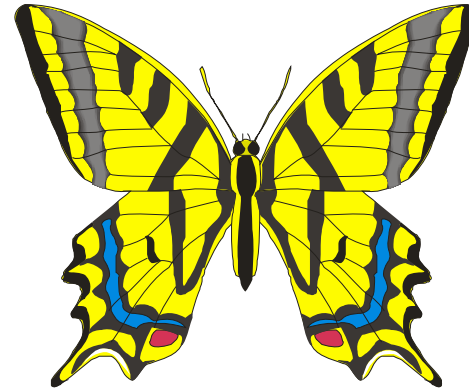




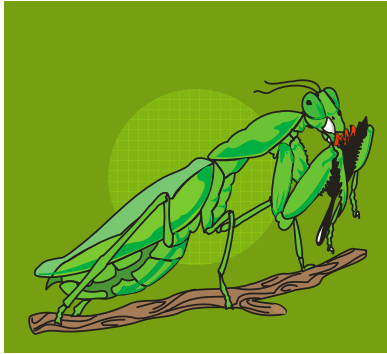
The spider.  
It has 2 body parts & 8 legs.  
Insects have 3 body parts & 6 legs.



# TEAMING WITH INSECTS

NATIONAL 4-H CURRICULUM INTRODUCTION

One of these is NOT an insect. Which one?

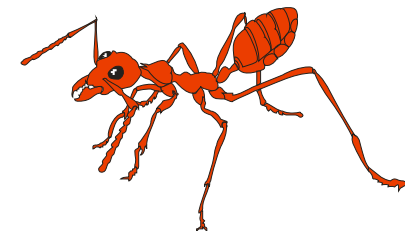


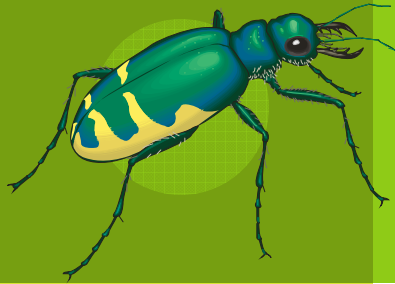
Welcome to the fascinating world of insects. Insects impact our lives on an almost daily basis. Most people consider insects pests, and some insects do damage crops or bite humans and other animals. Most insects are an important part of their ecosystem and a few, like honey bees and silkworms, provide direct economic benefits to humans.

The *Teaming with Insects* curriculum is written for youth who enjoy learning about science and nature. The 4-H Entomology project offers many education experiences, from collecting and identifying insects to learning about integrated pest management and forensic entomology.

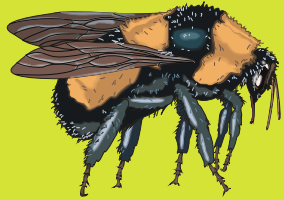
The three youth books each have a chapter with activities on:

- ✓ Be an Entomologist
- ✓ Biodiversity
- ✓ Invasive Species
- ✓ Integrated Pest Management
- ✓ Forensic Entomology



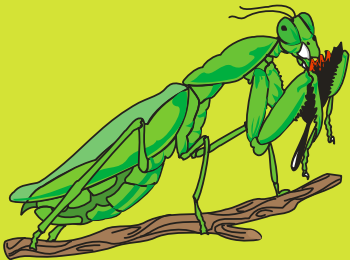


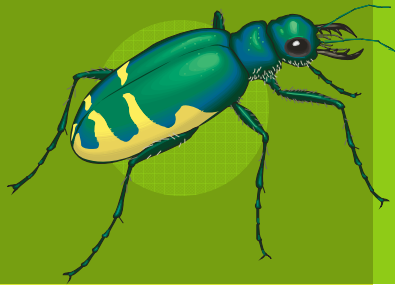
# TEAMING WITH INSECTS



Publications available include:

