

Classic Science

STUDENT COPY

FOR THE
FAMILY

WHO ARE YOU
TALKING TO?



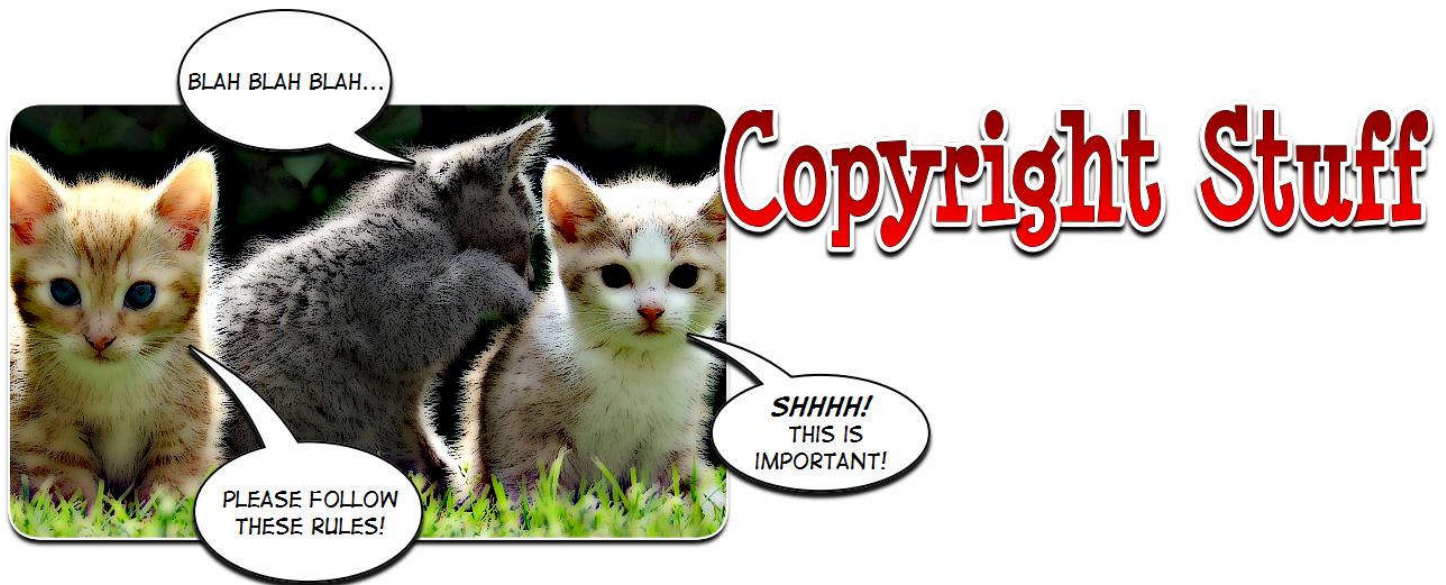
ELEMENTARY LIFE SCIENCE

The lab of
MR. Q

zzzzzzz...



Scott McQuerry



First of all thank you very much for choosing to use this book with your family. You will not be disappointed! I have been asked by several families the same question, “**Who** are you and **why** are you doing this?” Without going into great detail, E=McQ is owned, operated and stressed over by me. Yep... little o’ me. I am an educator by profession and began working with homeschool families several years ago while offering free programs to area families to explore various concepts in science. I guess I can’t stop doing what I love!

This product is the fruit of my eleven-year labor in science education. Having worked with homeschool families over these years I have gained an appreciation for your needs, struggles and wants. I could not make this curriculum any simpler for your child to master the concepts of science. It is completely reusable, cheap (free is good... free is our friend), adaptable to various needs at home and as fun as humanly possible.

Like I said, I am an “army of one”. I have no problem with you using this one copy for your entire family. If your friends are asking to borrow your copy to use throughout the year, please ask them to read this copyright page and go to my website: www.eequalsmcq.com. If you are part of a CO-OP or other similar group of homeschool families that are planning on using this curriculum, I would LOVE to hear about it! Please let me know what you are doing!

