

IMPROVING TEACHER QUALITY (ITQ)
Arts and Science Integration

Theatre and Life Science

GRADE 4

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 4
THEATRE AND PHYSICAL SCIENCE**

**Life in the Wild
Life Science: Environments, Investigation 1
LESSON # 1**

CONTENT STANDARDS

Theatre

5.2 Use improvisation and dramatization to explore concepts in other content areas.

5.3 Exhibit team and commitment to purpose when participating in theatrical experiences.

Physical Science

LS3a Students know ecosystems can be characterized by their living and nonliving components.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What makes an environment?
- What are environmental factors?
- What is a terrarium?
- What does informal theatre mean?
- What is dialogue?
- How did writing the script for our informal theatre performance help me understand the environment in the terrarium and environmental factors?

OBJECTIVES & STUDENT OUTCOMES (*Students will be able to.....*)

- Explain what makes an environment.
- Identify living and nonliving environmental factors.
- Explain what informal theatre is.
- Explain production value.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
 - Student created script
 - Student's responses
- **Feedback for Student**
 - Student created script
 - Student/Teacher responses

Words to Know

Theatre Grade 4

- **Actor:** A person, male or female, who performs a role in a play or an entertainment.
- **Audience:** People who watch, listen and respond to live theatre.
- **Character:** The personality of part an actor recreates.
- **Collaboration:** The act of working in a joint intellectual effort.
- **Director:** The person who oversees the entire process of staging a production.
- **Informal theatre:** A theatrical performance that focuses on small presentations, such as one taking place in a classroom setting. Usually, it is not intended for public view.
- **Production values:** the critical elements of a production, such as acting, direction, lighting, costumes, sets, and makeup.
- **Script:** The written text of a play.

Science Grade 4

- **Environment:** Everything that surrounds and influences an organism.
- **Environmental factors:** One part of the environment. An environmental factor can be nonliving, such

as water, light, and temperature. It can be living, such as plants and animals.

- **Living:** The condition of being alive.
- **Nonliving:** Something that has never been alive, or things that were once alive and are no longer alive.
- **Organism:** Any living thing, including all plants and animals.
- **Terrarium:** A container with plants growing inside.
- **Terrestrial:** Refers to Earth's land environments.

MATERIALS

- Copy of the script *Warm, Wet, and Lush: Life in the Rain Forest* By Sheri Skelton (included)
- Chart paper to chart dialogue.
- Science notebooks one per student

RESOURCES

- edHelper.com: <http://www.edhelperblog.com/>
- VAPA "Core Learnings" Grade Four
- ProTeacher: <http://www.proteacher.com/070173.shtml>
- FOSS Kit Grade 4, "Life Science: Environments," Investigation 1

PREPARATION

- Make enough copies of the script *Warm, Wet, and Lush: Life in the Rain Forest* By Sheri Skelton for each student.
- Review Investigation 1 in *FOSS Kit Grade 4*, "Terrestrial Environments."
- Review reading "Setting Up a Terrarium."

WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)*

(10 Minutes)

- Direct students to come to the front of the room and form a circle. Note: If there is not enough room in the front of the class, students can stand behind their chairs to do this portion of the warm up.
- Say:
 - *As you may remember from our previous science and theatre lessons, we said actors have three tools they use as actors and always warm up before they do work in theatre. Does anybody remember what those three tools are? [body, voice and imagination] Actors use those three tools to help them pretend to be characters in a play. Today we are going to do a warm up to really exercise our imagination as well as our bodies. The other day in science you all worked on planning and putting together a terrarium. As you were planning your terrarium you were given some seeds to use. What seeds were you given to use? [Clover, radish, barley, corn, and peas] Great! Now, we are going to use our imagination and our bodies to show the life cycle of a plant from birth to death.*
- Guide students through a guided imagery.
- Say:
 - *Imagine that our classroom is a large terrarium and you are going to be a seed. Decide in your mind, without telling anybody, what kind of seed you want to be. Now we need to dig a small hole. How big do you need to make it? [students need not answer] Step inside the hole you just dug and curl yourself up into a tiny seed. Think about how big or small your seed is and imagine yourself being that small. Imagine that you are being covered by soil. It's important to remember from your observations of your terrarium how plants grow. They grow very, very slowly. Now you feel the water seeping through the soil reaching you, the seed. As you absorb the water and nutrients from the soil you begin to slowly push your way out of the seed coat as you begin to **germinate** or sprout, pushing through the soil very slowly. Continue to push your way through the soil until you finally break through the soil. You feel the sun hitting down on you. As you feel the sun you bring that energy in, to make your food to keep you growing.*
- Have students continue to grow. As they are growing, remind them plants grow slow and to keep in

mind which seed they decided to be and what would it look like as it is growing. If students seem to grow too slowly or quickly, guide them with a countdown.

- Once students have stopped growing take them through the life cycle of a plant.
- Have students imagine they can feel the wind. Have them imagine it is raining and how that would affect them as a plant.
- Tell students suddenly the water in their **terrarium** has depleted and show how they believe it would affect them as a plant.
- Say:
 - *The **terrarium** has become bone dry. You are no longer getting water and you are slowly perishing in this **environment**. Remember to move slowly and show me what that looks like. Show with your facial **expression** how you feel in your **environment**.*
- After students show how their plant would perish and are all laying on the ground tell them they are know actors again and are alive and well and can return to their seats.

MODELING (Presentation of new material, demonstration of the process, direct instruction)

(15 minutes)

- Explain to students today they are going to plan out an **informal theatre** performance using various **production values** showing what they have learned about **terrestrial environments**.
- Define the words **informal theatre** and **production values**.
- Say:
 - *The other day when you were working in science, you worked in groups to plan and put together something. Who can tell me what that was? [terrarium] What is a terrarium? [a container with plants growing inside.]*
- Discuss with students the process they followed when putting together their **terrarium** and chart their responses. [used a **terrarium** map to plan, planted seeds in **terrarium** according to the map, took notes of how much water was used to water seeds]
- Ask:
 - *So what is it called when you put all the different things (soil, seeds, and water) together in your terrarium? [environment]*
 - *What makes up an environment? [environmental factors]*
 - *What are environmental factors? [living and non living]*
 - *When something is a living environmental factor, what do we call that? [organism]*
 - *Can you give me some examples of an organism? [insects, plants, animals]*
- Say:
 - *The way you worked together as young scientist to create your terrariums is very similar to the way people in theatre work together. Actors, directors and design people first have to plan out what is needed to create the performance and what the stage is going to look like. Does anyone have any idea what it is called when people work together? [collaboration]*
- Write on the whiteboard or chart paper the word **collaboration**.
- Define for students the word **collaboration**.
- Explain to students they are going to work in collaboration with their class on writing a **script** for them to use for their **informal theatre** performance.
- Tell students before they begin writing their **script** they are going to read a **script** about some of the **organisms** found in a tropical rain forest, which is one kind of **terrestrial environment**.
- Hand out **scripts** of "Warm, Wet, and Lush: Life in the Rainforest" to students.
- Assign two students to each character.
- Display **script** on Promethean board to guide students through a read through of the **script**.
- After the class has read through the **script** point out how every **character** had one or two lines maximum with as much information about who they were as possible.
- Explain to students they will now work in **collaboration** with their whole class to write out a **script** about their **terrarium** using what they learned from science, much like the one they just read.

