
Insects, Spiders and Other Arthropods



Third-Grade Teacher Resource Guide

Table of Contents

Lesson summary	1
Vocabulary	1
Language Arts Crossword Puzzle.....	2-3
Language Arts Word Search.....	4-5
Extension Activities	6
Education Standards	7-8

Insects, Spiders and Other Arthropods: Lesson Summary and Vocabulary

Lesson Summary: The YSI *Insects, Spiders & Other Arthropods* program allows students to touch and examine samples of the arthropod phylum while learning about their characteristics and development. The presentation focuses on both instructor-led discussion and hands-on activities. Students will work as a group to assemble an insect and spider, observing the functions and variations in each body part. Discussion will continue as the instructor presents live examples, covering the arthropods' physical adaptations, diets, habitats, and roles both in nature and with humans. Students will learn about the insect life cycle and get a chance to touch and interact with mealworms in each stage of their metamorphosis. Throughout the program, students will be challenged to use their critical thinking skills to answer a wide range of open-ended questions and expand their understanding of insects and the arthropod phylum as a whole.

Vocabulary: Below are words and concepts that relate to the *Insects, Spiders & Other Arthropods* program.

Abdomen: the large third body part of an insect (and the second of a spider); contains organs

Antennae: the sensing organs of insects; used to listen, taste, feel, smell, and communicate

Arachnid: an arthropod with two body parts and eight legs; includes spiders and scorpions

Arthropod: an animal with an exoskeleton and jointed legs

Camouflage: something (such as color or shape) that protects an animal from attack by making the animal difficult to see in the area around it

Cephalothorax: the first body part of an arachnid; houses brain and attaches to limbs

Decomposer: an animal that feeds on dead matter and breaks it down into simpler compounds

Environment: the sum of everything that surrounds animals and humans in the natural world, including the air, the water, and the soil

Exoskeleton: the shell or external skeleton that supports and protects an arthropod's body

Habitat: the natural environment of a plant or animal

Insect: an arthropod with six legs and three body parts; more than half of the organisms on earth

Larva (Entomology): the wingless, feeding stage of an insect that undergoes complete metamorphosis

Metamorphosis: insect life cycle; development from larva to pupa to adult

Nymph (Entomology): the young of an insect that does not undergo complete metamorphosis, usually differs from the adult in that it is smaller and does not have wings

Pedipalps: extra frontal appendages or "arms" of a spider or other arachnid

Predator: an animal that hunts and eats other animals

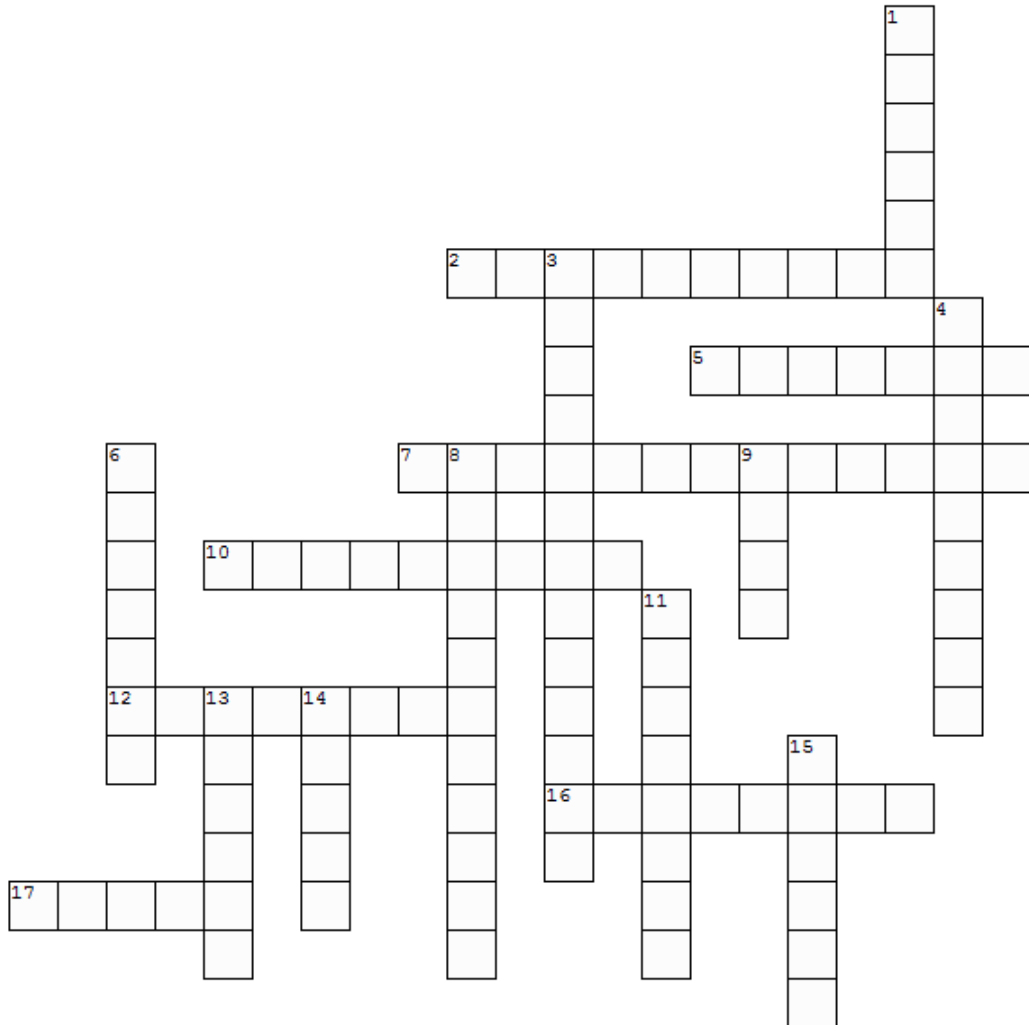
Pupa: an insect in the non-feeding, usually immobile, transformation stage between the larva and the adult