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Table of Contents

Unit 1	Basic Needs/Resources	Pages
Chapter 1	Living and Non-Living Things	1-7
Chapter 2	Material and Non-Material Resources	8-15
Chapter 3	Reduce, Reuse and Recycle	16-23
Chapter 4	Habitats and Niche	24-33
Unit 2	Biomes	
Chapter 5	Grasslands and Forests	34-43
Chapter 6	More Forest Biomes	44-53
Chapter 7	Tundra and Desert	54-63
Chapter 8	Aquatic Biome	64-73
Unit 3	Life Cycles	
Chapter 9	Species and Offspring	74-83
Chapter 10	Plant Structure	84-93
Chapter 11	Reptiles and Amphibians	94-103
Chapter 12	Birds, Mammals and Insects	104-115
Unit 4	Classification	
Chapter 13	Classifying Animals	116-128
Chapter 14	Classifying Plants	129-138
Chapter 15	Classifying Fungi and Protists	139-148
Chapter 16	The Bacterial Kingdoms	149-159
Unit 5	Food Webs	
Chapter 17	Food Chains	160-170
Chapter 18	Food Webs	171-180
Chapter 19	Famine, Disease and Viruses	181-191
Chapter 20	Conservation Efforts	192-201

Unit 6	Senses	Pages
Chapter 21	Taste and Smell	202-212
Chapter 22	Vision, Hearing and Touch	213-223
Chapter 23	"Other" Senses	224-233
Chapter 24	The Brain	234-242
Unit 7	Body Organs	
Chapter 25	Skin, Muscle and Bone	243-254
Chapter 26	Heart and Lungs	255-264
Chapter 27	Stomach, Intestines and Kidneys	265-274
Chapter 28	Pancreas, Liver and Gallbladder	275-283
Unit 8	Cells	
Chapter 29	Cells 101	284-292
Chapter 30	Organelles Part I	293-303
Chapter 31	Organelles Part II	304-317
Chapter 32	Bacterial Cells	318-327
Unit 9	Health and Nutrition	
Chapter 33	Hygiene and Health	328-338
Chapter 34	Immune System	339-348
Chapter 35	Nutrition	349-358
Chapter 36	Drugs and your Body	359-367
Glossary		368-401



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Author: Scott McQuerry

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CHAPTER 1

Let's face it, the world is a big place! There is a lot of stuff here! We have all kinds of living creatures around, inside, below and above us at all times. Each of these living things is known as an **organism**. An organism is any living creature on the planet. Organisms can also be called **biotic** objects.

Now remember that living organisms include all creatures: dogs, cats, trees, bees, mushrooms, pond slime (yes, pond slime!) and even that weird green stuff that



grows on your food after you leave it out for a few days! That "green stuff" is called mold and it is very much alive! So what does it mean for an organism to be "alive"?

To be alive, you must:

- use food
- grow
- react to changes in your **environment** (environment is a big word that means "everything in the world")
- **reproduce** (to reproduce, an organism must be able to make another organism of its own kind)
- breathe

Is everything a living organism?

No, not everything you see in nature is a living organism. Some things you see in nature are nonliving. These nonliving things are called **abiotic** objects.

Some nonliving items are:

Air	Sunlight
Water	Wind
Nails	Crayons
Plastic	And much, much more!

Now back to living organisms...

You know what a living organism is. Let's look at what they need to stay alive. Since there are so many different creatures out there, where do we begin?

Let's start by looking at how alike we all are. (and I'm not just talking about how you and your best friend like the same kind of pizza!) Most living organisms need the same things to survive. An animal needs air, water, food and shelter to stay alive. A plant needs air, water, **nutrients** (a big word, which means "food") and light.

If you compare plants and animals, you will see they both need air, water and some form of nutrients (or food) to survive! It sounds simple doesn't it? But have you ever seen a plant pick up a cheeseburger for dinner or how about a baby growing out of a flower pot? Of course not!

But what makes organisms different?



Both plants and animals need air, water and food to stay alive. That is one thing that makes us alike. What is different is **HOW** we get the air, water and food into our bodies.

Please don't go looking for a nose on the tree in your front yard! It doesn't have one, does it? A tree takes in air differently than we do.

But... What would happen if you take away food, air or water from an animal? It will soon die, right? This can happen with plants as well. Have you ever forgotten to water a plant in your house for a few days? How long did it take for that green, leafy plant to turn into a brown stick? Probably not very long!

Plants and animals need these basic **resources** to stay alive. Resources are the basic things that a group of similar organisms can use every day.

A group of similar organisms living in the same area is called a **population**.



Match the words in the first column to the best available answer in the second column.

- | | |
|-----------------|---|
| ___ Biotic | 1) nonliving things in the environment |
| ___ Population | 2) another word for organism |
| ___ Resources | 3) everything in the world |
| ___ Reproduce | 4) another word for food |
| ___ Organism | 5) any living creature on the planet |
| ___ Environment | 6) a group of similar organisms living in the same area |
| ___ Nutrients | 7) able to make another of its own kind |
| ___ Abiotic | 8) the basic things that an organism can use everyday |

Which one is right? Circle the correct answer.