GUIDED PRACTICE (Application of knowledge, problem solving, corrective feedback)

(20 minutes)

- Write on the chart paper or Promethean board the following:

- Title: Living in the Wild
- Set: A terrarium
- Characters:
- Explain to students the characters in their script are all the living and non-living environmental factors.
- Say:
 - *When we read the script "Warm, Wet, and Lush: Life in the Rain Forest," all the characters in that script were Animals. As you know, animals can't talk. When you give human characteristics to an animal or object we call this personification. That is what we are going to do with all the living and non-living environmental factors in your terrarium to create dialogue for your characters.*
- Ask the following guiding questions to students facilitate creating **dialogue** for the **script**.
- Tell students they should respond to questions as the **character**. Note: These are a just a few questions. As students respond to questions feel free to ask for clarification or to expand the idea. Just remember you want to keep the **scripts** simple so two to three sentences for each **character** is sufficient.
- As students respond to the questions chart their responses or use the Promethean board to chart responses.
- Encourage students to use their science vocabulary as they create the **dialogue** and to speak as the **character** or in first person.
- Have students refer to their observation notes in their science notebooks to help them create the dialogue. Note: Students responses will vary depending on where they are in observing their **terrariums**.
- Remind students to remember how it felt as they did the guided imagery during the warm to help them come up with what the **character** might say and how the **character** might say it.
- Ask:
 - *Who would be the characters for our script? Remember, we are going to personify all the living and non-living environmental factors. [Soil, Water, Light, Corn seed, Clover seed, Radish Seed, Barley seed, Pea seed] Note: Leave two blank spaces below the last character.*
 - *We will be adding two more characters later on another day. (Isopod and Beetle)*
 - *Remembering the order in which we created our terrarium, which character do you believe should be the first to speak? [Soil]*
 - *What would that character say? What do you know about this character and how it contributes to the environment?*
 - *Is this character a living or non-living environmental factor? [Non-living]*
 - *Who would be the next character to speak? [Allow for a variety of responses.]*
 - *What would that character say? What do you know about this character and how it contributes to the environment or what it needs from the environment? [Allow for a variety of responses.]*
 - *Is this character a living or non-living environmental factor? [Living or Non-living, depending on character]*
- Continue to ask the students which **character** would speak next and what would each **character** say about their role in the **terrarium environment**.
- Once all the **characters** in the **script** have been given **dialogue**, explain to students they are going to build on this **script** in the next lesson.
- If time permits, assign two students per **character** to read the scripts aloud.

DEBRIEF & REFLECT (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?*)

(5 minutes)

- Say:
 - *So now that we collaborated together on our script I want ask you a few questions.*
 - *After writing our script can some one tell me, what is an environment?*
 - *Who can tell me the Environmental factors we talked about in creating our script? [living and non living]*
 - *When I said we are going create an informal theatre performance , what did I mean?*
 - *Who can explain production values to me?*
- In your science notebooks respond to the following prompt:

- How did writing the script for our informal theatre performance help me understand the environment in the terrarium and environmental factors?

EXTENSION (*Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences*)

- Create a similar script in a different subject area.
- Make simple masks and/or costumes to perform the class created script.

Warm, Wet, and Lush: Life in the Rain Forest

By Sheri Skelton

Cast of Characters

Monkeys
Spider Monkey
Howler Monkey
Harpy eagle
Sloth
Jaguar
Tapir
Giant Anteater
Anaconda
Manatee
Piranha
Toucan
Macaw
Poison Dart Frog

All the Animals: We bathe in the rain that daily drizzles or pours. We live in a colorful world covered by a canopy of tall trees and filled with birds screeching and squawking, snakes slithering, and predators pouncing on their prey. Our world is warm, wet, and lush. Our world is the rainforest.

Monkeys: Hanging with our tails upside down from branches is one thing we like to do.

Spider Monkey: When I hang from a branch with my tail and all four of my limbs, I look like a huge spider.

Howler Monkey: When I howl, I sound like a strong wind blowing through a tunnel. The sound I make travels for more than two miles.

Monkeys: We swing from branch to branch and cling to trees and vines. We feast on fruit and leaves or almost anything we can find.

Howler Monkey: I spot a harpy eagle flying overhead and send a warning howl to alert my fellow monkeys.

Spider Monkey: I hear the alarm, jump from my branch, and freeze.

- Harpy Eagle:** Twisting and turning my giant wings that span seven feet, I guide myself through the treetops. When I spy a monkey or a sloth, I dive and tear the animal from its branch.
- Sloth:** I move slowly, very slowly, so slowly that it takes me a day to climb up and down a tree. I usually just hang upside down from a branch in one tree and sleep, sometimes for eighteen hours straight.
- Jaguar:** My beautiful fur coat is covered with black, rose-shaped spots. My name means a beast that can kill its prey with one pounce. All animals fear me, and only humans dare to prey on me.
- Tapir:** To some, I look unusual with my thick neck, large ears, short trunk, and stumpy tail. I crash through the forest at night, jumping into rivers and swamps. Swimming is what I love to do, especially by myself. I am a shy creature, but jaguars, alligators, and even people will not leave me alone. They like to eat me.
- Giant Anteater:** I have to walk on my knuckles. Otherwise, I might damage my nails, which could lead to my ruin. They are my protection against jaguars and what I use to dig through ant and termite nests. My eyesight may be poor, but my sense of smell and my hearing are superb.
- Anaconda:** Although I am the biggest snake in the world, I am shy and well camouflaged, so I am not easily seen. I search for my prey at night, wrap myself around my victims, and then squeeze or drown the creatures. I swallow them whole.
- Manatee:** Since I have no natural enemies, I swim about peacefully, feasting on vegetation. I sometimes sleep half the day away, occasionally surfacing for air.
- Piranha:** My reputation for being vicious begins soon after birth when I tear into small fish with my very sharp teeth. I am drawn to blood and eat my victims alive. I am not a loner but travel in a group of around twenty.
- Macaw:** I am the largest of all the parrots. My beautiful, graceful tail is longer than my body. With my long, pointed wings, I fly swiftly through the rainforest. My sharp, hooked bill is perfect for cracking nuts.

Poison dart frog: I am tiny and colorful, either red, blue, or yellow. But I am deadly. I am the size of a man's thumbnail, but a drop of my poison smaller than a grain of salt can kill a man. Native hunters use my poison on the tips of their arrows.

All the Animals: We bathe in the rain that daily drizzles or pours. We live in a colorful world covered by a canopy of tall trees and filled with birds screeching and squawking, snakes slithering, and predators pouncing on their prey. Our world is warm, wet, and lush. Our world is the rainforest.

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 4
THEATRE AND PHYSICAL SCIENCE**

**Wild Things
“Life Science: Environments,” Investigation 2, Part 1
LESSON # 2**

CONTENT STANDARDS

Theatre

5.2 Use improvisation and dramatization to explore concepts in other content areas.

Physical Science

LS3a Students know ecosystems can be characterized by their living and nonliving components.

LS3b Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What kind of environment do Isopods prefer?
- What kind of environment do beetles prefer?
- What types of environments are there?
- What happens to an organism if they are in an unfavorable environment?
- How does an actor use posture, gesture and voice to show character?
- What is characterization?
- How did participating in the theatre activities help me better understand about Isopods, beetles and the environment?

OBJECTIVES & STUDENT OUTCOMES (*Students will be able to.....*)

- Understand some living organisms survive better in certain environments.
- Identify different environmental factors, which make up different environments.
- Show a character through posture, gesture and voice.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
 - Student's responses
 - Student created environment tableaus
 - Isopod and Beetle characterization
- **Feedback for Student**
 - Student/Teacher responses
 - Student created environment tableaus
 - Isopod and Beetle characterization

Words to Know

Theatre Grade 4

- **Actor:** A person, male or female, who performs a role in a play or an entertainment.
- **Audience:** People who watch, listen and respond to live theatre.
- **Character:** The personality of part an actor recreates.
- **Characterization:** The development and portrayal of a personality through thought, action, dialogue, costuming, and makeup.
- **Collaboration:** The act of working in a joint intellectual effort.
- **Tableau (pl. tableaus):** A silent and motionless depiction of a scene created by actors, often from a picture.