Spider: the most common type of arachnid; spins webs and has fangs

Thorax: the second or middle body part of an insect, attaches to limbs and sometimes wings

Language Arts Crossword Puzzle

Insects and Arthropods



- | | | | | | |
|------------|-------------|----------|-----------|---------------|---------------|
| ABDOMEN | ANTENNAE | ARACHNID | ARTHROPOD | CEPHALOTHORAX | |
| DECOMPOSER | EXOSKELETON | HABITAT | INSECT | LARVA | METAMORPHOSIS |
| NYMPH | PEDIPALPS | PREDATOR | PUPA | SPIDER | THORAX |

Across

2. An animal that feeds on dead matter and breaks it down into simpler compounds.
5. The large third body part of an insect (and the second of a spider); contains organs.
7. Insect life cycle; development from larva to pupa to adult.
10. An animal with an exoskeleton and jointed legs.
12. The sensing organs of insects; used to listen, taste, feel, smell, and communicate.
16. An arthropod with two body parts and eight legs.
17. The wingless, feeding stage of an insect that undergoes complete metamorphosis.

Down

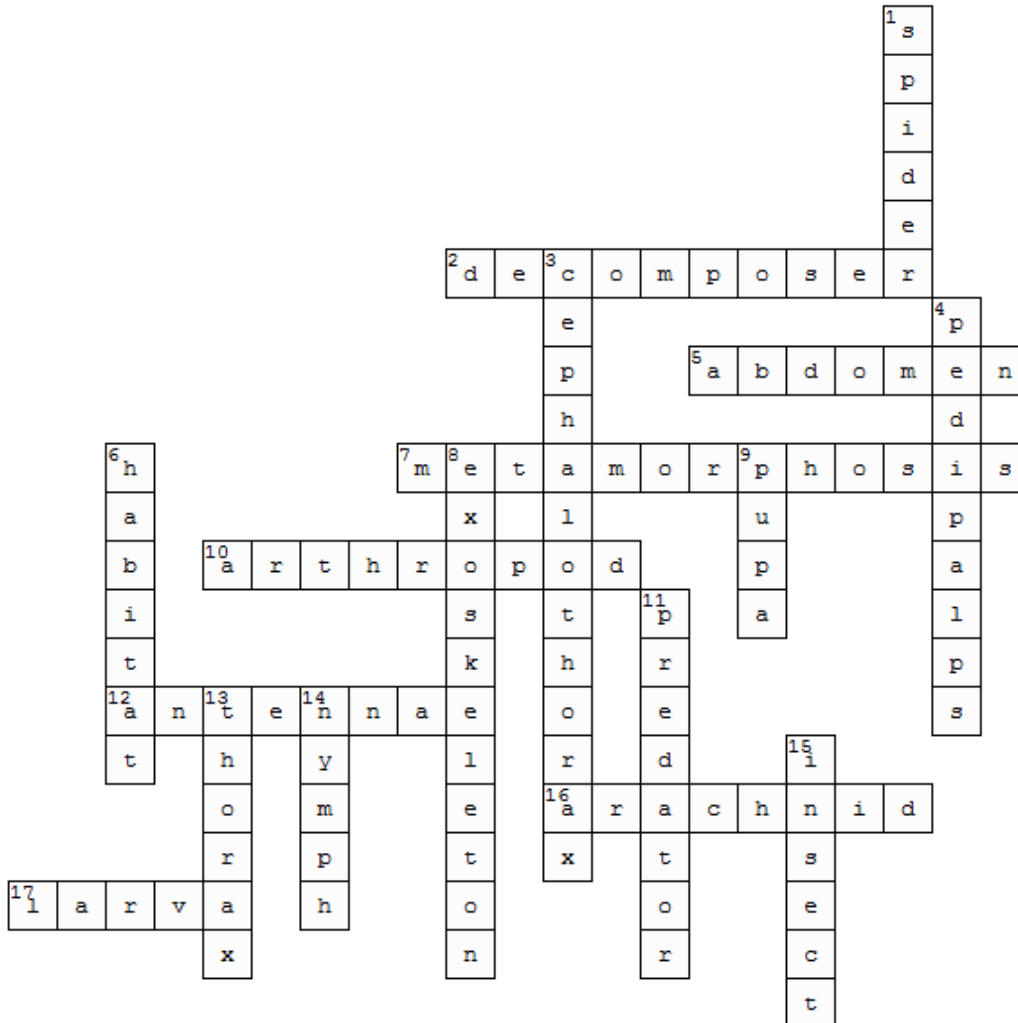
1. The most common type of arachnid; spins webs and has fangs.

3. The first body part of an arachnid; houses the brain and attaches to the limbs.
4. The extra frontal appendages or “arms” of a spider or other arachnid.
6. The natural environment of a plant or animal.
8. The shell or external skeleton that supports and protects an arthropod’s body.
9. An insect in the non-feeding, usually immobile, transformation stage between the larva and the adult.
11. An animal that preys on other animals to survive.
13. The second or middle body part of an insect, attaches to limbs and sometimes wings.
14. The young of an insect that does not undergo complete metamorphosis, usually differs from the adult in that it is smaller and does not have wings.