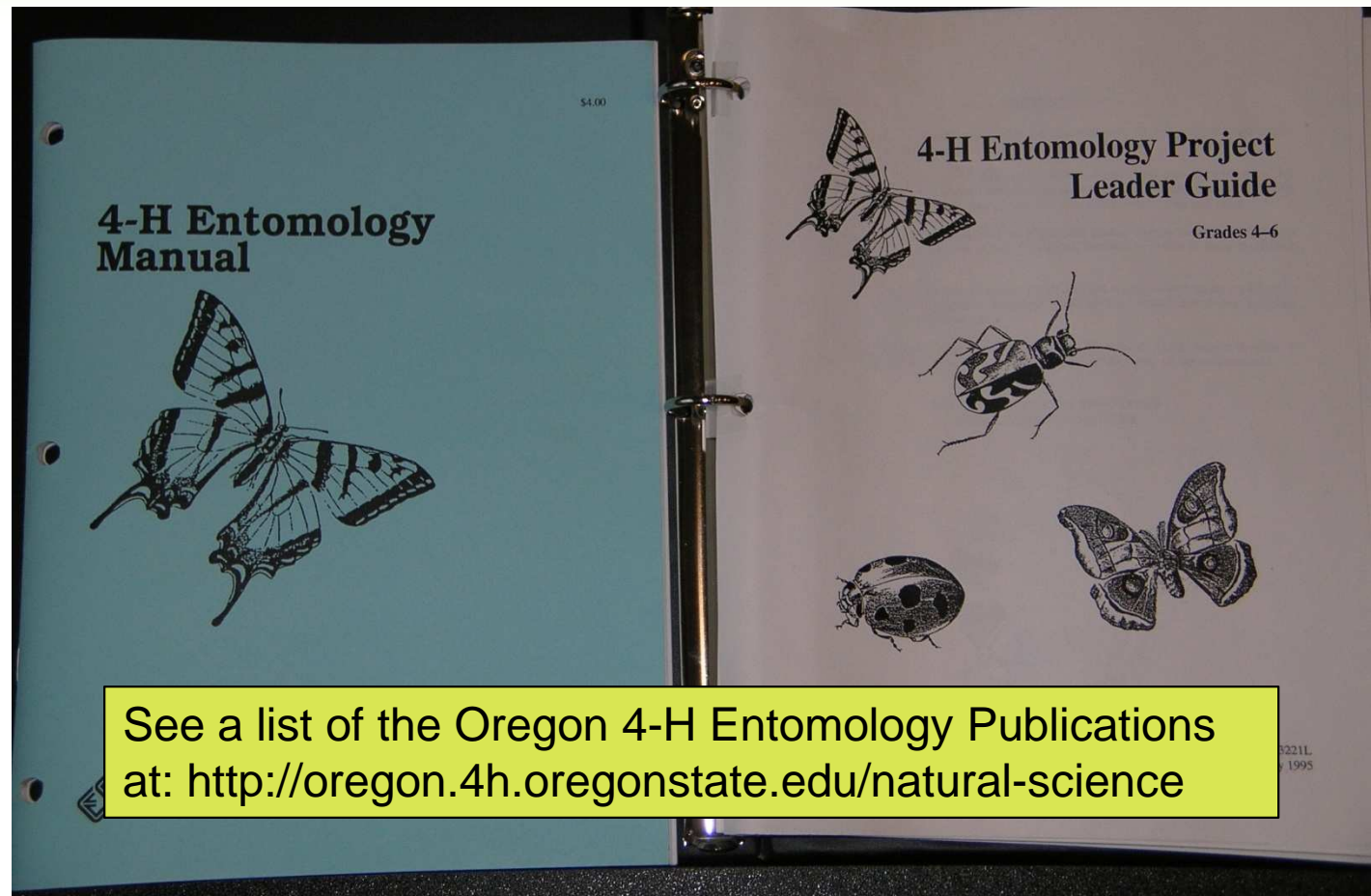
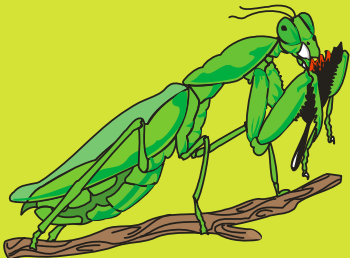
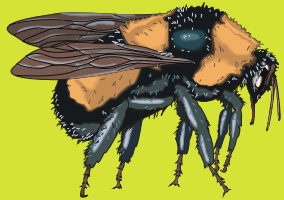
- ◎ Facilitator's Guide for the Entomology Levels 1, 2 & 3 Member Guides
- ◎ Entomology Level 1- Grades 3-5
- ◎ Entomology Level 2- Grades 6-8
- ◎ Entomology Level 3- Grades 9-12

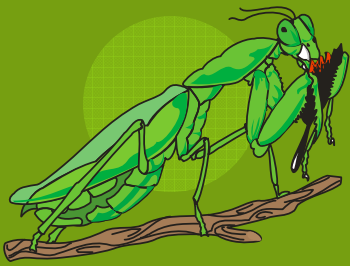




THE 4-H ENTOMOLOGY MANUAL (3221) FOR YOUTH AND THE 4-H LEADER GUIDE (3221L) SHOULD BE USED WITH THE “TEAMING” SERIES

Both these publications contain resources essential to the youth experience in the Oregon 4-H Entomology project.