Science Grade 4

- **Antenna (pl. antennae):** A feeler on the head of an isopod or insect.
- **Crustacean:** An animal with a shell, jaw, and two pairs of antennae. Most crustaceans live in water. Crabs, lobsters, shrimp, and isopods are examples of crustaceans.
- **Desert:** A major terrestrial environment on Earth that receives less than 25 centimeters (10 inches) of rain each year.
- **Environment:** Everything that surrounds and influences an organism.
- **Environmental factor:** One part of the environment. An environmental factor can be nonliving, such as water, light, and temperature. It can be living, such as plants and animals.
- **Gill:** A breathing structure of an animal that lives in water or very moist environments.
- **Grassland:** A major terrestrial environment on Earth where the land is flat or hilly, such as a prairie.
- **Insect:** An animal that has six legs, a head, a thorax, and an abdomen.
- **Isopod:** A small crustacean with 14 legs that all function the same.
- **Living:** The condition of being alive.
- **Nonliving:** Something that has never been alive, or things that were once alive and are no longer alive.
- **Organism:** Any living thing, including all plants and animals.
- **Pill bug:** An isopod that can roll up into a ball.
- **Temperate deciduous forest:** A major terrestrial environment on Earth with trees that shed their leaves in the fall and grow new leaves in the spring.
- **Terrarium:** A container with plants growing inside.
- **Terrestrial:** Refers to Earth's land environments.
- **Thrive:** To grow and be healthy.
- **Tundra:** A major terrestrial environment on Earth where it is cold and dry.

MATERIALS

- Chart of "Life in the Wild" script from lesson #1
- "Environments Photo Safari" images (included)
- "Cool Facts about Isopods" sheet (included)
- "Cool Facts about Darkling Beetles" sheet (included)

RESOURCES

- VAPA "Core Learnings" Grade Four
- ProTeacher: <http://www.proteacher.com/070173.shtml>
- *Unscripted Learning, Using Improv Activities Across the K – 8 Curriculum*, Carrie Lobman and Matthew Lundquist
- *FOSS Kit Grade 4, "Life Science: Environments," Investigation 2*
- *FOSS Science Resources Book Grade 4, "Isopods and Beetles"*
- Zimbio: http://www.zimbio.com/pictures/5SjnG9x_Kmv/New+Living+Rainforest+Experience+Launched/SA5spEwO3ob
- Richard Herrmann Photography: <http://www.richardherrmann.com/Assignments/NatureConsv.html>
- National Geographic: <http://environment.nationalgeographic.com/environment/photos/grasslands-landscapes/>
- Tundra Animals: <http://room42.wikispaces.com/Tundra+Animals>
- Freshwater Plants: <http://freshwater-plants.tropicalfishss.co.uk/freshwater-plants/>
- Tropical Aquarium Care: <http://www.tropical-aquarium-care.com/>

PREPARATION

- Make copies of "Cool Facts about Darkling Beetles."
- Review Investigation 2 in *FOSS Kit Grade 4, "Isopods and Beetles."*
- Review reading from *FOSS Science Resources Book, "Isopods and Beetles"*
- Optional actor's warm-up for use any time a theatre lesson is being taught. It should be *very* short.
 - Review with students that actors have three tools/instruments to do their work: voice, body and

imagination.

- Each time an actor works they must tune up their instrument.
- Arrange students in a circle, each one having personal space.
- Lead students through a physical warm up isolating different parts of the body and stretching. (rotate hands at wrist, roll shoulders backwards and forwards, rotate head at neck, gently swing hips from side to side, knee bends, rotate foot at ankle, lunges, stretching on tippy toes, hanging like a rag doll, slowly rolling up, shake each limb vigorously 8 times, then 4 times, then 2 times, then once)
- Lead students through a vocal warm up with yawning, humming up and down the scale, breath exercises expelling air with force from the diaphragm, loud and soft voice, and tongue twisters. (Terrific Terrarium and/or Predators, parasites and scavengers, oh my!)

WARM UP (*Engage students, access prior learning, review, hook or activity to focus the student for learning*)

(10 Minutes)

- Briefly review and discuss with students four of the different terrestrial environments from their reading "Two Terrestrial Environments." (Tropical rain forest, desert, grassland, and tundra.)
- Explain to the students that besides terrestrial environments there are also different types of water environments for which they will be creating a **tableaux**. One is a freshwater environment and the other a Salt water environment.
- Tell students they will explore, through their **tableaux**, the living and nonliving factors in a terrestrial environment, freshwater aquarium environment and saltwater aquarium environment.
- Explain to students they are going to watch a tableau slide show called "Environments Photo Safari" which they will perform.
- Review with students what **tableau** means.
- Explain to students they will be shown an image of one of four different terrestrial environments or one of the two water environments and they will have 30 seconds to create a **tableau** of the environment.
- Tell students their **tableau** must show both living and nonliving environmental factors that make up part of this environment.
- Remind students that in a **tableau** you can be anything (i.e., plants, rocks, animals, wind, water, etc.) and that everyone **MUST** be part of the **tableau**.
- Call on three or more students to come to the front of the room (**acting space**) and face the audience.
- Project the image of one of the four terrestrial environments.
- Allow students 30 look at the image and decide what part of the environment they are going to create in their **tableau**.
- Explain to students once they are frozen in their **tableau** you will tap one of them on the shoulder, which will be their signal to unfreeze and explain what part of the environment they are by answering the questions given by the teacher.
- **Ask:**
 - *What are you in this environment?*
 - *Which environmental factor are you in this environment? [Living or nonliving]*
 - *How do you know whether you are a living or nonliving environmental factor? [I am a living organism or I am not alive or I was alive]*
- After the student has responded to the question or questions they then return to the **tableau** and freezes.
- Teacher calls "Curtain" and students unfreeze and return to their seats.
- Instruct students to give the performers a round of applause.
- Call on different groups of students to create **tableaux** for the other images.
- Note: When the image of freshwater or ocean aquarium environments are shown, encourage students to include someone being the water. Also, side coach students in clearly identifying the living (fish, snails, plants) and nonliving (sunlight, water, rocks) environmental factors of both aquarium environments.

MODELING (*Presentation of new material, demonstration of the process, direct instruction*)
(20 minutes)

- Say:
 - *The other day we collaborated on creating a script for an informal theatre performance about your terrariums. If you remember, I said we would leave two blank spots for two more characters.*
 - *The two characters we are going to introduce are, two living organisms you have observed (or will be observing) in investigation 2. They are Isopods and Beetles.*
 - *Can somebody explain what an organism is? [Any living thing, including all plants and animals.]*
- On the chart paper with the script previously created, write **Isopod** and below that **Beetle**.
- Explain to the students today they are going to focus on these two **organisms** as actors using their science knowledge in developing believable **characters**.
- Say:
 - *As an actor, it is your job to understand who the character you are playing is and then figure out or translate that into your body and voice. So let's take a close look at the two new characters we wrote in on our script, Isopods and Beetles. First let's take a look at the character Isopods. What do you already know or have learned about real Isopods?*
- Display the image of the **Isopod** (included) and ask students to share what they already know about **Isopods**.
- On a piece of chart paper, write down student responses of their prior knowledge and observations about Isopods.
- Project on the board the "Cool Facts about Isopods."
- Discuss and explain any vocabulary the students do not understand about the "cool" facts.
 - Isopods are crustaceans, not insects. That means they have a shell, jaws and two pair of antennae.
 - They breath through gills like their cousins the crabs, shrimps and lobsters. Isopods, however, live on land but have to be in a moist environment.
 - Isopods have seven pairs of legs.
 - In class you observed (will be observing) either a pill bug, which curls up when in danger or a sow bug, which can't curl up but can run much faster and is flatter and has longer antennae.
 - Isopods feed on dead leaf and play an important part in recycling dead plant material.
 - The preferred environment for Isopods is in dark and moist areas near or around dead or decomposing wood and other dead plants.
- Take a moment to explain to students the meaning of **preferred environment**. [The set of environmental conditions that an organism appears to choose over other conditions.]
- Say:
 - *Now that we have some basic information on real Isopods, let's figure out how we can translate that information into our bodies and voice as actors playing the character, Isopod. First we are going to show our character through posture and gestures.*
- Call on four or more students to come to the front. (Note: This can also be done with the whole class using the entire classroom as their acting space.)
- Explain to them they are just trying to figure out ideas on how they might show with their bodies what there **Isopod** character might look like and move.
- Tell students this is their interpretation and are encouraged to be creative.
- Tell students it is important to remember not matter how they wish to move they **MUST** be safe at all times.
- Say:
 - *I want to you to imagine you are in a terrarium and your character the Isopod is in search of his or her preferred environment. Stay within the acting area and really think about how you can show with your body, through gestures and posture, what we learned about Isopods to create your character.*
- Cue the students to begin moving by calling "curtain."
- Side coach students to encourage creative physical interpretations of there character.
- Questions to use to help in side coaching can include but are not limited to:
 - *Does your character walk nice and tall or low and short? (Remind students the audience must be able to see them.)*
 - *How fast or slow does your character move?*
 - *Can you show us how you might move your head if you had antennae?*
 - *What would your character use to help it find its preferred environment?*