15. An arthropod with six legs and three body parts; more than half of the animals on earth.

Answer Key

Language Arts Crossword Puzzle

Insects and Arthropods



Across

2. An animal that feeds on dead matter and breaks it down into simpler compounds. (**decomposer**)
5. The large third body part of an insect (and the second of a spider); contains organs. (**abdomen**)
7. Insect life cycle; development from larva to pupa to adult. (**metamorphosis**)
10. An animal with an exoskeleton and jointed legs. (**arthropod**)
12. The sensing organs of insects; used to listen, taste, feel, smell, and communicate. (**antennae**)
16. An arthropod with two body parts and eight legs. (**arachnid**)
17. The wingless, feeding stage of an insect that undergoes complete metamorphosis. (**larva**)

Down

1. The most common type of arachnid; spins webs and has fangs. (**spider**)
3. The first body part of an arachnid; houses the brain and attaches to the limbs. (**cephalothorax**)
4. The extra frontal appendages or “arms” of a spider or other arachnid. (**pedipalps**)
6. The natural environment of a plant or animal. (**habitat**)
8. The shell or external skeleton that supports and protects an arthropod’s body. (**exoskeleton**)
9. An insect in the non-feeding, usually immobile, transformation stage between the larva and the adult. (**pupa**)
11. An animal that preys on other animals to survive. (**predator**)
13. The second or middle body part of an insect, attaches to limbs and sometimes wings. (**thorax**)
14. The young of an insect that does not undergo complete metamorphosis, usually differs from the adult in that it is smaller and does not have wings. (**nymph**)
15. An arthropod with six legs and three body parts; more than half of the animals on earth. (**insect**)

