

CRICKET LESSON PLAN #2

GRADE LEVEL: Fourth Grade

SCIENCE CONCEPT: Animals make music to help them (their species) survive

RELATIONSHIP TO SCIENCE CONTENT STANDARDS: 3.b. 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.

LEARNING OBJECTIVE: Students will identify on paper the crickets that will likely survive.

EVALUATION IDEAS:

1. **INFORMAL** – Teacher will observe students responses during activities and discussions.
2. **SUMMATIVE** – Students will identify the crickets on paper that have better chances of surviving. They will identify the cricket that will survive the most, less well, and ones that may not survive at all.

CONCEPTUAL BACKGROUND – The anatomy of crickets are separated into three sections; the head (with eyes, antennae, and mouth), thorax (with three parts, each with legs), and abdomen. “European Field crickets have a musical pitch of four octaves above middle C, some 4,200 vibrations per second, with the wings rubbing together seven times in this interval. They have long thread-like antennae, jumping hind legs, and two pair of wings (some have none). Each family of crickets makes their own tune, but sounds vary with temperature. An upturned scraper on one forewing is rubbed along a row of fewer than 10 to more than 1300 teeth, on the underside of the other forewing; tooth number, often species-specific correlates with pulse rate and length. The dominant frequency in the sound depends on tooth-strike rate.” Male crickets use this tune to attract females. The more dominant and strong the call, the more the female will be attracted. The other male crickets may try to duel each other for the female. If the cricket loses, their chirp becomes less confident.

WORD WALL –

Chirp, cricket, wings, survive, music

LESSON IMPLEMENTATION PLAN:

ENGAGE: After the students are seated, the teacher will play different types of music; classical, rock, pop, jazz, soul, country, and hip-hop and any of the cultural music representing students in the classroom. The students will vote on which music they like best.

Now the teacher plays different cricket sounds that she recorded from the SERC crickets earlier. The audio should have different rhythms of cricket tunes.

http://www.teachertube.com/music.php?music_id=4262&title=Crickets is one cricket sound to add to the assortment. The students are then asked to determine how and why these crickets make these sounds.

EXPLORE:

On paper, students should make their predictions and include why they think a cricket makes the sound and where the sound comes from. Students will make their predictions and observations in groups. The students will then observe the live crickets, borrowed from SERC, that are in the classroom. They will also gather information from different books located in the classroom. Some informational books about crickets are *Chirping Crickets* by Melvin Berger, *Grasshoppers and Crickets of North America* by Sara Swan Miller, and *Crickets and Grasshoppers* by Elaine Pascoe.

EXPLAIN:

After the information is gathered, the groups will discuss in class their predictions and discoveries. The students will then gather together and watch a movie clip of a cricket chirping, <http://www.youtube.com/watch?v=CQFEY9RIRJA>. The teacher will then discuss why crickets chirp and how it effects the survival of the cricket species. The students will also discuss the previous lesson on camouflage for background. Students will then look at the anatomy of the cricket and see how crickets make the sound and what other factors in the anatomy may help the cricket survive.

ELABORATE:

Students will interact in an activity where some students will be playing a tune in different parts of the yard. In a sense they will be crickets. This activity is more effective outside where there are less obstacles and a larger area. The students will be blindfolded and have to make their way to the tune. The second time they participate in this activity they will have to make their way to one of three tunes played. The third time the students may see but will need to crawl without one arm **or** leg. The third time they participate in the activity they will not be able to use one arm **and** one leg (tied or held back).

After the activity, the class discusses how difficult it was to find or follow the tune without certain body parts and how the tune made it easier to find.

The students will then complete the worksheet (Lesson 2, Worksheet 1) on what animals would survive in different circumstances. They will also complete another worksheet asking questions about crickets (Lesson 2, Worksheet 2).

EVALUATE:

Students will identify on a piece of paper which crickets have a better chance of surviving. The test will be similar to worksheet 1.

