**Unit 4: Urbanization**

“Lessons at a Glance”

**LESSON ONE**

**Title:** Identify the Problem

**Topic:** Plastic Production and Pollution

**Theme:** The production of plastics and the pollution created reduces natural resource availability and overall quality of the environment.

**Student Outcomes**:

* Understand how the production of plastics and the pollution created reduces natural resource availability
* Know the causes and effects of plastic pollution
* Be able to distinguish between the different types of plastic

**Missouri Science Standards:** 6-8.ESS3.C.1. *Analyze data to define the relationship for how increases in human population and per-capita consumption of natural resources impact Earth's systems. [Clarification Statement: Examples of data include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth’s systems as well as the rates at which they change.]*

**Components:** Two video lessons, Plastic Scavenger Hunt Activity, and a student assessment.

**LESSON TWO**

**Title:** Identify Solutions

**Topic:** Urban Development – Avian Window Collisions

**Theme:** It is key to also identify solutions after identifying the issues surrounding urban development.

**Student Outcomes**:

* Understand why birds hit glass (the issue)
* Know the solutions to prevent birds hitting glass (the solutions)
* Be able to make a plan to prevent window strikes on a building

**Missouri Science Standards:** 6-8.LS2.C.2. *Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem.*

6-8.ESS3.C.1. *Analyze data to define the relationship for how increases in human population and per-capita consumption of natural resources impact Earth's systems. [Clarification Statement: Examples of data include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth’s systems as well as the rates at which they change.]*

**Components:** Article, One video lesson, Thunk! What Hit the Window Activity, and a student assessment.

**LESSON THREE**

**Title:** Are You Ready for Some Competition?

**Topic:** Invasive Species

**Theme:** Invasive species arrive and thrive due to their own species characteristics and ecological disturbance.

**Student Outcomes**:

* Understand what invasive species are and why they are introduced
* Know the characteristics that allow an invasive species to take over an environment quickly
* Be able to create an invasive species with knowledge of invasive species characteristics

**Missouri Science Standards:** 6-8.LS2.A.2. *Construct an explanation that predicts the patterns of interactions among and between the biotic and abiotic factors in a given ecosystem. [Clarification Statement: Relationships may include competition, predation, and symbiosis.]*

6-8.LS4.B.1. *Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. [Clarification Statement: Emphasis is on using simple probability statements and proportional reasoning to construct explanations.]*

**Components:** Four video lessons, Invader X Activity, and a student assessment.

**LESSON FOUR**

**Title:** Let’s Reconnect

**Topic:** Human-Nature Deficit Disorder

**Themes:** Lack of outdoor play and frequent exposure to nature is shown to lead to a decrease in appreciation and knowledge of environmental importance.

**Student Outcomes**:

* Understand how time spent in nature is good for our physical and mental health
* Know the definition of nature-deficit disorder and its purpose
* Be able to successfully conduct an interview

**Missouri Science Standards:** 6-8.ESS3.C.1. *Analyze data to define the relationship for how increases in human population and per-capita consumption of natural resources impact Earth's systems. [Clarification Statement: Examples of data include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth’s systems as well as the rates at which they change.]*

**Components:** One video lesson, One article, Interview Another Generation Activity, and a student assessment.

**LESSON FIVE**

**Title:** Nature is Everywhere

**Topic:** Green Spaces

**Theme(s):** Green spaces are essential for every community

**Student Outcomes**:

* Understand how trees and green spaces create healthier and more sustainable communities
* Know what changes they would like to see in their community
* Be able to use the Sustainable Neighborhoods for Happiness Index (SNHI)

**Missouri Science Standards:** 6-8.LS2.C.2. *Evaluate benefits and limitations of differing design solutions for maintaining an ecosystem.*

6-8.ESS3.C.1. *Analyze data to define the relationship for how increases in human population and per-capita consumption of natural resources impact Earth's systems. [Clarification Statement: Examples of data include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth’s systems as well as the rates at which they change.]*

**Components:** Two video lessons, Sustainable Neighborhoods for Happiness Activity, Envision a Sustainable Neighborhood Activity, and a student assessment.