Language Arts Word Search

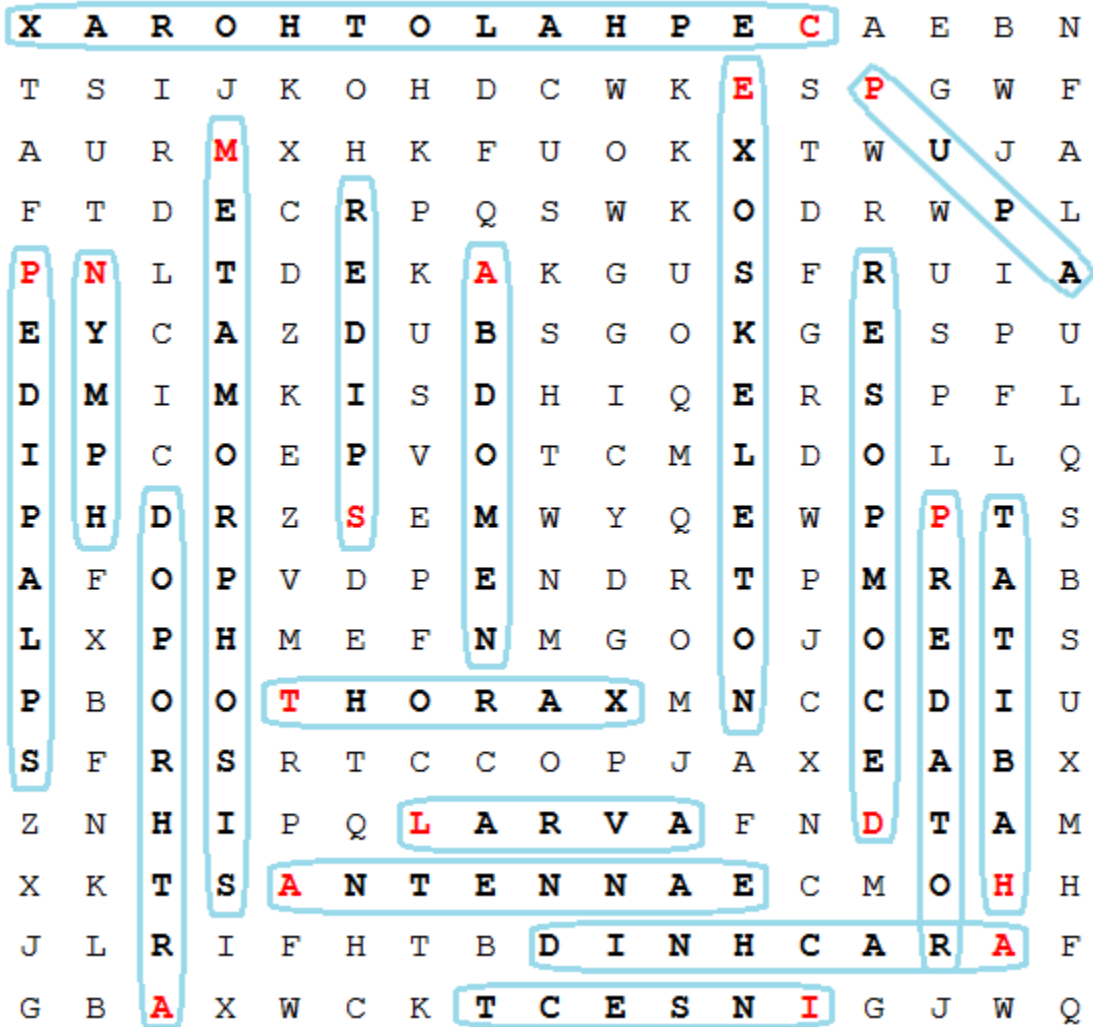
Insects and Arthropods

X A R O H T O L A H P E C A E B N
 T S I J K O H D C W K E S P G W F
 A U R M X H K F U O K X T W U J A
 F T D E C R P Q S W K O D R W P L
 P N L T D E K A K G U S F R U I A
 E Y C A Z D U B S G O K G E S P U
 D M I M K I S D H I Q E R S P F L
 I P C O E P V O T C M L D O L L Q
 P H D R Z S E M W Y Q E W P P T S
 A F O P V D P E N D R T P M R A B
 L X P H M E F N M G O O J O E T S
 P B O O T H O R A X M N C C D I U
 S F R S R T C C O P J A X E A B X
 Z N H I P Q L A R V A F N D T A M
 X K T S A N T E N N A E C M O H H
 J L R I F H T B D I N H C A R A F
 G B A X W C K T C E S N I G J W Q