- Remember, preferred environment is the set of environmental conditions that an organism appears to choose over other conditions.
- How would your character move if it found the perfect spot to live and thrive?
- How would your character move if it found the worst spot to be in?
- How well would your character move? Or not move?
- Signal the group (or class) to freeze.
- Explain to students now that they have explored how they would move as the Isopod **character**, now they are going to explore adding a voice to their **character**.
- Project on the board the following simple one line **dialogue**:
 - I'm looking for my home. My home sweet home, my **preferred environment**.
- Tell students this is the only line they are going to speak and they are to repeat the line over and over again.
- Instruct students to consider what their voice might sound like as they say the line.
- Have the students take a few moments, in their spots, trying out the one line **dialogue** using various voices they believe best fit their **Isopod character**.
- Some prompts to encourage exploring the characters voice could be:
 - Is your voice loud or soft?
 - Is it low and deep or high and squeaky?
 - Do you say the lines really fast or really slow?
- Tell students when you give them the cue, "curtains," they will continue to move about the acting space, the way they did earlier, and speak the one line dialogue as their **character**.
- Instruct students to repeat the same line over and over again using a **character** voice to match the physical movements of their **character**.
- Give the cue for students to move about and say the one line dialog. Side coach as needed and to redirect students.
- Allow students a minute or two to explore the voice and movement of their character.
- Signal students to freeze.
- Instruct students to return to their seats.

GUIDED PRACTICE (*Application of knowledge, problem solving, corrective feedback*)

(20 minutes)

- Explain to students they are going to work in groups to go through the same process they just completed in creating a believable Isopod character. Only now they are going to create a believable Beetle character.
- Divide the class into groups of five (or by table groupings if preferred).
- Display the image of the Darkling Beetle.
- Instruct students discuss in their groups what they know about darkling beetles.
- To ensure all students have an opportunity to speak, tell students every one in the group has 30 seconds to a minute to share out and that every one must share out.
- Tell students you will give them a signal for when it is time for the next person to speak. (Signal can be a bell, light switch, vocal cue or what every you already have in place to cue students.)
- As students are discussing what they know about beetles, hand out one "Cool Facts about Darkling Beetles" sheet to each group.
- After all the students have shared out, inform students each of their groups has been given a "Cool Facts about Darkling Beetles" sheet.
- Explain to students that each person in the group will be responsible for reading out loud to their group one of the interesting facts.
- Once students have shared out the interesting facts about beetles have the students stand so they can begin exploring gestures and postures they can use when playing the character of the Beetle.
- Say:
 - Like we did before, I want to you to imagine you are in a terrarium and your character the Beetle is in search of his or her preferred environment. Stay within the acting area and really think about how you can show with your body, through gestures and posture, what we learned about Beetles to create your character.
- Cue the students to begin moving by calling "curtain."

- Side coach students to encourage creative physical interpretations of their character.
- Questions to use to help in side coaching can include but are not limited to:
 - Does your character walk nice and tall or low and short? (Remind students the audience must be able to see them.)
 - How fast or slow does your character move?
 - You have three parts to your body, how does that change the way you move?
 - What would your character use to help it find its preferred environment?
 - Remember, preferred environment is the set of environmental conditions that an organism appears to choose over other conditions.
 - How would your character move if it found the perfect spot to live and thrive?
 - How would your character move if it found the worst spot to be in?
 - How well would your character move? Or not move?
- Signal the group (or class) to freeze.
- Explain to students now that they have explored how they would move as the Beetle character, now they are going to explore adding a voice to their character.
- Project on the board the following simple one line dialogue:
 - I'm looking for my home. My home sweet home, my preferred environment.
- Tell students this is the only line they are going to speak and they are to repeat the line over and over again.
- Instruct students to consider what their voice might sound like as they say the line.
- Have the students take a few moments, in their spots, trying out the one line dialogue using various voices they believe best fit their Beetle character.
- Some prompts to encourage exploring the character's voice could be:
 - Is your voice loud or soft?
 - Is it low and deep or high and squeaky?
 - Do you say the lines really fast or really slow?
- Tell students when you give them the cue, "curtains," they will continue to move about the acting space, the way they did earlier, and speak the one line dialogue as their character.
 - I'm looking for my home. My home sweet home, my preferred environment.
- Instruct students to repeat the same line over and over again using a character voice to match the physical movements of their character.
- Give the cue for students to move about and say the one line dialogue. Side coach as needed and to redirect students.
- Allow students a minute or two to explore the voice and movement of their character.
- Signal students to freeze.
- Instruct students to return to their seats.
- If time permits, ask students to share out a simple two or three sentence line they can add to the script created in lesson #1 to complete the script.

DEBRIEF & REFLECT (Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?)

(5 minutes)

- Ask:
 - What are some of the different environments on our planet?
 - How does an actor show a character?
 - What does characterization mean?
 - What have you learned about Isopods? Darkling Beetles?
 - Who can explain what preferred environment means?
- In your science notebooks respond to the following prompt
 - How did participating in the theatre activities help me better understand about Isopods, beetles and the environment?

EXTENSION (Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences)

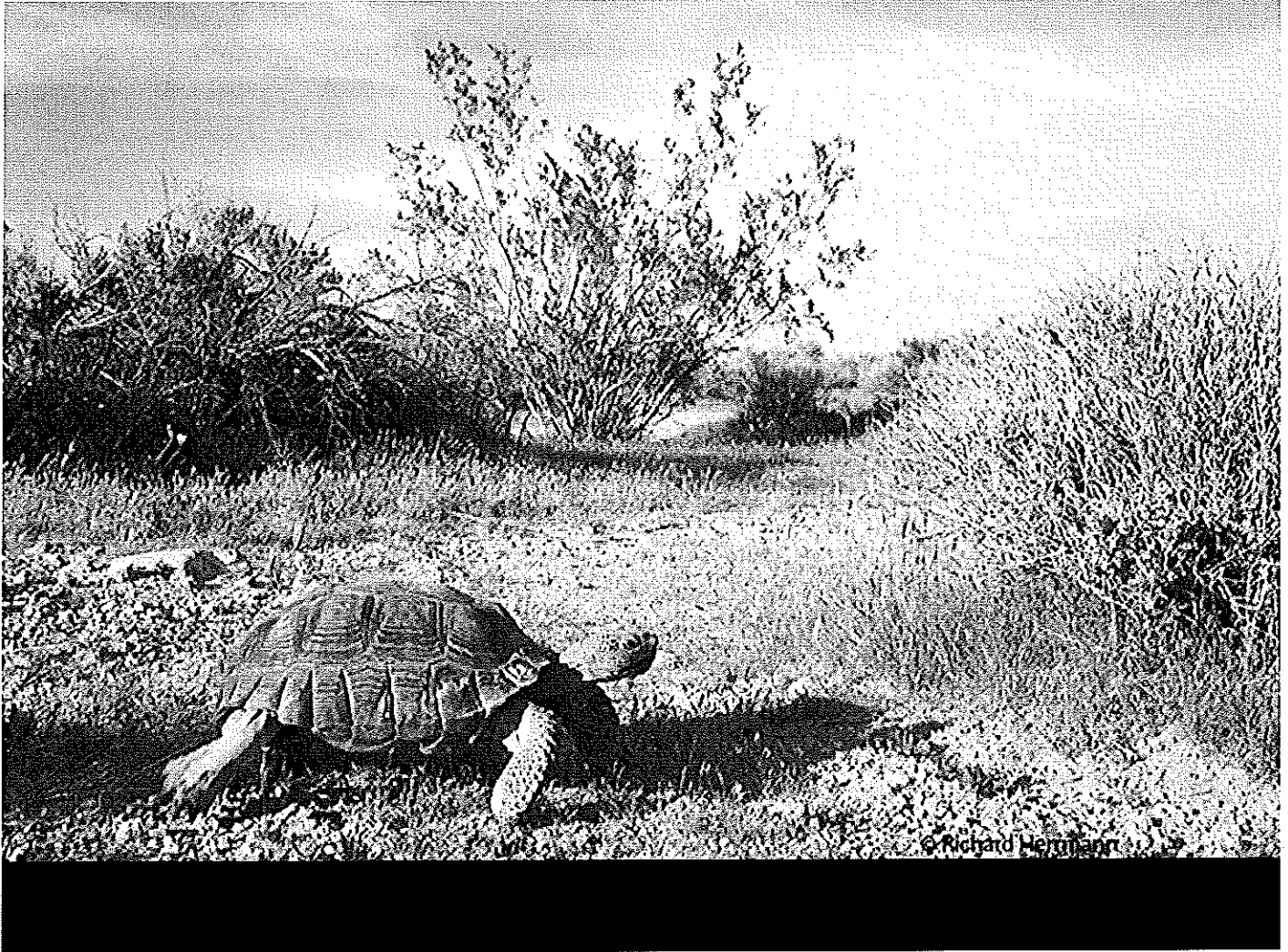
- Make simple masks and/or costumes for the two characters.

