

### Summary Description

This is the first in a series of 11 lessons that introduces the student to biology.

### Learning Objectives

To have the student learn a few key facts about ecosystems.

### Approximate Time for Lesson

60 minutes

### Suggested Maturity Level for Instruction

Student should be able to read simple words and perform simple addition and subtraction. Also, student should be able to sit still and engage in one-on-one conversation.

### References:

Habitats - Home Sweet Home, National Geographic -

<http://www.nationalgeographic.com/geography-action/habitats.html>

### Materials Needed

1. Internet Access - Pull up the following:

- a. Urban Map (go to <http://environment.nationalgeographic.com/environment/habitats/urban-map.html>)
- b. Picture of urban ecosystem (go to <http://pixdaus.com/pics/Ne2ar9ABLhYUnqYiZ.jpg>)
- c. Desert Map (go to <http://environment.nationalgeographic.com/environment/habitats/desert-map.html>)
- d. Picture of desert ecosystem (go to <http://www.winvistabeta.com/files%2Fwallpaper2%2Fdesert-landscape.jpg>)
- e. Picture of forest ecosystem (go to <http://www2.kpr.edu.on.ca/cdciw/biomes/forest%20study/DSC00011.jpg>)
- f. Grasslands Map (go to <http://environment.nationalgeographic.com/environment/habitats/grassland-map.html>)
- g. Picture of grasslands ecosystem (go to <http://upload.wikimedia.org/wikipedia/commons/thumb/4/46/Grasslands-menggu.JPG/800px-Grasslands-menggu.JPG>)
- h. Oceans Map (go to <http://environment.nationalgeographic.com/environment/habitats/oceans-map.html>)
- i. Picture of ocean ecosystem (go to [http://3.bp.blogspot.com/\\_9kdC-xglqHw/R1NA74-vkI/AAAAAAAAAU/EB7DJme0aWU/s1600-R/sf-ocean.jpg](http://3.bp.blogspot.com/_9kdC-xglqHw/R1NA74-vkI/AAAAAAAAAU/EB7DJme0aWU/s1600-R/sf-ocean.jpg))

- j. Fresh Water Map (go to <http://environment.nationalgeographic.com/environment/habitats/freshwater-map.html>)
- k. Tundra Map (go to <http://environment.nationalgeographic.com/environment/habitats/tundra-map.html>)
- l. Picture of tundra ecosystem (go to <https://www.msu.edu/course/isb/202/ebertmay/2004/images/Loveland.JPG>)

### **Preparation**

Make sure you have materials open, printed and/or available prior to beginning the lesson.

### **Script**

#### Introduction (5 minutes)

1. **Teacher:** Get ready, because I'm going to teach you about the things living on our earth - bugs, spiders, plants, animals, even living things you can't see with your own eyes, they are all one part of science called biology. Can you say "biology"? [Have the Student repeat the word "biology" several times]
2. **Teacher:** Great, so are you ready to learn about biology? [Get positive response from Student and begin lesson]

#### Lesson (50 minutes)

1. **Teacher:** Good, now, before we start to learn more about the living things on our earth, our first lesson is actually going to be about the different kinds of ecosystems that living things live in. An "ecosystem" is a kind of place that you and other animals live in. For example, some humans live in something called an "urban" ecosystem, which is a place where humans create homes to live in while also creating buildings, roads, shops, supermarkets, and other buildings so that humans can easily live in those environments. Any big city with large buildings is an urban ecosystem. By the way, some people refer to ecosystems as "habitats" or "biomes" - actually they all mean the same thing...a kind of place that animals live in.
2. **Teacher:** Now, just to give you an idea of how large the urban ecosystem is around the world, here's a map that shows the urban ecosystems around the world. [Show Student the Urban Map]
3. **Teacher:** The redder the area on the map, the more urban the ecosystem. So, what do you think about the urban ecosystem? Is it more urban or less urban than you thought? [Engage the Student in conversation]
4. **Teacher:** And here's a great example of an urban ecosystem. Check out this picture and tell me if it's more urban or less urban than where we live. [Show Student the picture of urban ecosystem and engage the Student in conversation]

5. Teacher: Great. Anyway, you'll be glad to hear that people actually live not only in urban ecosystems, but we also live in other ecosystems that don't have buildings, houses, and shops. For example, some people live on farms, called rural ecosystems or they live in sub-urban ecosystems, where there are no big buildings, just homes, shops, and supermarkets. We're not going to learn about these other ecosystems now, but I just want you to know that there are ecosystems other than urban ecosystems that humans can live. Understand? [\[Get positive response from Student\]](#)
6. Teacher: Ok. Now that I gave you an example of an ecosystem, can you give me another example of an ecosystem that plants and animals live in? [\[Engage the Student in conversation\]](#)
7. Teacher: That's right. And the next ecosystem we're going to talk about is a desert ecosystem. You know a desert ecosystem by knowing what's missing from it - water. Of course, that's why it's very dry. Also, it's hot during the day and very cold during the night. Finally, deserts are covered with sand. So do you think that plants and animals can live in a desert ecosystem? [\[Engage the Student in conversation but drive to the point that very few plants such as cacti and animals such as lizards can survive in the dry conditions of a desert\]](#)
8. Teacher: And now, let's see what a typical desert ecosystem looks like. [\[Show the Student the picture of a desert ecosystem\]](#) And here is a map of all the deserts of the world. [\[Show the Student the Desert Map\]](#) The yellow color represents the deserts. Now, that you had a look at all the desert ecosystems in the entire world, did you expect deserts to be more, less, or about the same than what you thought? [\[Engage the Student in conversation\]](#)
9. Teacher: Good. Now, another ecosystem is called a forest. You may have already heard about this ecosystem, but a forest is one that is covered with trees with no buildings or anything that humans have built on top of it. So, how much of the earth's land do you think is covered with forests? I'll help you answer the question in another way. Say that the earth's land (I'm not counting the oceans or seas here) is made up of 10 blocks. How many of those 10 blocks do you think are forests? One block? Five blocks? Eight blocks? [\[Engage the Student in conversation\]](#)
10. Teacher: That's a good guess. Actually, 3 blocks of the total 10 blocks of the earth's land is covered by forests. And there are many different kinds of forests. For example, a tropical forest is a forest that is hot and humid. "Humid" means the air makes your skin feel sticky and wet. I'm not going to explain each kind of forest in this lesson since that would take too much time, but you just need to know that there are many kinds of forests in our world. And here's an example of what a forest ecosystem looks like. [\[Show the Student the picture of a forest ecosystem\]](#)
11. Teacher: Ok. So the next kind of ecosystem is called grassland. Grasslands are also called prairies, plains, savannas, and steppes (spelled s-t-e-p-p-e-s). Why do you think they