The student will need to explain why the cricket would survive better, the answer being because the cricket has eyes to see or legs to jump away from prey or to see food or some comment that would name a body part and mating calls or love songs. This test is a pass/fail test. If the student doesn't pass, the student would need to read books again or a reteach would need to take place with student.

DIFFERENTIATION PLANS:

Behavioral for Student A – The goals of the day will be communicated to this child prior to the lesson. The child who makes noises at inappropriate times will be given a chart of stickers for staying on task and not making loud obnoxious noises. When the student fills up their chart, they may chose a student job, which is a coveted role.

Cognitive for Student B – The student who has difficulty reading will be paired with a stronger reader during group session. The group discussions should also help Student B understand written information.

Cognitive for Student C – The student has difficulty remembering will have the lesson repeated in several different ways; audio, video, real life observation, touching and doing.

Affective for Student D - For the student who has difficulty with change, the schedule for the day will be posted before class on the board. Also, before each activity, the teacher will explain what will happen and where it will take place and examples of how it will work.

Language Demands for Student E – The Beginning Language Learner will be placed in a group with a Proficient Level Learner and other English speakers. A word wall will also be used to help with certain terms. The ELL teacher will also be given the lesson plan and worksheet the day before so the ELL teacher can share the next day's plan with the student before the lesson.

Language Demands for Student F – For the student who has difficulty expressing theirselves with words, the lesson is active. By verbally communicating in groups and to the teacher one on one, the student gains experience and practice articulating.

Language Demands for Student G – For the student that lisps, a preview to the cricket will be shown prior to the day's lesson. The student may practice at home saying the word cricket to gain confidence and correctness.

LIST OF MATERIALS:

- iPod or CD player

- Different types of music: jazz, rock (not too loud or harsh), classical, hip hop, country, and soul.
- Worksheets (attached)for all students
- Evaluation papers for all students
- Crickets from SERC
- Blindfolds (or the students may close their eyes) for all students
- Books (one set for each group): *Chirping Crickets* by Melvin Berger, *Grasshoppers and Crickets of North America* by Sara Swan Miller, and *Crickets and Grasshoppers* by Elaine Pascoe
- Computer with website:

For movie of chirping cricket, <http://www.youtube.com/watch?v=CQFEY9RIRJA>

To hear chirping cricket,

http://www.teachertube.com/music.php?music_id=4262&title=Cricket

- Paper and pencil for all students

DIRECTIONS OR SPECIAL INSTRUCTIONS; SAFETY CONCERNS, ETC.

Explain that the SERC animals are special and the best way to care for them in our class is to not touch the case that holds them. We want their environment to stay as natural as possible in this setting. The teacher should make sure she explains in detail each activity before the activity. Space and caution needs to be given to the children during the activities so as to not accidentally hurt each other.

A student may associate an insect's chances of survival with a human's chances of survival. In other words, they may conclude that since crickets without legs don't survive in the world as well as crickets with legs then humans without legs or limbs won't survive as well as those that have all limbs. This is an excellent opportunity to talk about the subject of physically challenged people. All people are special, and all have different obstacles that are challenging. Tell them that they experienced how difficult it is to accomplish everyday tasks and for them to be aware of that when they meet a person who is physically challenged. Kindness and helpfulness should be given to everyone and we just need to see how we can be helpful to others. Make sure to explain how medical science has advanced and how people's determination and adaptation have helped them overcome these obstacles and that they are usually happiest when they are like and treated just like everyone else, but with quiet adjustments. Of course, this could be another educational lesson within itself including having a physically challenged person talk to the students about their situation. We want to raise knowledgeable children sensitive to all people.

References:

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Children's Books:

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Miller, S. S. (2002). *Grasshoppers and crickets in North America*. New York: Franklin Watts

Pascoe, E. (1999). *Crickets and grasshoppers*. Woodbridge, CT: Blackbirch Press.