- Try creating characters of other organisms.
- Have the students rehearse and perform their scripts for another class.

Tropical Rainforest



Desert



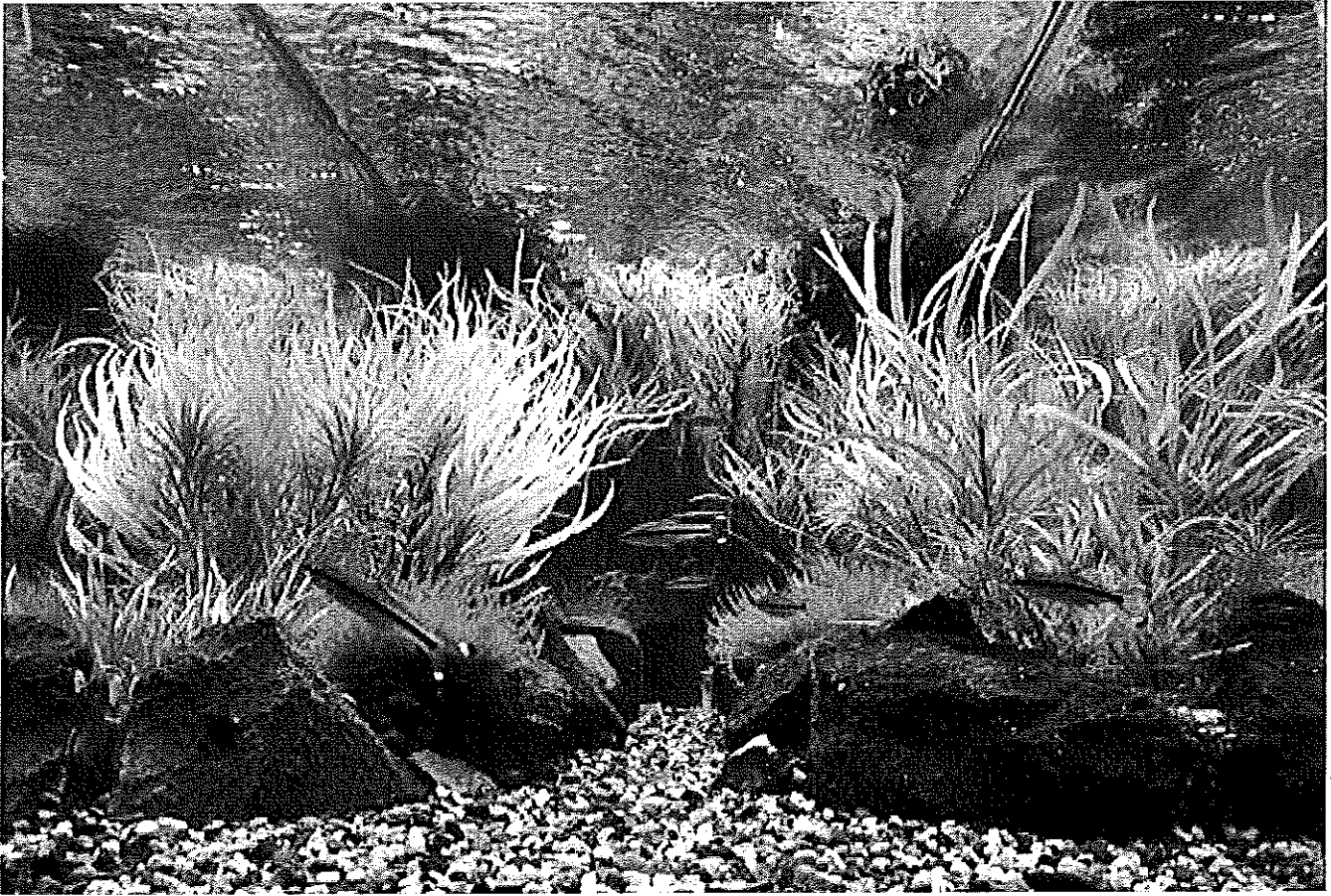
Grassland



Tundra



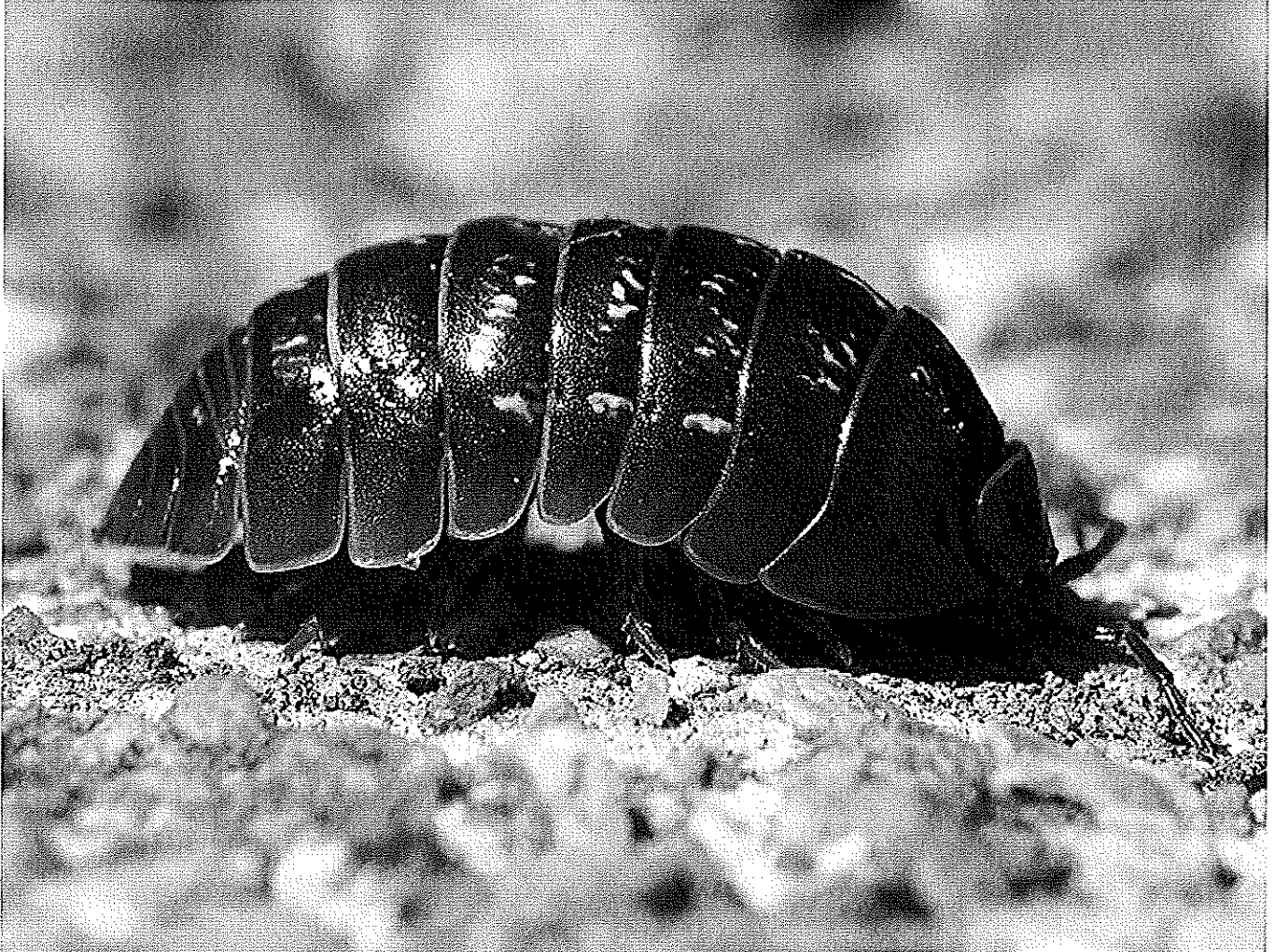
Freshwater Environment (Aquarium)



