

Colors of Place

A Systems Thinking Activity

Estimated time for activity ~55min (~5 min prep time)

GRADE LEVEL



K-12

CONNECTIONS TO THE BIG IDEAS OF SUSTAINABILITY



Place



Systems



Community

CURRICULAR CONNECTIONS



SCIENCE:
PATTERNS



SOCIAL STUDIES:
PEOPLE, PLACES &
ENVIRONMENTS



ART:
CONNECTING,
COLORS

Objective

Students will gain a deeper connection to the place of investigation and develop a systems thinking mindset about the connections between living organisms and nonliving objects (biotic and abiotic) and their interconnected roles within a place.

Essential Questions

- How do biotic and abiotic things in this place interact with each other?
- What role do humans play in this system?

Materials

(5-10 minutes prep time)

- Color paint chips (from hardware store, printed, or have students color a 2"X2" square with different colors). All colors/shades of the rainbow should be used, you can even have your students create their own color - each student needs one color chip. Students can pick their favorite color or you can randomly distribute them after Part 1 (described below).
- Natural place to explore (preferably outside, but can be in the classroom or wherever you have space to explore)
- Student Activity Sheet and pen/pencil/colored pencils for drawing

Background

(5-10 minute discussion)

This activity will introduce students to the concept of systems thinking. Systems thinking involves making sense of the complexity of the world by looking at relationships, interactions, and interconnections across living beings and nonliving things. A system is not confined to one type of thing, but can be interconnected across biotic and abiotic factors as well as among humans and our built environment. Terms for students to be familiar with: system, community, biotic, and abiotic.

Activity

(20 Minutes)

Part 1

1. Go to the place of exploration and set boundaries/rules of where and how the students can explore based on your place.
2. Before giving each student a paint chip, have the students explore either individually or in small groups (2-3 students). Tell the students to make observations about what they see, hear, smell, etc. You may have the students record their observations on paper (#1 on student sheet) or mentally.
3. After the initial exploration, distribute one paint chip to each student.
4. Give students 5-10min to find an object (either living or nonliving) that is the closest color match to their paint chip.
 - NOTE** Let students know if they should “remove” the object from the place. If not, consider having the students take a picture of the object or draw it in the setting using paper (#2 on student sheet).
5. Once all students have an object to represent their paint chip, reconvene in one large group or groups of 5-10 students for part 2.

Part 2

6. In the larger group(s), have each student share what object they found to match their paint chip.
7. Systems Thinking: Now challenge the students to discuss how each object is connected to the next. How do the items interact? What role do humans play with the objects? The teacher may need to facilitate and help students to dig deeper into connections and the role of their item within the system.
 - a. Again, you may have students write this down (#3 on student sheet) or have it be a verbal discussion. (see linked video for further explanation for how you can have students model their system on paper)
8. After group discussion(s), have students complete the reflection questions.

Reflection Questions

(on student sheet)

Suggested K-5 Questions:

1. What makes up a “community”?
2. In which ways are living and nonliving (biotic and abiotic) things in your place the same? And different?
3. How did your object come to be in this community? Who or what put it there?
4. What role do you play in this community?

Suggested 6-12 Questions:

1. What makes up a “community”?
2. In which ways are living and nonliving (biotic and abiotic) things in your place the same? And different?
3. How did your object come to be in this community? Who or what put it there?
4. How might your object change over time? In different seasons? 5, 10, 100 years from now?
5. Did your object look any different before today?
6. What do you know about this place/community that you didn't know before?
7. What role do humans play in this system?
8. How did your perspective of this place change after completing this activity?



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Student Activity Sheet

1. Initial observations about exploration of place.

2. Drawing of object (biotic or abiotic) in its setting (draw the objects that are around your paint chip object).

3. Model of the System

Student Reflection Questions

1. What makes up a "community" ?
2. In which ways are living and nonliving (biotic and abiotic) things in your place the same? And different?
3. How did your object come to be in this community? Who or what put it there?
4. How might your object change over time? In different seasons? 5, 10, 100 years from now?
5. Did your object look any different before today?
6. What do you know about this place/community that you didn't know before?
7. What role do humans play in this system?
8. How did your perspective of this place change after completing this activity?