1. What is another name for an organism?

- a) abiotic
- b) biotic
- c) population

2. Which of these do you not need to be alive?

- a) grow
- b) breathe
- c) sleep

3. Which of the following is an abiotic object?

- a) a bird
- b) water
- c) pond slime

4. What do plants and animals need to survive?

- a) air and water
- b) water and food
- c) air, water and food

5. Which of the following is an example of a population?

- a) a dog
- b) a parent
- c) a herd of cows

6. Plants and animals are different because they?

- a) need air, water and food to survive
- b) get air, water and food into their bodies in different ways
- c) use different abiotic resources

Write down three biotic and three abiotic objects from the picture.



Biotic

Abiotic

CHAPTER 2

In the last chapter, you learned that a group of organisms within an environment are known as a population. You also learned that most of the living organisms in these populations:

- use food
- grow
- react to changes in their environment
- reproduce
- breathe
- and move

**These
things
make an
organism
alive!**



All organisms need biotic (living) and abiotic (nonliving) resources in order to stay alive. The biotic resources organisms need would include nutrients and food. Air and water are abiotic resources that organisms must also have to stay alive.

So far, we have been looking at what you **NEED** for an organism to survive. A **NEED** is something you must have in order to stay alive like air, water and nutrients.

There are times I feel that I **have** to eat some chocolate, but that is not something I need. That feeling is called a **WANT**. I may **WANT** to eat a whole bowl of chocolate, but I do not **NEED** chocolate to survive. I **NEED** things like vegetables and fruits to survive!

A **WANT** is something that you do not have to use to survive, but you would still like to have it.

NEEDS and WANTS are alike in one important way...

Our
WANTS
use
resources
just like
our
needs!



Remember that resources are the basic things that a group of similar organisms (population) can use everyday.

(I'm sorry for saying this again... but it is really important!)

We **NEED** air, water and food to survive. But, now and then, I still **WANT** to eat a bowl of ice cream. Do I **NEED** the ice cream? No. Do I **WANT** the ice cream? Oh yeah!

Now we are going to look at where these resources come from....

All resources can be split into two groups:

Material resources - These are resources you can touch. Gas for a car, wood for building homes and food are all resources that you can touch. The rule is: If you can touch it and use it, you would call it a material resource.

and...

Nonmaterial resources - These are resources that you cannot touch. Happiness, peace, feelings of safety and love are all nonmaterial resources. You may not be able to touch them, but they are all things you need!

Material resources (things you can touch) can be split into two groups:

Renewable resources and Nonrenewable resources

A **renewable resource** is a resource that can be made again. Living organisms are all renewable resources. They are also material resources...because you can touch them, can't you?

The food we eat or the wood for building homes can be made again, or renewed. An apple tree will make apples every year, right?!?! Of course it does! If the apple tree dies, the apple seeds can be used to make new trees! The

dead tree can be cut down and a new apple tree can be planted. After the tree is cut down, the wood from it can be used to build homes.



Renewable resources are very important to living organisms. Without renewable resources, we would quickly use everything up in the environment. If the environment is used up, we would not be able to survive.

Nonrenewable resources are also very important to living organisms. These resources take a long time to be made again (thousands of years). Sometimes it cannot be made again at all! The gas you put in a car would take thousands of years to be made again. Because gas will take so long to make again, it is a nonrenewable resources.

Match the words in the first column to the best available answer in the second column.

- | | |
|--------------------------|--|
| — Material resources | 1) resources you can touch like gas and wood and food |
| — Need | 2) a resource that can be made again like living organisms |
| — Nonmaterial resources | 3) resources that can take a long time to be made again (thousands of years!) |
| — Nonrenewable resources | 4) resources that you cannot touch like happiness and peace and feelings of safety |
| — Renewable resource | 5) anything you feel like having that is not a need |
| — Want | 6) something you must have in order to stay alive like air and water and nutrients |

Draw a picture of your home. Be certain to include everything you need to survive in your drawing. You may also add many of your wants in your drawing too!

Label everything in your picture as either a need or a want.

CHAPTER 3

In chapter two you learned how our needs and wants use resources from the environment. These resources can be made from things we can touch (material resources) or things we cannot touch (nonmaterial resources).

You also learned that some resources are renewable (like trees and chickens) while others cannot be renewed (like gas for cars). It is important to take care of our environment...

Why ?

Because...

All living organism depend on each other to survive. This means all of the resources in our environment

must be **shared** by all living organisms. Taking care of the environment helps us to survive.



But how do we do this?

One way we can take care of our environment is by looking at what we throw away!

