorus cycle.



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CHAPTER 2

Ecosystem Passport

BLM 1-27

Goal • Use this page as part of Find Out Activity 2-2B, The Amazing Nutrient Cycle Race, on page 87 of the student book.

What to Do

1. Complete your start location information in the space provided.
2. Roll the die to determine your next destination. Write down your alias and your method of transport in Trip #1 box.
3. Go to that reservoir location in the room and apply a sticker for that destination. Then, roll the die to determine your next destination.

I began as _____

at the _____ reservoir.

Trip #1: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:	Trip #2: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:	Trip #3: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:
Trip #4: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:	Trip #5: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:	Trip #6: My alias: _____ My method of transport: _____ Reservoir station arrival confirmation:

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CHAPTER 2

Questions about the Nitrogen Cycle

BLM 1-22

Goal • Use this page to record information about the nitrogen cycle.

What to Do

Read the following questions. Complete the answers as you read pages 78–83 in your student book.

	Points to Know
Why is nitrogen necessary for living organisms?	
How is nitrogen stored?	
How is nitrogen cycled through the ecosystem?	
What is nitrogen fixation?	
What is nitrification and uptake?	
How does nitrogen return to the atmosphere?	
How is excess nitrogen removed from ecosystems?	
How do human activities affect the ecosystem?	

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CHAPTER 2

Know Your Nitrogen

BLM 1-23

Goal • Use this page to learn terms about nitrogen.

What to Do

Cut out the terms on the left, pair each with the correct definition on the right, and paste them together on another sheet. Or make flash cards by pasting the definition to the back of the term.

Terms	Definitions
Nitrogen fixation	The process of making nitrates
Denitrification	Provide nitrogen for the host plant and in return obtain sugars
Nitrifying bacteria	Certain bacteria that convert nitrate back into nitrogen gas
Nitrate	NO_2^-
Nitrogen uptake	Nitrogen gas is converted into nitrate using electrical energy from lightning.
Nitrification	The process where nitrates are converted into nitrogen gas
Ammonium	N_2
Denitrifying bacteria	The process where nitrates enter plant roots
Nitrite	NH_4^+
Nitrogen-fixing bacteria	Certain bacteria that convert ammonium into nitrite or nitrite into nitrate
Nitrogen	NO_3^-

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DATE: NAME: CLASS:

CHAPTER 2

Ecosystem Review

BLM 1-26

Goal • Use this page to review your understanding of ecosystems.

What to Do

Circle the best answer.

1. Which of the processes listed below removes carbon dioxide from the air?
   A. acid precipitation
   B. respiration
   C. photosynthesis
   D. nitrification

2. What is a hawk an example of?
   A. decomposer
   B. producer
   C. primary consumer
   D. top carnivore

3. Which of the following processes adds carbon dioxide to the air?
   A. respiration
   B. nitrification
   C. photosynthesis
   D. nitrogen fixation

4. Which of the following is an abiotic part of an ecosystem?
   A. tree
   B. fungus
   C. water
   D. bird

5. Which of the following is most likely a decomposer?
   A. nitrogen
   B. fungus
   C. rock
   D. bird

6. Which of the following best defines an ecosystem?
   A. a group of organisms that can interbreed
   B. smaller organisms that get eaten by larger organisms
   C. the feeding level of an organism in a food chain
   D. all of the interactions between living things and their environment

7. What is the term for the total weight of living things living in an area?
   A. biotic community
   B. food web
   C. biomass

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D. pyramid of numbers

8. How is nitrogen removed from the atmosphere?
   A. by nitrifying bacteria
   B. by denitrifying fungi
   C. by mosses and lichen
   D. by nitrogen-fixing bacteria

9. Why is Earth referred to as a closed system?
   A. Little new material is added from the outside.
   B. It is a biosphere.
   C. It can make all of its own material.
   D. Dead materials decompose to provide fertilizer.

10. What causes most acid precipitation?
    A. acids in water
    B. sulfur and nitrogen-containing gases in the air
    C. chemical wastes dumped into lakes and streams
    D. the build-up of toxins in water

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CHAPTER 2

Heavy Metals

BLM 1-31

Goal • Use this page to record what you learn about heavy metals.

What to Do

Complete the template as you read pages 97–98 of the student book.

Metal	Environmental Sources	Effects on Organisms	Effects on Humans
Lead			
Cadmium			
Mercury			

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