call this ecosystem “grasslands”? [\[Engage the Student in conversation but come to the point that this ecosystem is called grasslands because there’s a lot of tall grass covering this ecosystem\]](#)

12. Teacher: That’s right. There’s a bunch of grass and not much else in the grasslands ecosystem. Actually, here’s a picture of what a grasslands ecosystem looks like. [\[Show the Student the picture of a grasslands ecosystem\]](#) In fact, here’s a map of all the grasslands in the world. [\[Show the Student the Grasslands Map\]](#)
13. Teacher: There’s one more major ecosystem on the land’s surface that we didn’t talk about. This is called the tundra. Can you imagine nothing but snow and ice for as far as you can see? Think about it, not much grass or trees, except in the summer when the snow melts a bit. Well, that’s exactly what tundra is. Here’s a picture of tundra ecosystem, shown in yellow. [\[Show the Student the Grasslands Map\]](#)
14. Teacher: Notice that tundra is located at the tips of the Earth, on top and bottom. That’s no surprise because most ice and snow is located at the top and bottom of the world. And this is what a tundra ecosystem looks like. [\[Show the Student the picture of a tundra ecosystem\]](#)
15. Teacher: So, what I’ve talked about so far are the ecosystems that you will find on land. Let’s look at two kinds of water ecosystems. The first ecosystem is called the ocean. You might have already heard about oceans. They are very large bodies of water that taste like salt...this is because they actually have a lot of salt in them. Here’s a picture of an ocean ecosystem. [\[Show the Student the picture of a ocean ecosystem\]](#) By the way, do you know how many oceans are in our world? [\[Engage the Student in conversation\]](#)
16. Teacher: Well, this is a bit of a tricky question. Long ago, people thought that there were 4 oceans – the Atlantic, the Pacific, the Indian and the Arctic. But not so long ago, scientists thought that the water area near the bottom of the earth was also an ocean, called the Southern Ocean. So today, there are 5 oceans. Here’s a picture of where all the oceans are in our world. [\[Show the Student the Oceans Map and point out the name of each ocean. The Southern Ocean, not labeled on the map, is located just above Antarctica \(bottom of the map\)\]](#)
17. Teacher: Well, as you can see, almost all the water found in our world has salt in it. But there are a few areas in the world that actually have fresh water that you can drink. In fact, if you could imagine that all the water in the world is made up of 100 blocks, only 3 of those blocks are fresh water and the other 97 blocks are salt water. Here’s a map of all the fresh water in our world. [\[Show the Student the Fresh Water Map – fresh water is denoted in yellow\]](#)
18. Teacher: Wow, you can barely see the fresh water in our world on that map. Also, most of the fresh water in our world is either frozen or found underground.

19. Teacher: Anyway, the reason why I talked about ecosystems first before talking about the living things in our world is because ecosystems are very very important to how living things survive in those ecosystems. For example, most fish need salt water to live, so they need to live in oceans and where other salt water is located. If you were to put those same fish in another water ecosystem, like a fresh water lake, then those fish would die. And so, this is why knowing about each kind of ecosystem is important before we talk about life on Earth. Understand? [\[Engage the Student in conversation\]](#)
20. Teacher: Ok – time for review, stand up and get in front of the class (consider inviting other members of the family also to set the stage). [\[Ask Student the following:](#)
- a. Which ecosystem has very little water and trees and is usually covered with sand? A desert.
  - b. What’s the name of the ecosystem that humans live? An urban ecosystem (or sub-urban ecosystem)
  - c. What are other names that mean a grasslands ecosystem? Any one of the following: 1) plains, 2) savannas, 3) steppes, and 4) prairies
  - d. Does the world have more salt water ecosystems or fresh water ecosystems? Salt water ecosystems
  - e. BONUS QUESTION: Why do you have to know a little about ecosystems before you study about living things? Because different ecosystems are the homes to different living things and changes to an ecosystem can really hurt the things living in it

[Teacher reviews any questions that the Student missed\].](#)

Wrap Up (5 minutes)

Teacher: [\[Clapping\]](#) You did GREAT! Wonderful job! Are there any questions that you have regarding the ecosystems of the world? [\[Engage in conversation with the Student and follow up with questions you cannot answer by researching the Internet\]](#)