Salt Water Environment (Aquarium)



Isopod



Darkling Beetle



“Cool Facts about Isopods”

- Isopods are crustaceans, not insects. That means they have a shell, jaws and two pair of antennae.
- They breath through gills like their cousins the crabs, shrimps and lobsters. Isopods, however, live on land but have to be in a moist environment.
- Isopods have seven pairs of legs.
- In class you observed (will be observing) either a pill bug, which curls up when in danger or a sow bug, which can't curl up but can run much faster and is flatter and has longer antennae.
- Isopods feed on dead leaf and play an important part in recycling dead plant material.
- The preferred environment for Isopods is in dark and moist areas near or around dead or decomposing wood and other dead plants.

“Cool Facts about Darkling Beetles”

- Darkling beetles have six legs and three body parts – head, thorax and abdomen.
- This beetle has wings but cannot fly.
- This beetle has a hard exoskeleton or hard outer shell.
- Darkling beetles eat grains and some seedlings.
- Darkling beetles are often considered to be pests because they get into cupboards and pantries.
- The preferred environment for the darkling beetle is usually in dark, dry places.

CUT

“Cool Facts about Darkling Beetles”

- Darkling beetles have six legs and three body parts – head, thorax and abdomen.
- This beetle has wings but cannot fly.
- This beetle has a hard exoskeleton or hard outer shell.
- Darkling beetles eat grains and some seedlings.
- Darkling beetles are often considered to be pests because they get into cupboards and pantries.
- The preferred environment for the darkling beetle is usually in dark, dry places.

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 4
THEATRE AND PHYSICAL SCIENCE**

**I Will Survive
"Life Science: Environments," Investigation 2, Part 2 & 3
LESSON #3**

CONTENT STANDARDS

Theatre

5.2 Use improvisation and dramatization to explore concepts in other content areas.

Physical Science

LS3c Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- How do animals depend on plants for food and shelter?
- How do depend on animals to disperse their seeds?
- What is a predator?
- What does pantomime mean?
- How did the pantomime help me to understand how plants and animals depend on one another?

OBJECTIVES & STUDENT OUTCOMES (*Students will be able to.....*)

- Understand plant and animals are interdependent of each other for survival.
- Identify different environmental factors, which make up different environments.
- Perform a pantomime using posture and gesture to communicate to the audience.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
 - Student's responses
 - Student performances
- **Feedback for Student**
 - Student/Teacher responses
 - Student performances

Words to Know

Theatre Grade 4

- **Actor:** A person, male or female, who performs a role in a play or an entertainment.
- **Audience:** People who watch, listen and respond to live theatre.
- **Character:** The personality of part an actor recreates.
- **Pantomime:** Acting without words through facial expression, gesture, and movement.

Science Grade 4

- **Organism:** Any living thing, including all plants and animals.
- **Pollination:** The moving of pollen to the female part of a flower.
- **Predator:** An animal that hunts other animals for food.
- **Seed Dispersal:** The movement of seeds away from the parent plant.
- **Survive:** To remain alive.
- **Thrive:** To grow and be healthy.

MATERIALS

- Copy of "Photo Pantomime Script Example" (included)
- Copy of "Photo Pantomime Scripts" 6 images (included)

- Science notebooks, 1 per student

RESOURCES

- VAPA "Core Learnings" Grade Four
- *Unscripted Learning, Using Improv Activities Across the K – 8 Curriculum*, Carrie Lobman and Matthew Lundquist
- *Playing the Game*, Christine Poulter
- Endangered Animals Today: <http://endangeredanimalstoday.yolasite.com/>
- Penn State Eberly College of Science: <http://science.psu.edu/news-and-events/2010-news/Carlo2-2010>
- Wikipedia: http://en.wikipedia.org/wiki/File:Dandelion_seed_dispersal.jpg
- Indiana Public Media: <http://testing.indianapublicmedia.org/earthquakes/priyank-article/>
- Kids growing Strong: <http://kidsgrowingstrong.com/taxonomy/term/45>
- Photobucket: <http://s586.photobucket.com/albums/ss306/realphotos/Birds%20Making%20Nests/?action=view¤t=BirdsMakingNests-8.jpg&>
- Tree Hugger: <http://www.treehugger.com/clean-technology/biomimicry-ftw-leaf-eating-ants-fungi-and-bacteria-can-teach-us-how-to-make-better-biofuels.htm>
- *FOSS Kit Grade 4*, "Life Science: Environments," Investigation 2 Part 2 & 3
- *FOSS Science Resources Book*, "Isopods and Beetles"

PREPARATION

- Make copies of "Cool Facts about Darkling Beetles."
- Review Investigation 2 in *FOSS Kit Grade 4*, "Isopods and Beetles."
- Review reading from *FOSS Science Resources Book*, "How Organisms Depend on One Another"
- Optional **actor's** warm-up for use any time a theatre lesson is being taught. It should be *very short*.
 - Review with students that **actors** have three tools/instruments to do their work: voice, body and imagination.
 - Each time an **actor** works they must tune up their instrument.
 - Arrange students in a circle, each one having personal space.
 - Lead students through a physical warm up isolating different parts of the body and stretching. (rotate hands at wrist, roll shoulders backwards and forwards, rotate head at neck, gently swing hips from side to side, knee bends, rotate foot at ankle, lunges, stretching on tippy toes, hanging like a rag doll, slowly rolling up, shake each limb vigorously 8 times, then 4 times, then 2 times, then once)
 - Lead students through a vocal warm up with yawning, humming up and down the scale, breath exercises expelling air with force from the diaphragm, loud and soft voice, and tongue twisters. (Predators, parasites and scavengers, oh my! and/or Pretty Poly playfully pollinates precious petunias.)

WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)* (10 Minutes)

- Form the students in a circle and instruct them to sit.
- Write on the board the word, **Predator**.
- *Ask:*
 - *Who can explain what a predator is?* [An animal that hunts other animals for food.]
 - *Is an isopod a predator?* [No] Note: Take a brief moment to explain to students that isopods are decomposers because they eat dead or decomposing wood and other dead plants and they will learn more about decomposers later.
 - *What about beetles?* [Parasite, scavengers or predators depending on the kind of beetle.]
- Explain to students they are all beetles but different kinds of beetles and one of them is a **predator**.
- Instruct the students to close their eyes.
- Walk around the circle and touch one student on the head.
- Explain to the students that the person who was touched on the head is the **predator**.
- *Say:*
 - *The predator is hungry and is going to eat some of the others in the circle by winking at them. The*

*predator wants to eat everyone in the circle with out being caught to ensure its **survival**.*

- Write the word survival on the board.
- Ask:
 - What does **survive** or **survival** mean? [To remain alive]
- Say:
 - *If a one of you sees the **predator** wink at them they should count to five then slowly die with out revealing who the **predator** is.*
 - *If another student catches the **predator** wink at someone else s/he is free to comment on this to the others since only a direct wink causes you not to **survive** and silence.*
 - *You all need to be carefully watching and trying to identify who the **predator** is and you all must reach a unanimous agreement before making an accusation.*
 - *If a false accusation is made the predator wins; if a correct accusation is made then the surviving students in the circle have **survived** and live on.*
- Begin the game.
- Side coach as needed to ensure the rules are enforced.
- After the predators is discovered or wins, have students return to their seats.