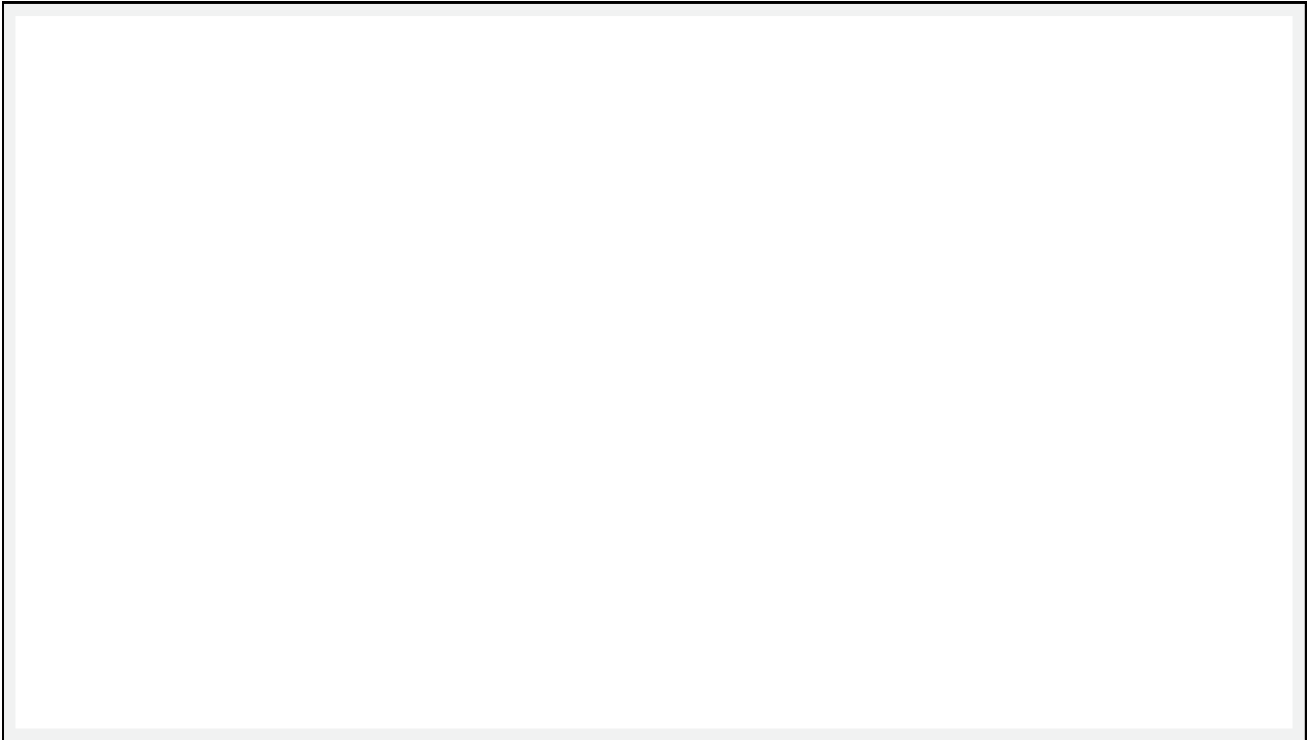


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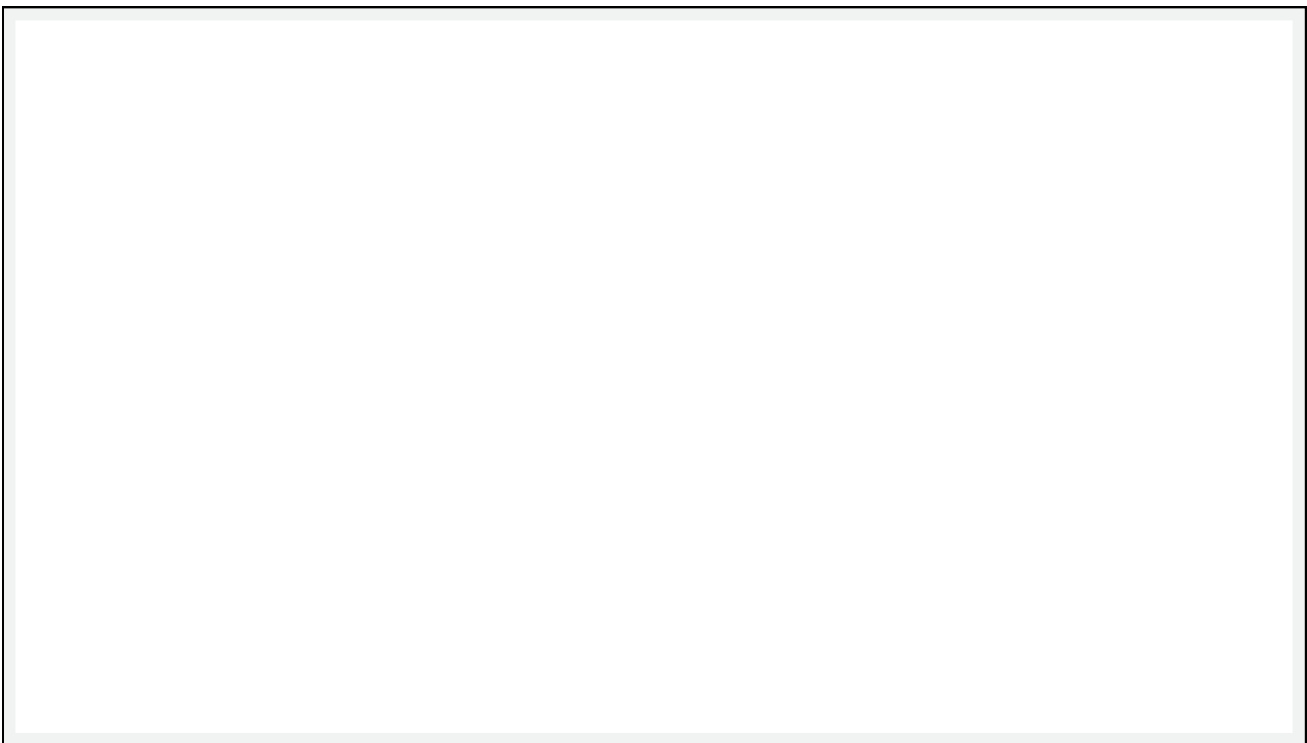
Student Activity Sheet

Name: _____

Observation: Using your senses, draw what you observe around you.



Exploration: Draw your item that matches your color card and include the surrounding environment in which you found it.



Extension: Model of System

Draw how any of the items we found connect to one another.