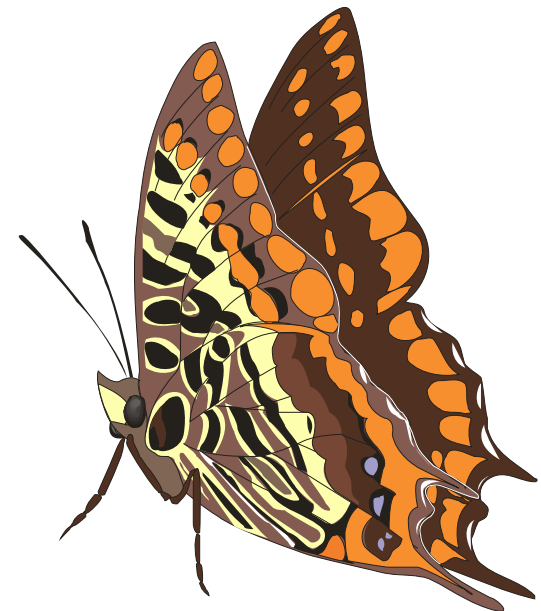
# TEAMING WITH INSECTS: LEARNING GOALS

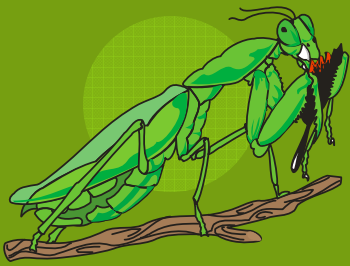
## **4-H Entomology Level 1- Grades 3-5**

- Begin to learn about insect form and function.
- Begin to learn about integrated pest management.
- Develop an understanding of and an appreciation for entomology

## **4-H Entomology Level 2- Grades 6-8**

- Learn how to make insect collection tools.
- Learn more about insects and insect diversity.
- Develop a deeper understanding of and an appreciation for entomology.

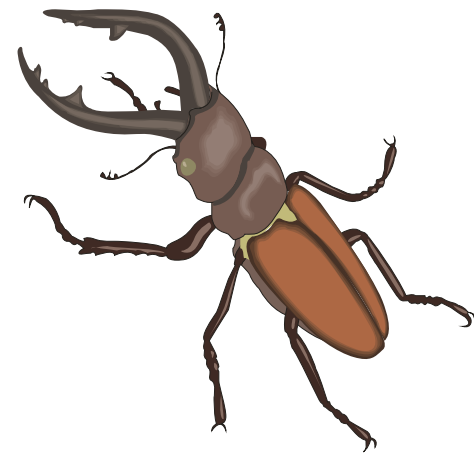


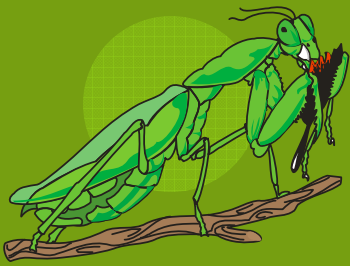


# TEAMING WITH INSECTS: LEARNING GOALS

## **4-H Entomology Level 3- Grades 9 – 12**

- Conduct research and use resources beyond the manual for in-depth study of entomology
- Use the scientific method and keep accurate records.
- Expand understanding of an appreciation for entomology.
- Educate other about entomology.

