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Lesson Plan: Insects and Spiders

Title: Insects and Spiders
Science Process Skills: observation
Materials needed: "Bugs are Insects" by Ann Rockwell, ladybug print-out, digital microscope, and insects and other arachnids in jars, individual magnifying glasses
Reference Sources: http://www.sharonmacdonald.com/teaching-web-archives/ants-head-abdomenthorax-song.aspx,
Science Standard: scientific inquiry
Target Grade Level: 1st grade
Description (5E Model):
Engage: read "Bugs are Insects"
Explore/Explain: Give out magnifying glasses and individual insects/arachnids. Ask if the animal in front of them is an insect or not an insect the students observe the animal with their magnifying glass and write/draw about their animal in their science journal.
Elaborate: One at a time, help students take a picture of their animal with the digital camera.
Print out the picture and glue to ladybug print-out.
Have students write one sentence about their animal on the ladybug.
Evaluate: Sing the song "Head, Thorax, Abdomen
"Head Thorax Abdomen Abdomen" song (tune of Head, Shoulders, Knees and Toes")
Head, Thorax, Abdomen, Abdomen (point to head, point to stomach, point to bottom and shake bottom for second "Abdomen")
Head, Thorax, Abdomen, Abdomen (repeat above movements)
2 Antenna, 6 Legs and Compound Eyes (make a fist and put up pointer fingers near temples, show the number 6 with fingers, curl hand to make C's and put around eyes)
Don't forget the ones with wings, ones with wings! (Clasp thumbs together, use other fingers to make a flapping motion)
Citation of children's book: Rockwell, Ann F. (2001). *Bugs are Insects*. HarperCollins.

We first used of the digital microscopes with both the university and Arcola students to observe insects and spiders. After the initial learning curve, the students loved the microscopes. Instead of spiders only, we used the digital microscopes to observe both insects and spiders. We saw some amazing details on a katydid. There were very tiny red spots that were only visible with the digital microscopes. The observation of those spots sparked a wonderful conversation where the first grade students and the university students used the observation to develop hypothesis about the purpose of the red spots. During the same lesson a spider climbed up into the bottom of the digital microscope. We were able to see the mouth parts of the spider along with the very fine hairs covering its body. First grade students who were initially afraid of the spider overcame their fear because the images were so engaging. We were able to discuss the characteristics of insects and spiders and why they are different. We were able to address all of the Indiana Academic standards that we identified for this lesson. The lesson concluded with first grade students writing a sentence about their insect or spider and making an insect shape book. The books were used to make a bulletin board and then added to the first grade classrooms libraries.

Ladybug picture book bulletin board

One of the best attributes of using the digital microscope in an educational setting is the ability for large numbers of students to see the same image at the same time. The conversations and concept development was greatly enhanced by having a microscope students could manipulate with images everyone could see.

Description of the lessons with lesson plans

First Grade

Dept, Class, Grade Level	Student work/project	Intended use of equipment	Indiana grade level standard addressed
Grade 1	• Labeled drawings of spiders and spider parts. • Detailed written description of observation to be displayed with diagram. • Spider Shape Book	• University students to instruct 1st grade students on the use of equipment. • Magnified observations of spiders and spider parts • Photograph anatomy of spider to label • Link to literacy using observations to publish a shape book	1.1.1 Observe, describe, draw, and sort objects carefully to learn about them. 1.1.4 Use tools, such as rulers and magnifiers, to investigate the world and make observations. 1.2.5 Demonstrate that magnifiers help people see things they could not see without them. 1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations. 1.4.2 Observe and describe that there can be differences, such as size or markings, among the individuals within one kind of plant or animal group.