If you look at most trash that is thrown away, you will find the following things:

- Paper
- Yard waste
- Food scraps
- Plastics
- Metal
- and glass...

But what happens after you throw that old box away in the trash? It doesn't disappear, does it? Of course not!

A large truck picks all of the trash in your trashcan up. The truck takes your trash to a **landfill**. Landfills are large fields where trash is dumped and buried.

Landfills are **HUGE!** How often does the trash truck pick up your trash? Usually, it is once a week. Each time the trash truck comes by, there is usually two or three bags of trash to pick up.

Now imagine all of your trash being placed into a pile. Now imagine your neighbor's trash in that pile, and their neighbor's trash, and so on.... **that is a lot of trash!**

Landfills may be huge, but there are a lot of people putting a lot of trash into them... It doesn't take too long for a landfill to fill up! So how do we reduce the amount of trash we throw away?

Good question!

You can use the three R's

Reduce - using less resources

Reuse - using your resources again *without* changing them

Recycle - using your resources again *after* changing them

IT DOESN'T TAKE LONG TO TURN THIS...



...INTO THIS!



You can **reduce** and **reuse** your resources everyday! Here are few ideas:

- Try not to use a dozen paper towels to clean up that drink you spilled. Why not use a sponge or rag? You can always wash and reuse that sponge or rag!
- Use both sides of your paper before getting a new one!
- Don't throw away old clothes. Have a yard sale or donate the items to a local charity.
- Reuse those old plastic butter containers for leftovers and to store stuff!

You can **recycle** many resources at home:

- Paper
- Plastic
- Glass
- Metal

**These are resources
you can recycle at
home!**



When you recycle these important resources, you have to make some changes in them before you can use them again, right? You wouldn't take an empty pop bottle out of the trash, fill it back up with more soda, and give it to someone for them to drink it. **That is yucky!**

To be recycled, plastic, glass and metal are all melted down in large ovens. After they are melted down, they are made into new and different objects.

Recycling paper is a little different. Most paper is chopped up and added to a large amount of water. The paper looks like a large pile of goo which can be dried to make new paper.

Does it take time to put your trash into piles? **Yes!**

Does it help the environment? **You bet it does!**

But why do I have to recycle?

Recycling reduces the amount of trash and lets us reuse many resources! Pretty cool, huh?!?

Many towns have recycling centers where you can take your recycled paper, plastic, glass and metal to be reused!

Unscramble the words below:

(Hint: check out the bold-faced words in your reading!)

1. rseue _____

2. erlycce _____

3. eeurdc _____

4. ilnaldfl _____

Write the definitions for each word:

1.

2.

3.

4.

Match the words in the first column to the best available answer in the second column.

_____ landfills

1) using less resources

_____ Reduce

2) using your
resources again
without changing
them

_____ Reuse

3) using your
resources again
after changing
them

_____ Recycle

4) large fields where
trash is dumped and
buried

List five ways to reduce the amount of trash in your home.

(other than the ones you learned about in your reading!)

1. _____
2. _____
3. _____
4. _____
5. _____

List five new ways you can reuse things in your home.

1. _____
2. _____
3. _____
4. _____
5. _____

CHAPTER 4

In chapter three you learned that much of our trash ends up in a landfill. However, not all of our trash has to end up there. By reducing, reusing and recycling our trash, some of it can be used again!

Humans (that means you and I) have the job of protecting our environment. But how can one person change the whole environment? That is not easy to do...The environment contains everything in the entire world! That is a huge amount of space!

The best thing may be to start with the area around us, like our homes and towns.

Let's look at this smaller area...

The place where an organism lives in the environment is known as its **habitat**. The town you live in would be your habitat. This is where you sleep, play, find food and spend most of your time!



What an organism does in its habitat is known as its **niche** (this is a tricky word...try saying "nitch"). Playing with your friends, going to the grocery store and riding your bike are all a part of your niche!

Reducing, reusing and recycling trash in your habitat can also be part of your niche...

Because there are so many humans, we can change the environment a lot!

Humans can affect the environment in three different ways:

- We take resources from the environment like food, wood and water.
- We also add things to the environment, like smoke and trash.
- We can also replace the environment with something else. Have you ever seen a group of trees being removed and a new road or building placed there? This is another example of how humans can change the environment.

When humans take resources from the environment, add things to the environment and replace the environment with something else...

...we can change the world a lot!

In fact, humans have changed the environment a lot to improve their lives. Sometimes these changes are not very good for the environment. Some populations (groups of similar organisms) have been hurt by the changes we have made. When we remove trees to build homes or stores, all of the organisms that lived in those trees have to move,

right? These organisms have to find new trees for homes or they may not survive.