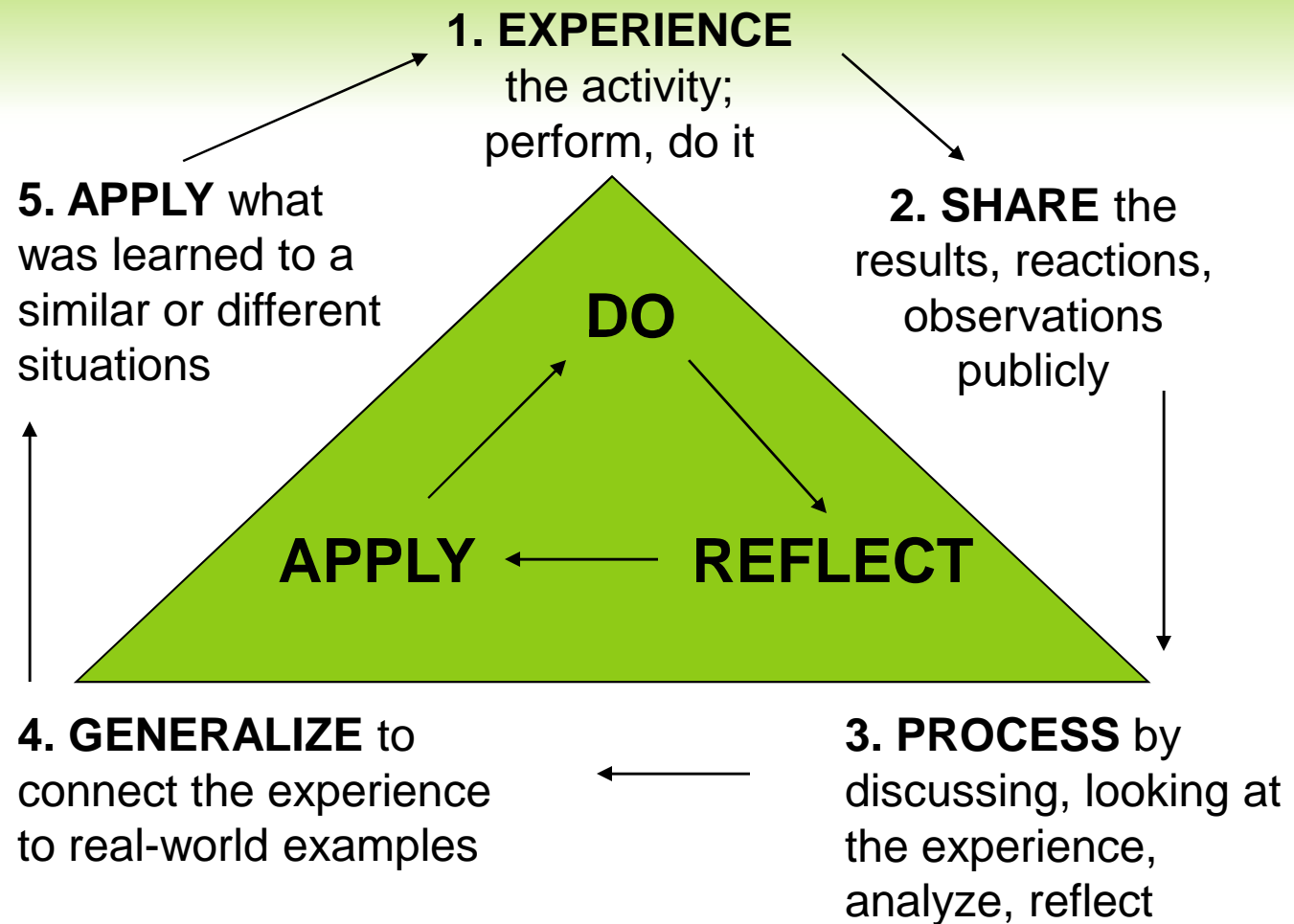


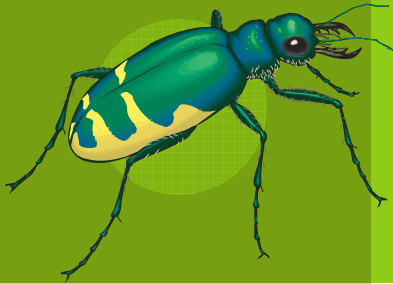


# THE EXPERIENTIAL LEARNING MODEL

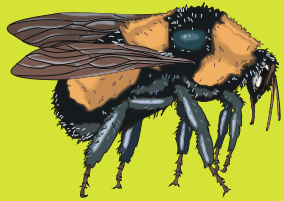
The activities in Teaming with Insects are designed based on this model.

See page 3 of the *Teaming with Insects* Facilitator's Guide.





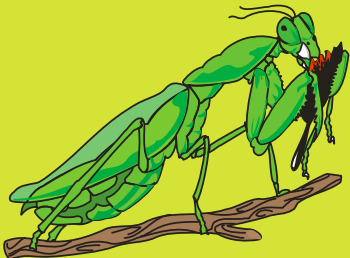
# 4-H FOCUS ON SCIENCE



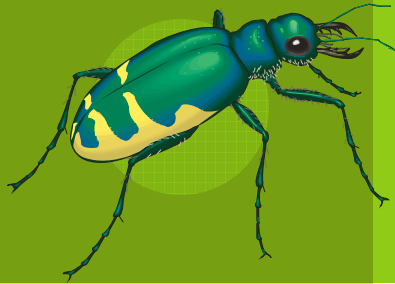
- ◎ The 2009 National Assessment of Educational Program report indicates the percentage of Oregon 8<sup>th</sup> grade students who reported they “never or hardly ever” design a science experiment was 35%, compared to 39% nationally. The percent of Oregon 8<sup>th</sup> grade students who report that they “never or hardly ever” write reports on science projects was 43%, compared to 47% nationally.



