

## Pre-visit lesson: Eco Hike - Biotic and Abiotic

### 1. Lesson Plan Information

Subject/Course: Science-Understanding Life Systems/Maintaining Healthy Organ Systems

Grade Level: 7

Topic: Human Organ Systems (STEM)

Name:

Date:

Time:

Length of Period:

### 2. Expectation (s)

***Expectation(s) (Directly from the Ontario Curriculum):***

Overall Expectations

3. Demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment.

Specific Expectations

3.1 Demonstrate an understanding of an ecosystem (e.g., a log, a pond, a forest) as a system of interactions between living organisms and their environment.

3.2 Identify biotic and abiotic elements in an ecosystem, and describe the interactions between them (e.g., between hours of sunlight and the growth of plants in a pond; between a termite colony and a decaying log; between the soil, plants, and animals in a forest).

### 3. Learning Skills (Where applicable):

- Collaboration
- Teamwork
- Independent Work

***What do I want the learners to know or be able to do?***

- The learners will be able to identify the different types of biotic and abiotic things and why items are abiotic and biotic.

***Today learners will:***

- The learners will be learning about the difference between biotic and abiotic factors.

### 4. Assessment/ Evaluation

*Based on the application, how will I know students have learned what I intended?*

Learners will hand in the worksheet as an exit ticket out of class. The worksheet will be marked for understanding and handed back to the students the next day.

## **5. Learning Context:**

### **A. The learners:**

*What prior experiences, knowledge and skills do the learners bring with them to this learning experience?*

Students should have a clear understanding of the organizational patterns/relationships that are found in any ecosystem (prey/predator, producers/consumers/decomposers, niche/habitat/population/community, etc.) The teacher can assess initial student understanding by asking:

- What does biotic mean? (Living entities such as animals, plants, bacteria, etc.)
- What does abiotic mean? (Non-living entities such as water, sunlight, air, temperature, minerals, etc.)

### **B. Learning Environment**

- Classroom
- Schoolyard/outside

### **C. Resources/Materials**

- Pictures of living things
- Pictures of non living things
- Chart for the Gallery Walk
- Chart for listing the Abiotic and Biotic factors
- Pencils
- Erasers

## **6. Teaching/Learning Strategies**

### **Introduction:**

**How will I engage the learners? (e.g., motivational strategy, hook, activation of learners prior knowledge, activities, procedures, compelling problem).**

Before the students come in from lunch or recess, the teacher will post pictures of living (biotic) and nonliving (abiotic) things around the classroom. There are pictures below for the teacher to use, or they can use their own pictures they have chosen for this lesson plan. Have about 5 abiotic and 5 biotic pictures around the classroom. They can also add more pictures to the gallery walk for the students to go through. At the bottom of each picture a chart will be placed for the students to pick if the picture is showing a living or nonliving thing.

Once all the students have taken their seats the teacher will explain the gallery walk to the students. "Okay class, as you look around the room you will see different pictures on the walls of the classroom. These pictures consist of living and nonliving things. When you walk around the room you will see a chart under each picture. On this chart you will put a B if you feel it is a living thing and

an A if you feel that it is a nonliving thing". Have the students take about 8-10 minutes to complete the gallery walk.

Once the students are done with the gallery walk, the teacher and the students will have a class discussion about the meanings of biotic and abiotic. The teacher will ask the students, "Class what do you think the word biotic means?" Pick 4-5 students to answer the question. The teacher will say, "Biotic means living. They are living things that help shape an ecosystem. For example organisms, such as plants and animals. Now, what does Abiotic mean? If biotic is living thing, what does abiotic mean?" Pick 3-4 students to answer the question.

### **MIDDLE:**

**Teaching: *How does the lesson develop?***

**How we teach new concepts, processes (e.g., gradual release of responsibility - modeled, shared, and guided instruction).**

"With the knowledge that we have gained about biotic and abiotic, we will be going outside to investigate our surroundings. In your science notebooks, I would like you to write all biotic and abiotic things you see outside on the playground. Please gather a pencil/pen and your science notebooks and put your outside gear on and line up to get ready to go outside."

Once all the students are ready, lead them outside. "Alright, while we are outside we will be writing down all the abiotic and biotic things you see." The students will be given a sheet to write down the different type of abiotic and biotic things they see in the schoolyard. "Can anyone refresh our memory about the meaning of biotic and abiotic?" Select one student to explain biotic and another to explain abiotic. Pair up the students to roam around the schoolyard to complete their chart. Make sure you set boundaries for the students. Give the students about 15 minutes to walk through the school yard to fill out their chart. The teacher can also make it into a competition, "Who can get the most items on their list of both sections." This can create a friendly competition between the students, which may help them stay on task for the duration.

Once the lists are completed, and they have had around 15 minutes outside to complete their chart, the teacher can call the students to go back inside.

### **Consolidation and/or Recapitulation Process:**

***How will I bring all the important ideas from the learning experiences together for/with the students? How will I check for understanding?***

Once all the students are seated with their charts the teacher will ask, "With the information that we have learned from today, would anyone like to change their answer on the charts in or gallery walk?" Give the students about 3 minutes to change their answers, if needed.