MODELING (Presentation of new material, demonstration of the process, direct instruction)

(20 minutes)

- On the board write the word **pantomime**.
- Ask the students what they believe the word **pantomime** means.
- Next to the word pantomime write the definition.
- Explain to students today they are going to perform a simple **pantomime** showing one of the following things.
 - How **insects** and animals need plants for food in order to **thrive** and **survive**.
 - How **insects** and animals need plants for shelter to **thrive** and **survive**.
 - How some plants need animals or insects to disperse there seeds so they can **thrive** and **survive**.
- Say:
 - *Before we begin we are going to pantomime making the perfect sandwich. While sitting at your desk, you will pantomime making what you consider to be the perfect peanut butter and jelly sandwich. It's important to remember when you are pantomiming you want your posture, gestures and actions make it clear as possible to the audience what it is you are doing. Begin making your sandwich.*
- Guide students through there pantomime.
- Say:
 - *Get your bread from the cupboard.*
 - *Take out the peanut butter and jelly.*
 - *Open the bag of bread and take out two slices of bread.*
 - *Take out something to spread the bread.*
 - *Open the peanut butter jar, then the jelly jar.*
 - *Scoop out some peanut butter and spread it on one slice of bread.*
 - *Remember, this should be the perfect peanut butter and jelly sandwich so show how you would spread the peanut butter in way that you think it makes it perfect.*
 - *Now do the same thing with the jelly.*
 - *Carefully put the two slices together.*
 - *Look at your completed sandwich thinking about how wonderful the first bite is going to taste.*
 - *Take a huge bite out of the sandwich.*
 - *Show how awesome, good, so-so or terrible the sandwich tasted.*
- Tell students now they need to **pantomime** putting the bread, peanut butter and jelly away.
- Explain to students now they are going to **pantomime** what they learned in science using what we are going to call a "Photo Pantomime Script."
- Project on the board the "Photo Pantomime Example."
- Explain to students you are going to call on 4 or 5 students who will be guided through a scripted **pantomime**.
- Assign one student to be the owl, another to be the coyote and the rest as cacti.
- The actors playing the part of the owl and the predator will start off stage (to the side of the acting space.)

- The students playing the part of the cacti can pick a place in the acting space where they can stand looking like they are cacti.
- **Say:**
 - *Use your imagination. Ask yourself, if I were a cactus, what would I look like? Then hold a pose but react to what happens in the pantomime.*
 - *Then the owl flies in looking for the perfect cactus to make it's home. The Owl first looks at one cactus but doesn't like it so it moves to another. The Owl keeps searching until it finds the right cactus to make its shelter.*
 - *Finally owl finds the perfect cactus and starts to dig out a hole. When Owl is done it crawls into it's new home. In the distance owl sees Coyote who is looking for food. Owl knows it is safe while in the cactus home.*
 - *Then along comes Coyote looking for some food. It sees the owl in the cactus and tries to jump up to eat the owl but is poked by the cactus spines and the Coyote runs away in pain as Owl watches.*
- Direct the student who is playing the part of the owl to walk down to front of audience and say:
 - *Animals like owls use plants to create shelter to protect them from the weather and to keep them safe from predators.*
- Instruct the group to take a bow and for the audience to applaud.
- Have students return to their seat.

GUIDED PRACTICE *(Application of knowledge, problem solving, corrective feedback)*

(20 minutes)

- Project on the board and read aloud to the students the six "Photo Pantomime Scripts."
- Divide the class into six groups.
- Explain to student they will now create their own **pantomime** following the "Photo Pantomime Scripts" which they will be assigned.
- Tell students every one in their group must be part of the **pantomime**.
- Remind students, just like the **pantomime** they saw modeled earlier, when **pantomiming**, performers can play any role. (i.e. plant, animal and/or person)
- Explain to students they are only going to have five to eight minutes to re-read, pick parts and rehearse their pantomime.
- Assign each group an area in the classroom where the groups can meet and rehearse.
- Hand out one "Photo Pantomime Script" to each group.
- Instruct students to begin working on their **pantomime**.
- Walk around the room side-coaching students as needed.
- After eight minutes have students return to their seats.
- Have each group, or as many as time permits, come up one at a time to perform their scripted pantomimes.
- Project on the board the groups "Photo Pantomime Script" as the group performs to assist keeping students on track.
- Remind students to take a bow at the end of their performance and encourage the audience to applaud.

DEBRIEF & REFLECT *(Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?)*

(5 minutes)

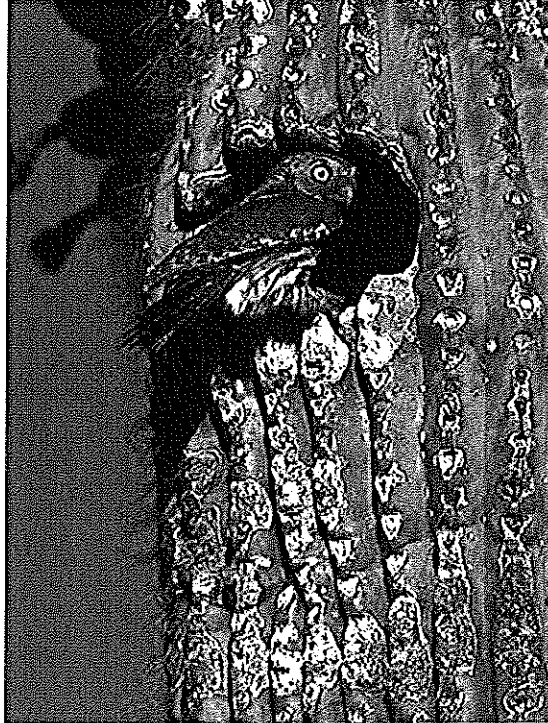
- **Ask:**
 - *What is an example of animals depending on plants in their environment?*
 - *What is an example of plants depending on animals in their environment?*
 - *How do plants disperse their seeds?*
 - *What does pantomime mean?*
- In your science notebooks respond to the following prompt
- How did performing a pantomime help me understand how plants and animals are dependent on one another?

EXTENSION *(Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences)*

- Pantomime a math word problem to help figure out the answer.

- Pantomime a chapter or part of a story you are reading in class.
- Have the students rehearse and perform their pantomimes for another class.

Photo Pantomime Example
Organisms Depending on Plants for their Shelter



Animals like owls use plants to create shelter to protect them from the weather and to keep them safe from other predators.

Characters

Owl

Coyote, the predator

Two or more cacti

- Owl and coyote: Start off stage (to the side of the acting space.)
- Cacti: Pick a place in the acting space where you can stand looking like you are cacti. Use your imagination. Ask yourself, if I were a cactus, what would I look like? Then hold a pose but react to what happens in the pantomime.
- Owl: Fly in looking for the perfect cactus to make its home. First look at one cactus but you don't like it so it moves to another. Keep searching until you find the right cactus to make your shelter.
- Owl: You find the perfect cactus and start to dig out a hole. When you are done crawls into your new home. You see Coyote who is looking for food. You know it is safe while in the cactus home.
- Coyote: Look for some food. See the owl in the cactus and try to jump up to eat the owl but get poked by the cactus spines. Run away in pain.
- Owl: Watch coyote run away.
- Owl: Walk down to the front of audience and says:

Animals like owls use plants to create shelter to protect them from the weather and to keep them safe from predators.

Photo Pantomime Script
Organisms Depending on Plants for their Shelter



Birds use plants to make their shelters like this nest.