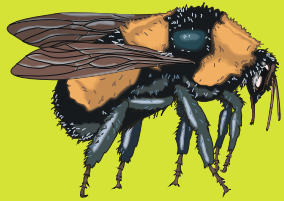
- ◎ The national 4-H Science Mission Mandate targets addressing these needs at the local level through the broad range of 4-H projects which are based on science. 4-H Science programs support youth to develop science, technology, engineering and applied math (STEM) skills.



- ◎ Oregon 4-H youth development professionals and volunteers can help address this need by assisting youth with completing activities in the Oregon 4-H Entomology Project.



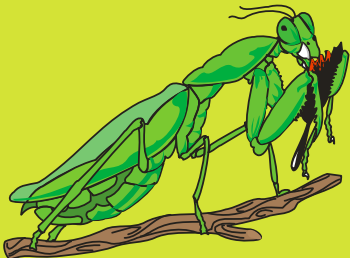
## 4-H SCIENCE CHECKLIST- MAKING 4-H PROJECTS ARE SCIENCE READY

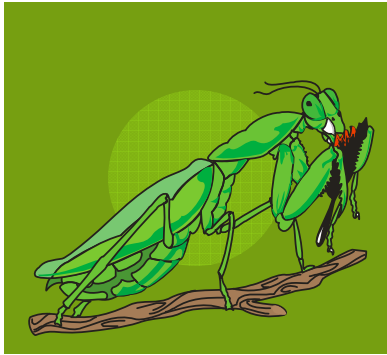


- ◎ The 4-H Science Checklist includes seven items that have been identified as the most critical program components to include in a 4-H Science Program. You may be thinking, “I don’t lead a 4-H Science Club! I’m just an Entomology club leader.” The goal of the checklist is to help 4-H youth development professionals and volunteers identify and reinforce the science learning opportunities across a variety of 4-H projects.

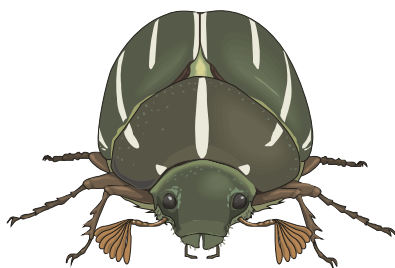


- ◎ A paragraph at the top of the check list explains, “A ‘Science Ready’ 4-H experience is a program that is framed in science concepts, based on science standards and intentionally targets the development of science abilities and the outcomes articulated by the 4-H Science Logic Model. Additionally, it integrates the Essential Elements and engages participants in experiential and inquiry based learning.”






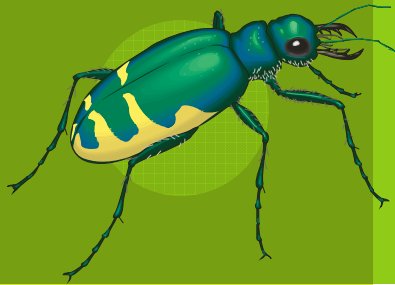


On the following pages you will see how *Teaming with Insects* will help you include each component in your programs.

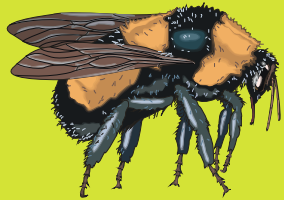


4-H Science Checklist contains seven items that are the most critical program components to include in a 4-H Science program.

	<p><b>Are you providing science, engineering and technology programs based on National Science Education Standards</b> - Science education standards are criteria to judge quality: the quality of what young people know and are able to do; the quality of the science programs that provide the opportunity for children and youth to learn science; the quality of science teaching; the quality of the system that supports science leaders and programs; and the quality of assessment practices and policies.  <a href="http://www.nap.edu/readingroom/books/nses/">http://www.nap.edu/readingroom/books/nses/</a></p>
	<p><b>Are you providing children and youth opportunities to improve their Science Abilities?</b></p> <p>Predict, Hypothesize, Evaluate, State a Problem, Research Problem, Test, Problem Solve Design Solutions, Measure, Collect Data, Draw/Design, Build/Construct, Use Tools, Observe, Communicate, Organize, Infer, Question, Plan Investigation, Summarize/Relate, Invent/Implement Solutions, Interpret/Analyze/Reason, Categorize/Order/Classify, Model/Graph/Use Numbers, Troubleshoot, Redesign, Optimize, Collaborate, Compare</p>
	<p><b>Are you providing opportunities for youth to experience and improve in the Essential Elements of Positive Youth Development?</b></p> <p>Do youth get a chance at <b>mastery</b> – addressing and overcoming life challenges in your programs?          Do youth cultivate <b>independence</b> and have an opportunity to see oneself as an active participant in the future?          Do youth develop a sense of <b>belonging</b> within a positive group?          Do youth learn to share a spirit of <b>generosity</b> toward others?</p>



