Investigating Invertebrates in Escondido

Rincon Middle School
Science Journal

Student Name

__________________________________________

Student Research Group Name

__________________________________________

Teacher ____________________

Period ________

Lesson Dates

__________________________________________
Schoolyard Safari
Lesson One (Day One)

Name: ______________________  Date: ________________  Time: _______

Schoolyard Nature Observations
Nature can be found in many different places-underground, on the soil/ground surface, in the bushes, trees, sky, in the distance on your school field or on a hill far away. It can be plants or animals or weather patterns (wind, temperature, clouds.) Scientists learn about their environment and what they are studying by observing and using their senses.

What did you observe in your surroundings?
Record information below based on your observations in the field. Guesses are OK!

What sounds did you hear? List at least 3 sounds. If you are not sure of the sound of an animal you are heard, make a hypothesis.

What did you see? Describe 4-6 living things you observed.
- What did you observe up close?

- What did you observe in the distance?

What did you feel? Describe 2-3 things you felt in the air and environment around you. (wind, temperature, other weather conditions)

What did you smell? Check out the plants and sniff the air.

What are your experiences, as an observer? How did you feel for that minute when you were quietly observing nature and noticing your surroundings? Write as if you are describing it to your best friend, who was not doing this activity with you.
Group Observations  
Lesson One (Day Three)

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<th>Name:</th>
<th>My job:</th>
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<th>Period:</th>
<th>Time of day</th>
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<th>Weather:</th>
<th>Observation area:</th>
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Everyone is to look for specimens of invertebrates and make **5 minutes of quiet observations** before any collection is done. Look at living things and make a note of the environment they are in. Be careful where you step and put your hands. Do not hurt the creatures—they can be very delicate.

Then work together in your group to observe, discuss and record the following. All recorded observations must be documented by camera or illustration (sketch), written notes, labels, and the map locations. The job assignments are described in Appendix 3. **Make sure you have a total of at least 10 observations about the three topics below. (More for a better grade.) Use notebook paper for more space.**

Describe at least 3 invertebrates observed (include details for a better grade).

Describe the area where your invertebrates were found.

What trees and plants were observed?

What was the soil like?

Why do you think the invertebrates are living in these locations?
The student assigned to be the Mapper/Timekeeper will record the locations of the observations on the campus map.
Share and Compare Collections
Lesson Two (Day Four)

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<tr>
<th>Date:</th>
<th>Period:</th>
<th>Invertebrate collection method:</th>
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<td>Time of day observed:</td>
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As a group, observe your specimens. Each student takes notes on the following questions:

What similarities did you find with your specimens?

What differences did you find with your specimens?

What body parts can you name?

How do the animals move? What are the differences in locomotion?

What kind of skeleton, if any, do the animals have? Do any of them have a backbone?

What do these animals need to survive?

Where did you find the animal?

How are these animals dependent on the ecosystem to survive?
Scientific Illustration (Part 1)
Lesson Two (Day Five)

Name: ______________________  Date: ________________  Time: _______

Part I: Each student chooses a different specimen to draw and label, with as many details as possible. Include body parts, number of legs, wings, where legs are attached, colors, antennae, etc. Use the extra blank pages at the back of the journal, if needed.

If you are the ant group and all specimens look alike, that is OK. Each of you will have a different drawing style and you can compare afterwards.
Part 2: Choose one specimen from your collection to sketch in your journal. Use magnification tools, dissecting scopes, scientific illustrations as examples, and reference books on how to draw insects. Include as many body parts and details as possible, incorporating a variety of lines, shapes and colors.
Name that Creature! Classification of Invertebrates
Lesson Three (Day Seven)

Use a dichotomous key for insects. A dichotomous key is a series of statements to choose between. “Di” means “two” in dichotomous key. The choices should be easy to observe. Each step is a pair of statements about the organism. There should be one less step then the total number of organisms to be identified in your key (if you have 6 organisms, you should have 5 paired statements to identify them all).

The figure on the next page shows the relationships between six different arthropods. Notice that the first difference is the number of legs. Other statements compare the wing structure, tail structure and body size. Start by writing statements that describe the choices for each of the boxes.

Some arthropods have six legs. Some arthropods have eight legs. (This will become #1 in the dichotomous key.)

Some arachnids have _______________. Some arachnids have ____________________.

Some insects have _______________. Some have no ________________.

Some wings are __________________
Some have ______________________________________________. Some have __________________________________________________________________.

Now use logic to write these sentences into a dichotomous key.

1. A. If animal has six legs, go to 3.
   B. If animal has eight legs, go to 2.

2. A. If animal has ______________________, it is a _____________________.
   B. If animal has ______________________, it is a _____________________.

3. A. If animal has ______________________, it is a TRUE BUG.
   B. If animal has ______________________, go to 4.

4. A. If animal has ______________________, it is a BEETLE.
   B. If animal has ______________________, go to 5.

5. A. If animal has ______________________, it is a BEE, WASP OR ANT.
   B. If animal has ______________________, it is a BUTTERFLY.
The last assignment is to write the dichotomous key again, just looking at the figure above (and not the previous page). When you have finished, check your work with a classmate.

1. A.
   B.

2. A.
   B.

3. A.
   B.

4. A.
   B.

5. A.
   B.