UF CPET

FFL Principle 6- Manage Yard Pests: Build-A-Bug
Middle School

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Program Type: In Class Activity	**Duration:** ~1hr

Standards:
SC.7.L.17.1: Explain and illustrate the roles of producers, consumers, and decomposers and describe how energy is transferred through a food web.
SC.912.L.15.6: Discuss distinguishing characteristics of the domains (Archaea, Bacteria, Eukarya) and describe characteristics of kingdoms within each domain.
SC.912.L.15.7: Identify distinguishing characteristics of major vertebrate and invertebrate phyla and describe representative examples of each chordate class.

Learning Objectives: Understand insect and arthropod body segments, and understand metamorphosis

Guiding Questions: What are the body segments of insects and arthropods? What is the difference between partial and complete metamorphosis? Why are some bugs considered pests?

Intended Outcomes

As a result of the program, what I want my audience to LEARN…	**As a result of the program, I want my audience to ACT by…**	**Assessment: (*How will you know* your audience has reached your intended outcomes)**
The body segments of insects and arthropods Native Florida arthropod species. Identify common “good bugs” and common pests/ “bad bugs” Metamorphosis in common Florida species	Being able to identify common insects in Florida and differentiate it from a “bad bug” or “good bug” Being able to explain the difference between complete and partial metamorphosis	Students will design their bugs in class and present each bug's body segment and explain their bug's metamorphosis.

Schedule Layout:	**Items Needed:**
Introductory lesson based on the FFL “Pest Management” principle. Focus on explaining the difference between insects and other arthropods. Show a few common “good bugs” and a few common “bad bugs” in Florida and the local community. Show examples of partial and complete metamorphosis. **~15min**	Free FFL “Pest Management” handbook
Build a Bug activity: Students will get in small groups where they will be given body segments of 5 arthropods, at least 2 insects, and 2 arthropods in each bag. These groups will then put them together and identify the following: Is it an insect or other arthropod? Is it a “good bug” or “bad bug”? What species is this bug? Identify each body segment of the bug. **~15 min**	Enough bags for groups of 4-5. 5 insects broken up into individual body segments. Ideally, these segments will be laminated for future use. Print out the worksheet so they can answer the questions outlined in the Build a Bug activity.

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Design a Bug activity: Each student will design their own bug, by drawing a bug and labeling each body segment. They will also design their own partial or complete metamorphosis for the bug and draw the morphology of those life stages **~20min**	Markers/crayons/ or other art supplies and paper.
Present a Bug: Each student will quickly explain their bug's body segments, their metamorphosis process, and one fun fact about their bug. **~20min**	

Details:

Activity Set-Up:

Need to print before activity:

Groups will be split into 3-4 students. Each group will need one set of bugs from the print-a-bug sheet. These need to be cut into pieces based on body segments so that the students can put them back together.

The print-a-bug sheets will also need to be cut and if possible laminated ahead of the activity and separated into separate bags for ease of use.

Students will also need a build-a-bug worksheet (1 each)

Presentation made ahead of time:

Students will be given a presentation based on FFL principle 6. This activity will focus on the benefits of “good” bugs and familiarize students a bit about some “bad” bugs to watch out for. This activity will also teach students about what arthropods are and the life cycle and morphology of insects.

Other materials:

Extra pens/pencils for writing on the activity sheet.
Markers/crayons/colored pencils or other art supplies for the build-a-bug activity
Extra sheets of paper in case students need more pages to explain their bug’s life cycle, or extra drawings.