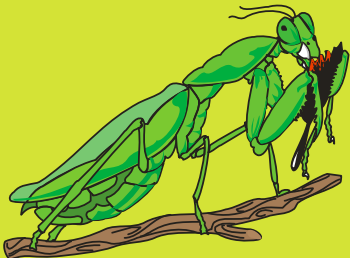
# HOW TO KNOW IF YOUR 4-H PROJECT IS SCIENCE READY: ITEM 1



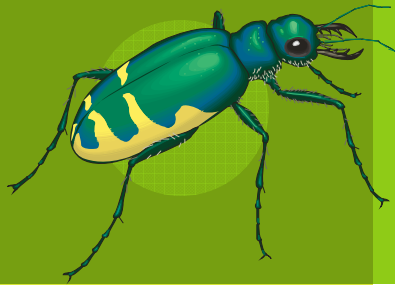
- ✓ **Are you providing science, engineering and technology programs based on National Science Education Standards?**



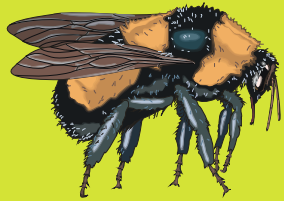
A Science Standards Summary is provided in the *Teaming with Insects* (TWI) Facilitator's Guide, pages 6-7. Appendix A lists the activities by Standard.



These standards are used by Oregon's Department of Education to develop the science benchmarks for K-12 education. The national standards provide a common and consistent base of quality content on which 4-H program design, development, delivery and assessment is built.



# 4-H SCIENCE CHECKLIST: ITEM 2

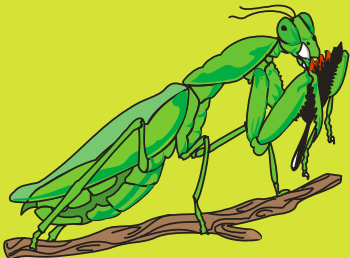


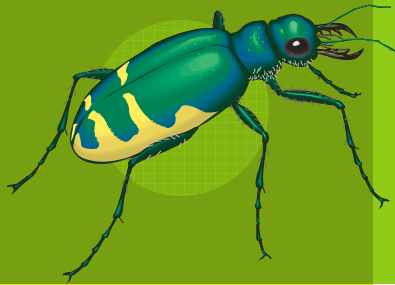
- ✓ **Are you providing youth opportunities to improve their Science Abilities?**

Youth will use the 30 abilities or practices that are skills used in science, engineering and technology in the TWI Activities:

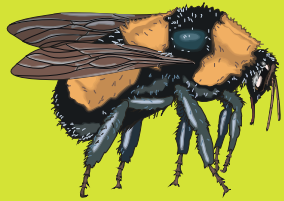


Predict, Hypothesize, Evaluate, State a Problem, Research Problem, Test, Problem Solve Design Solutions, Measure, Collect Data, Draw/Design, Build/Construct, Use Tools, Observe, Communicate, Organize, Infer, Question, Plan Investigation, Summarize/Relate, Invent/Implement Solutions, Interpret/Analyze/Reason, Categorize/Order/Classify, Model/Graph/Use Numbers, Troubleshoot, Redesign, Optimize, Collaborate, Compare





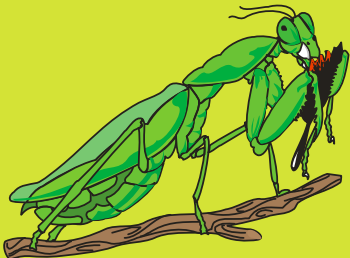
# 4-H SCIENCE CHECKLIST: ITEM 3



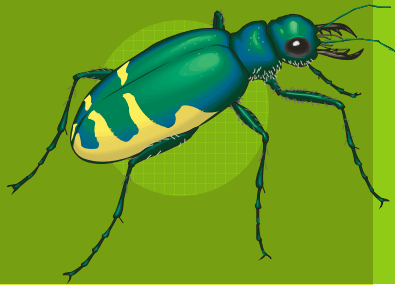
- ✓ **Are you providing opportunities for youth to experience and improve in the Essential Elements of Positive Youth Development?**



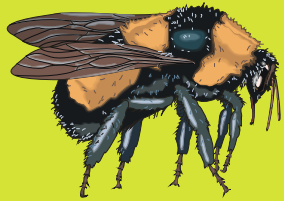
The four needs of youth to experience **mastery**, **independence**, **belonging** and **generosity** are supported by the Eight Essential Elements of Positive Youth Development.