Characters

Bird one	Tree two
Bird two	Snake, the predator
Tree one	

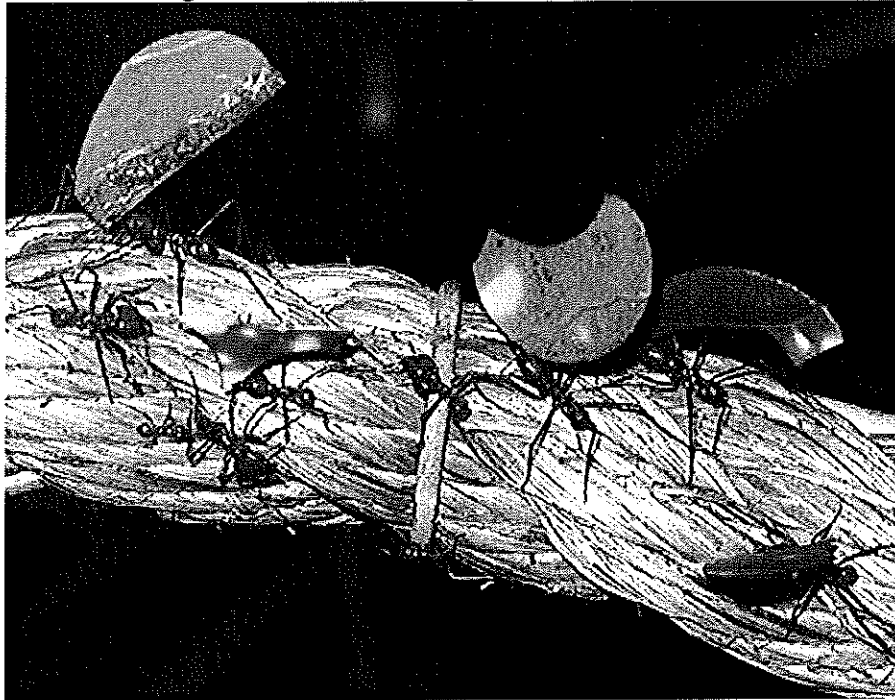
- The actors playing tree one and two stand in the acting space and should be apart from each other. Make sure you show through posture and gesture that you have branches. One tree should be shorter than other.

(Remember, this is pantomime so you will not be actually hanging on the actor playing the part of the tree. Use facial expression, posture and gestures to show your are on the branch.)

- Bird one flies in looking for a spot to make its nest. The bird first goes to the shorter tree but doesn't think it is a safe place to build it's nest and flies to the taller tree.
- Bird one calls Bird two in. Bird two flies in and both agree to build the nest on the taller tree.
- Bird one and two go off and on stage find plant materials to build their nest. After the birds go on off stage three or four times they then begin to build their nest.
- Once the nest is built the birds settle into the nest. Bird one flies away while bird two shows that it know has an egg in the nest and stays to protect and keep it warm.
- Down low on the ground enter two snakes looking for food. They slither around the trees while bird two looks below. Finally the snakes slither away.
- Bird two walks down to the front of audience and says:

Some birds use plants to make their shelters, like nests, in tall trees.

Photo Pantomime Script Organisms Depending on Plants for Food



Some insects like these leaf cutter ants use plants as food.

Characters

five Leaf-cutter-ants

Bush plant

- The actor playing the part of the bush should find a spot in the acting space and get into a comfortable pose they can hold. Through facial expression, posture and gesture make it look like you're a bush with leaves.
- Two ants enter looking for food. They both move about the acting space quickly but safely. Once or twice the ants will meet up as they are looking for food.
- One of the ants finds a plant somewhere in the acting space then motions the other ant over. They both go over to spot where the plant was found and begin to cut leafs off and take them to the ant colony off stage.

(Remember, this is pantomime so you have to show with facial expression, posture and gesture you have found food.)

- The rest of the ants, in a line, enter the acting space and go to the where the plant is and begin to cut parts of leaf off and carry them back. Make sure to show whether the leaves are heavy or not. Keep in mind these are small ants carrying some big leaves.
- As the ants remove the leaves the actor playing the part of the bush should show with their body that it's leaves are disappearing until they are all gone.
- The ants continue to go back and forth two or three times until finally there are no more leaves. Once the bush is bare of leaves the ants leave.
- The bush pauses for a moment then walks down to the front of audience and says:

Some insects like these leaf cutter ants use plants, like me, as food.

Photo Pantomime Script Pollination



Bees pollinate flowers while they gather nectar to take back to the hive.

Characters

Bee one	Flower one
Bee two	Flower two
Bee three	Flower three

- Flower one, two and three place themselves on stage separate from each other. Each flower wants to attract bees to it. Using facial expression, posture and gesture think about how you would attract the bee to you.
- The bees off stage should count to ten while the flowers try to look attractive then they should fly in. Don't go to the flowers right away. The bees first buzz around the acting space and flowers.
- As the bees fly around the flowers should try to attract the bees so they will land on them.
- Each bee flies to a flower the lands on them (remember, you don't really land on the flower just make it look like you are) to gather the nectar.
- As the bees gather nectar the flowers stick pollen on the bees.
- The bees leave the flower they are on and fly to another flower and again gather nectar. While the bees are collecting the nectar the pollen from the other flower is passed (transferred) to this flower.
- After the bees have gathered the nectar they fly off stage while the flowers stay on stage.
- One of the flowers walks down to the front of audience and says:

Bees pollinate flowers while they gather nectar to take back to the hive.

Photo Pantomime Script Pollination



Butterflies pollinate flowers while they gather nectar for food.

Characters

Butterfly one	Flower one
Butterfly two	Flower two
Butterfly three	Flower three

- Flower one, two and three place themselves on stage separate from each other. Each flower wants to attract butterflies to it. Using facial expression, posture and gesture think about how you would attract the butterflies to you.
- The butterflies off stage should count to ten while the flowers try to look attractive then they should flutter in. Don't go to the flowers right away. The butterflies first flutter around the acting space and flowers.
- As the butterflies flutter around the flowers should try to attract the butterflies so they will land on them.
- Each of the butterflies flutters to a flower then lands on them (remember, you don't really land on the flower just make it look like you are) to gather the nectar.
- As the butterflies gather nectar the flowers stick pollen on the butterflies.
- The butterflies leave the flower they are on and flutter to another and again gather nectar. While the butterflies are collecting the nectar the pollen from the other flower is passed (transferred) to this flower.
- After the butterflies have gathered the nectar they flutter off stage while the flowers stay on stage.
- One of the flowers walks down to the front of audience and says:

Butterflies pollinate flowers while they gather nectar for food.

Photo Pantomime Script Seed Dispersal



Birds disperse seeds when they sometimes drop seeds as they try to take them back to their nest as food.

Characters

Bird one	Parent Plant two
Bird two	Seed one
Parent Plant one	Seed two

- Parent Plant one and two stand on stage apart from each other as far back from the audience as possible in the acting space. Behind them seed one and two should be curled up out of sight.
- Bird one and two fly on stage (remember, you want to make yourself look like a birds using facial expression, posture and gesture) looking for food.
- The birds notice the Parent plants and see the seeds on the plant. Again, you need to show this with facial expression, posture and gesture.
- Bird one is the first to take a seed (don't take the actor playing the seed yet) and fly off stage then back. As bird one flies off bird two goes to get a seed also and takes it off stage.
- The second time the birds come to take a seed they take the actors playing the part of seeds. Only as they try to carry the seeds away, they drop the seeds. Actors playing the seeds should land as far away from the two parent plant actors as possible.
- The birds fly away leaving the seeds on the ground.
- After a count of ten, the seeds very slowly begin to grow into a plant. Once the seed has grown into a plant, Seed one (who now is a plant) walks down to front of audience and says:

Birds disperse seeds when they sometimes drop seeds as they try to take them back to their nest as food.

**Photo Pantomime Script
Seed Dispersal**



Some plants use the wind to disperse their seeds.

Characters

Dandelion	Seed one
Seed Two	Seed three
Seed three	Wind

- Dandelion stands on stage with all the seeds around it. Because you can't stand on Dandelion's head you need to use facial expression, posture and gesture to show you are on Dandelion's head.
- The seeds are still a part of the dandelion when suddenly the in comes the wind causing the seeds to be blown off the dandelion to land somewhere else in the acting space.
- Wind exits the stage.
- Seeds get settled in the soil then begin to very slowly grow into a Dandelion.
- Once all the seeds have grown into dandelions they hold a Dandelion pose for a count of ten.
- The actor playing the part of dandelion walks down to front of audience and says:

Some plants use the wind to disperse