It is good that we can build homes to keep us safe. But sometimes the things that help us can hurt other organisms!

Now it is not just humans who change the environment. All organisms cause changes too. Ants eat food and drink water in their habitat. They also replace the environment with something else... anthills! Ants move sand from their habitat to create homes. This is their niche!

Now I hope you are not worried that ants are causing too many problems in the world! There is no need to squish every ant you see!

Please do not do that!

Ants can cause changes in the environment, but their changes are small.

In fact, the bigger the organism, the bigger the changes that can be done to the environment. Humans cause more changes to the environment than ants!

In order to improve our lives, humans sometimes take away the basic needs of other organisms. It is our job to take care of our environment. If we don't, resources may get used up for ourselves or other organisms!

But we can always grow more
living organisms, right?

NOT ALWAYS!

Living organisms are renewable resources! Maybe an example will help you understand...

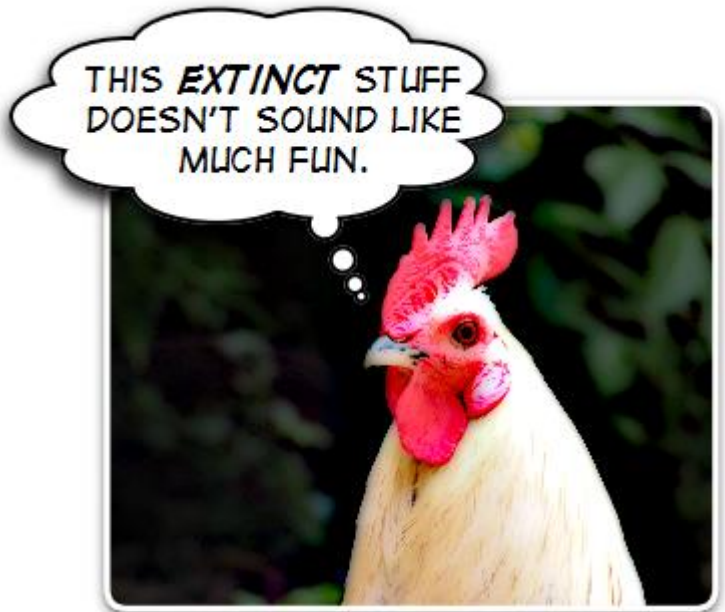
What if we ate all of the chickens in the
environment?

(This is silly, but it would make a HUGE pile of fried chicken!!!)

This has never happened to chickens before, but it has happened to other organisms that were all killed. When all of the organisms of a similar kind (population) are no longer alive throughout the world, the organism has become **extinct** ("x-tinkt"). If chickens were extinct, there would be no chickens anywhere in the world! Now if all of the chickens ended up on our dinner plates, we would never be able to eat another drumstick, or pile of scrambled eggs, or chicken and noodle soup! Yikes!

One organism that has become extinct is the passenger pigeon. Every single passenger pigeon was hunted and killed. Because of this, there will never be another passenger pigeon in the environment.

What I'm trying to say is this - When a population of organisms is no longer alive, there is no way for them to make other organisms of the same kind...



So, by being extinct, this population is not able to renew itself anymore!

Earlier in this chapter I said that it our job to help protect the environment. This is very true! You can help keep our resources from being used up by reducing, reusing and

recycling in your lives! If everyone did this job, we can help protect our environment!

Fill in the blanks with the correct letters. The words in the list on the right provide a clue to the answer.

1) Ha _ ita _

the place where an organism lives in the environment

2) H _ m _ ns

a person

3) E _ t _ nc _

when all of the organisms of a similar kind are no longer alive throughout the world

4) _ i _ he

what an organism does in its habitat

Match the words in the first column to the best available answer in the second column.

- | | |
|-----------|--|
| — Human | 1) when all of the organisms of a similar kind (population) are no longer alive throughout the world |
| — Habitat | 2) a person |
| — Niche | 3) what an organism does in its habitat |
| — Extinct | 4) the place where an organism lives in the environment |

Unit one review

Fill in the blanks in the story below with the following words:

Habitat	Recycled
Need	Reduce
Niche	Reuse
Wanting	

Every day, I wake up _____ a piece of chocolate cake, but I do not eat it! Instead, I go into the kitchen and make something else that I know I _____.

My home is my _____ and fixing my breakfast is my _____.

While fixing my breakfast, I never use paper plates because I want to _____ the amount of trash I make. Instead, I use a glass plate which I can wash and _____. During my breakfast, I drink a can of juice. When I am done, I place the empty can in a special container so that it may be _____.

Be certain to go over your definitions for the test!