TWI Facilitators Guide has information on pages 4-5 and in Appendix D to help you address these needs.



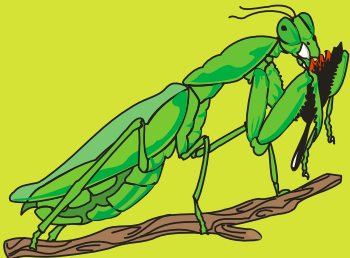
# 4-H SCIENCE CHECKLIST: ITEM 4

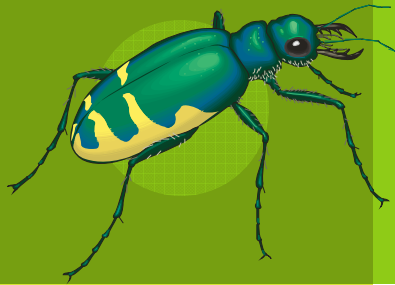


- ✓ **Are learning experiences led by trained, caring adult staff and volunteers acting as mentors, coaches, facilitators and co-learners who operate from a perspective that youth are partners and resources in their own development?**

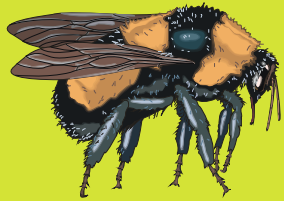


By accessing the information in this introductory presentation and the additional tutorials for the TWI Level 1, 2, 3 youth guides and other Oregon 4-H Entomology project resources you will have the skills you need to help youth succeed in this project. See Facilitator Tools, page 2, and Appendix C for information on Teaching Youth with Different Learning Styles.





# 4-H SCIENCE CHECKLIST: ITEMS 5 & 6



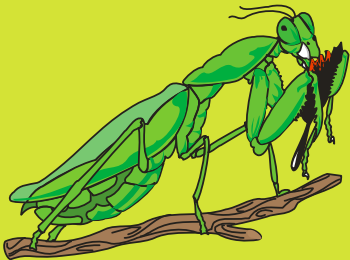
- ✓ **Are activities led with an experiential approach to learning?**

Yes! See page 3 of the *Teaming with Insects* Facilitator's Guide.

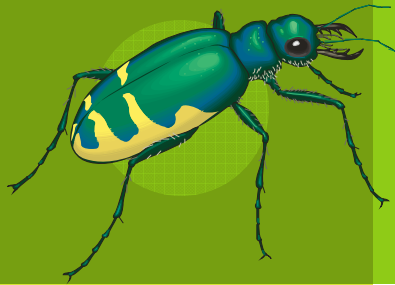


- ✓ **Are activities using inquiry to foster the natural creativity and curiosity of youth?**

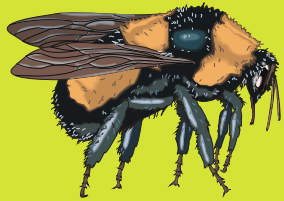
Yes! You will find additional information on using inquiry in the TWI activities in the individual tutorials for the TWI Level 1, 2, 3 youth guides.



Level 3-Activity 3 introduces the Scientific Method. This lesson should be used early for all 4-H members at all levels.



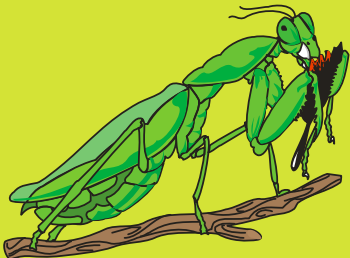
# 4-H SCIENCE CHECKLIST: ITEM 7

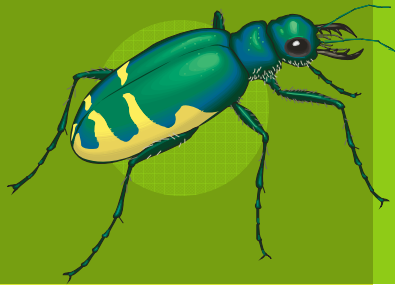


- ✓ **Does your program target the outcomes on the 4-H Science Logic Model and have you considered the frequency and duration necessary for youth to accomplish those outcomes?**

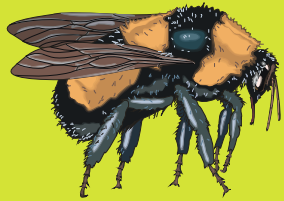


Your 4-H Agent can provide you with a copy of the 4-H Science Logic Model. It articulates the opportunity to achieve science outcomes across 4-H education programs. Outcomes happen at three levels. Short-term outcomes are those that happen immediately after an education experience such as knowledge gains. Intermediate or long-term outcomes happen after the learner has a chance to integrate their new knowledge into different actions.





