CHICAGO BOTANIC GARDEN

JOSEPH REGENSTEIN, JR. SCHOOL

Ecosystems & Adaptations Pre-Trip Activities

To prepare your students for the investigations they will do on site, we recommend doing these activities prior to your visit.

ABC Bingo

Purpose:
To introduce students to the abiotic, biotic, and cultural components of an ecosystem.

Materials:
- Bingo Boards
- Bingo Numbers
- Bowl or hat (to pull numbers out of)

Note: This activity works best when students are in small groups
Steps:
1. Before beginning the game, discuss the following definitions with the class:
   - Biotic: Living
   - Abiotic: non-living; not man-made
   - Cultural: non-living; man-made
   -Ask the students how the above factors relate to ecosystems. Discuss examples.

2. Group the students into small groups. Give each group a bingo board. Have students draw/write examples of abiotic, biotic and cultural ecosystem components in the proper spaces on their Bingo Boards.
3. Play Bingo! First group to get Bingo with 100% accurate answers wins.

Biome in a Bag

Purpose:
Students will learn how different abiotic factors affect plant life in desert and tropical biomes.

Materials:
- (2) 2 liter bottles cut in half
- (2) 1 gallon Ziploc bags
- Pebbles
- Potting soil
- Seeds that quickly germinate (grasses, beans)

Source:
PBS Kids—Zoom Programming

Steps:
*Note: This activity spans over multiple days. Begin activity 5 days before your trip.
1. Pour half an inch of pebbles into the bottom half of each 2 liter
2. Add potting soil on top of the pebbles. The container should have twice as much soil as it does pebbles.
3. Make a small circular trench in the middle of the soil (Depth: of trench = from the tip of your finger to the end of your finger nail).
4. Sprinkle a few seeds (of the same variety) into each containers' trench. Cover the seeds lightly with soil.
5. In one container, water the soil until you see water collect at the bottom of the pebbles. Label a Ziploc bag "Rainforest" and place the container inside.
6. Water the soil very lightly in the other container. Place in a Ziploc labeled "Desert". (No need to rewater either container as the sealed bag will help your biome create a mini water cycle).
7. Place the "Desert" container in a very sunny place and the "Rainforest" container in a place that receives little light..
8. Wait to check on your biomes until after your field trip.

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Ecosystems & Adaptations Post-Trip Activities

These activities will build upon the learning experiences from the field trip, we recommend doing these activities after your visit.

Biome in a Bag—Revisited

Purpose:
To have students apply knowledge they gained during their field trip to previous classroom experiments.

Materials:

- Desert Biome Bag
- Rainforest Biome Bag
- Packets/Growing information for the planted seeds

1. After the students have returned from their field trip, have them examine both their rainforest and desert biome bags with a critical eye.
2. Encourage the students to use the information they recorded in their journals to help them compare the conditions in the biome bags to the conditions of the real arid and tropical biomes they encountered while at the Garden.
3. Ask the students:
   - Do the biome bags look like what you'd expect? Why or why not?
   - Do the conditions in the biome bags resemble the conditions you experienced in the tropical and arid greenhouses? Why or why not?
   - In which biome are the seeds growing faster? Why?
   - In which biome do you think the plants would live the longest?
   - How do the plants/seedlings need to adapt in order to survive in each biome? Use the information on the seed packet as a baseline.
   - What are the Abiotic, Biotic, and Cultural components of each biome bag? How are these affecting plant growth?

Super Plants

Purpose:
To assess what the students learned about adaptations

Materials:

- Paper
- Pencil/Markers/ Crayons
- (Optional) Additional resources

Steps:

1. Have the students get into small groups and review the notes about adaptations in their journals, and, if needed, use additional resources.
2. Let the students know that today they will create a super plant that grows in a make-believe ecosystem. Note: You can make up the abiotic conditions found in this ecosystem or you can instruct the students to make-up the abiotic conditions. The conditions of each make-believe ecosystem should combine the abiotic conditions found in arid, tropical and prairie ecosystems.
4. Based on the agreed upon abiotic conditions, have the groups of students draw a picture of their new super plant in the unique ecosystem. Instruct the students to label each adaptation and mention which abiotic condition the adaptation addresses.
5. Have the groups present their super plants to the class.

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ABC BINGO

	1	2	3	4	5
B	CULTURAL B1	BIOTIC B2	ABIOTIC B3	CULTURAL B4	ABIOTIC B5
I	BIOTIC I1	CULTURAL 12	BIOTIC I3	ABIOTIC I4	CULTURAL I5
N	ABIOTIC N1	CULTURAL N2	BIOTIC N3	CULTURAL N4	ABIOTIC N5
G	BIOTIC G1	ABIOTIC G2	CULTURAL G3	BIOTIC G4	ABIOTIC G5
O	CULTURAL O1	BIOTIC O2	ABIOTIC O3	CULTURAL O4	BIOTIC O5

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G	BIOTIC	ABIOTIC	CULTURAL	BIOTIC	ABIOTIC
O	CULTURAL	BIOTIC	ABIOTIC	CULTURAL	BIOTIC

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