Now, the teacher will go around the room to each picture and read off what everyone thought the picture was, abiotic (non living) or biotic (living). Ask students to explain their reasoning for their answer.

**Application:**

**What *will learners do to demonstrate their learning?* (Moving from guided, scaffolded practice, and gradual release of responsibility.)**

The students will demonstrate their learning by completing the worksheets. The student will be handing in their worksheets so the teacher can review them to see if the students are understanding the information being given to them.

**Biotic (Living Things)**



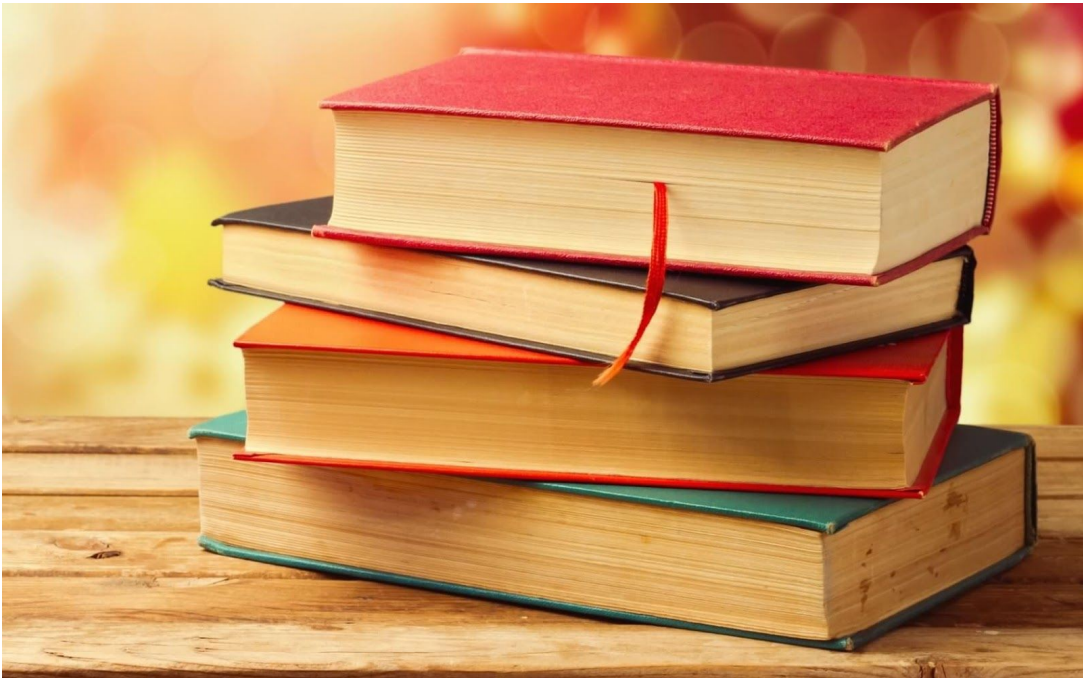




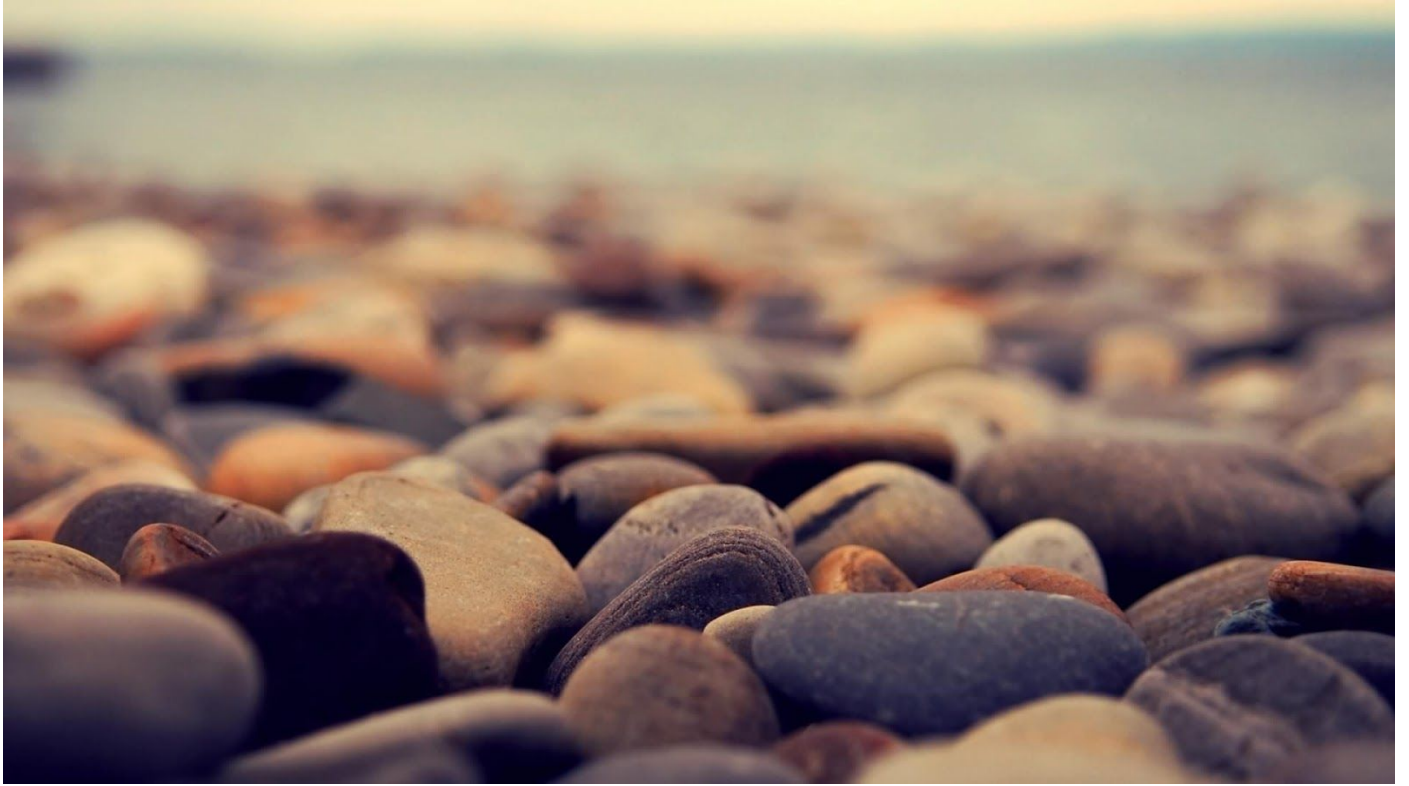


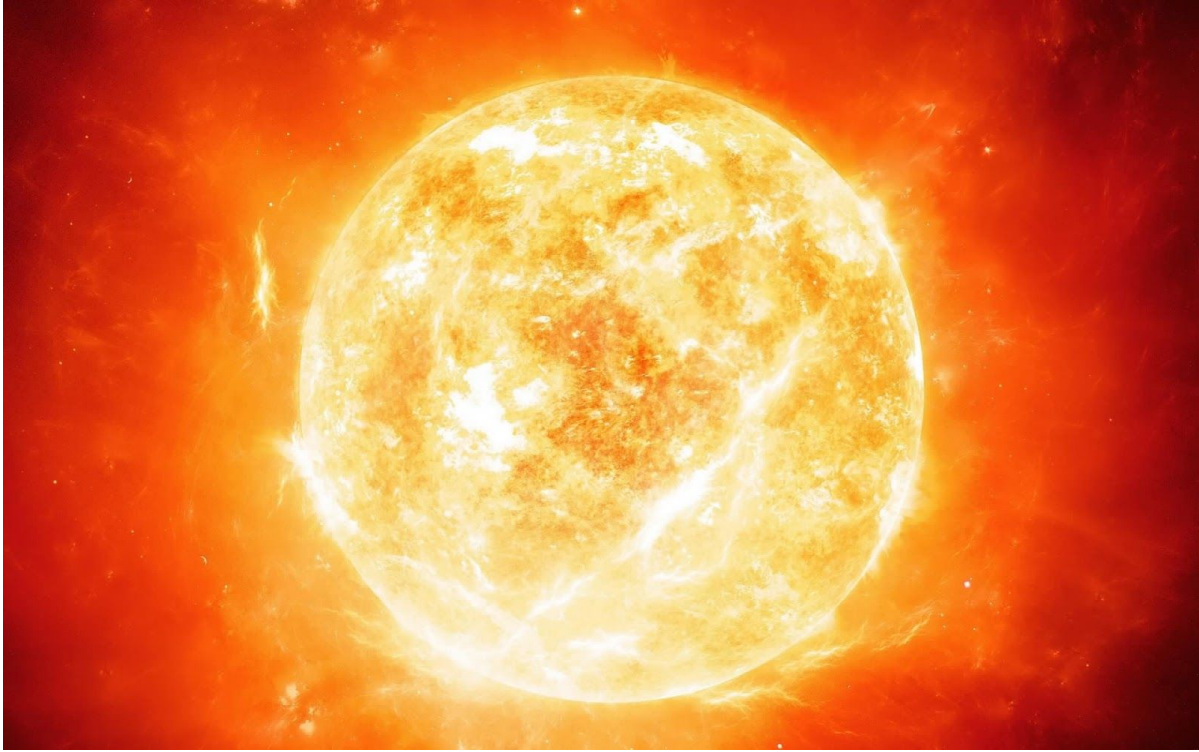
**Abiotic (Nonliving Things)**











# Chart for the Gallery Walk

For each picture decide whether the item is living or non-living and write your name in the appropriate column.

<b>Living Thing</b>	<b>Non Living Thing</b>

# What can you find?

List all the abiotic and biotic elements you can find in the schoolyard.

<b>Abiotic</b>	<b>Biotic</b>