# TWI FACILITATOR'S GUIDE SUGGESTIONS



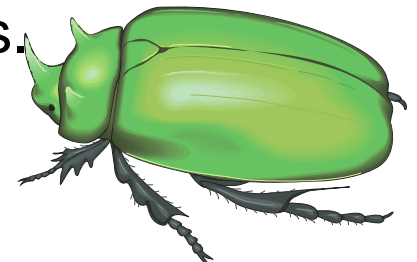
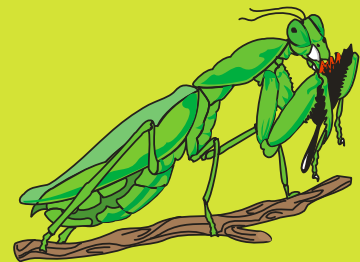
There are Facilitator Suggestions for each youth Guide Level.

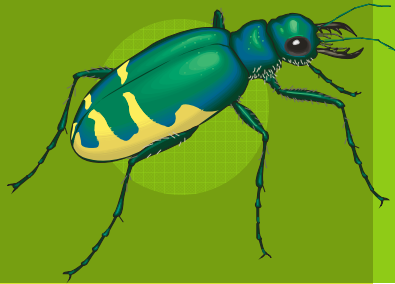
Level 1 Facilitator Suggestions – pages 7-15

Level 2 Facilitator Suggestions – pages 16-24

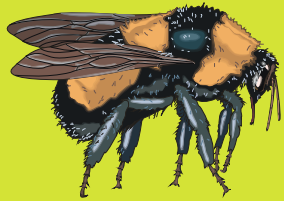
Level 3 Facilitator Suggestions – pages 25-33

Specific information on leading selected activities in these guides is found in individual tutorials for the TWI Level 1, 2, 3 youth guides.





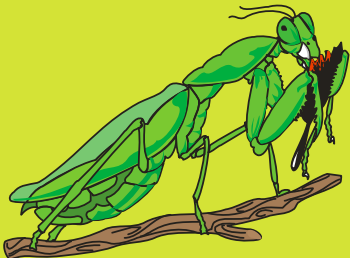
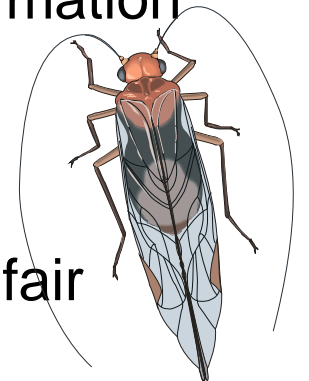
# THE OREGON 4-H ENTOMOLOGY PROJECT

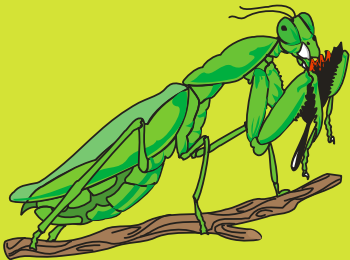
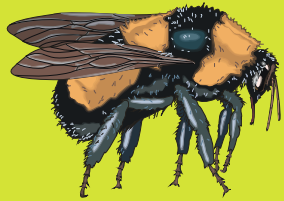
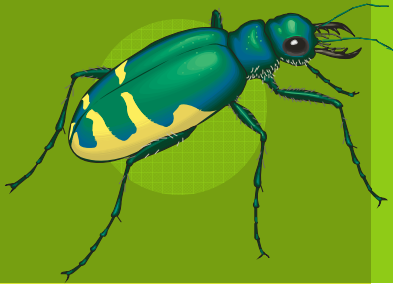


See a list of all the Oregon 4-H Entomology project publications and materials at:  
<http://oregon.4h.oregonstate.edu/natural-science>



If your 4-H club members plan to have an exhibit at county fair, please be sure to refer to the State 4-H Fair Book for the most current information on requirements. These can change annually. Access the current State 4-H Fair handbook at  
<http://oregon.4h.oregonstate.edu/state-fair>





Thank you for helping  
Oregon's youth learn  
about insects and  
science!