Word Bank

ABDOMEN	EXOSKELETON	PEDIPALPS
ANTENNAE	HABITAT	PREDATOR
ARACHNID	INSECT	PUPA
ARTHROPOD	LARVA	SPIDER
CEPHALOTHORAX	METAMORPHOSIS	THORAX
DECOMPOSER	NYMPH	

Answer Key
Language Arts Word Search
Insects and Arthropods



Word Bank

ABDOMEN
ANTENNAE
ARACHNID
ARTHROPOD
CEPHALOTHORAX
DECOMPOSER

EXOSKELETON
HABITAT
INSECT
LARVA
METAMORPHOSIS
NYMPH

PEDIPALPS
PREDATOR
PUPA
SPIDER
THORAX

Insects, Spiders and Other Arthropods: Extension Activities

The extension activities listed below are from RAFT (Resource Area For Teaching). RAFT educational content is available online (www.raftbayarea.org) at no cost and is aligned to California Science Standards and Next Generation Science Standards. Below is a selection of post-visit activities from RAFT to extend student learning about insects and arthropods.

[RAFT Idea: Bug Pooter – RAFT Bay Area](#)

Grades Covered: K through 10

Subjects Covered: Life Science

Curriculum topics: Arthropods; Observation; Classification; Insects

Description: A safe, humane way to collect and observe small creatures...

<http://www.raftbayarea.org/ideas/Bug%20Pooter.pdf>

[RAFT Idea: Camouflage – RAFT Bay Area](#)

Grades Covered: K through 12

Subjects Covered: Life Science

Curriculum topics: Natural Selection, Ecosystems, Probability, Design.

Description: Learn how coloration helps animals hide from predators...

<http://www.raftbayarea.org/ideas/Camouflage.pdf>

[RAFT Idea: Folded Flutterbys – RAFT Bay Area](#)

Grades Covered: K through 4

Subjects Covered: Life Science, Art

Curriculum topics: Art, Butterflies, Shapes

Description: Create a butterfly shape from two diagonally folded squares...

<http://www.raftbayarea.org/ideas/Folded%20Flutterbys.pdf>

[RAFT Idea: Evolution by Natural Selection – RAFT Bay Area](#)

Grades Covered: 3 through 12

Subjects Covered: Life Science

Curriculum topics: Adaptation, Evolution, Fitness, Natural Selection, Predator-Prey Interactions, Variation

Description: Simulate evolution with critters and beaky birds...

<http://www.raftbayarea.org/ideas/Evolution%20by%20Natural%20Selection.pdf>

Insects, Spiders and Other Arthropods: Education Standards

The following pages cite California Science Content Standards, Common Core Standards, and Next Generation Science Standards which students will be exposed to during the program.

California Science Content Standards Third Grade:

Life Sciences: 3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

- a. *Students know* plants and animals have structures that serve different functions in growth, survival, and reproduction.
- b. *Students know* examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.

Excerpted from CA State Standards: <http://www.cde.ca.gov/>

Common Core Third Grade:

Speaking and Listening Standards: Students will...

1. Engage effectively in a range of collaborative discussions with diverse partners on grade 3 topics, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
 - b. Follow agreed-upon rules for discussions.
 - c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
 - d. Explain their own ideas and understanding in light of the discussion.
2. Determine the main ideas and supporting details of information presented orally.
3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

Excerpted from Common Core Standards: <http://www.corestandards.org/>

Next Generation Science Standards Third Grade:

Interdependent Relationships in Ecosystems

- **3-LS4-3:** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
 - **Science and Engineering Practices:**
 - **Engaging in an argument from evidence:** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed worlds.
- Use materials Construct an argument with evidence. (3-LS4-3)
 - **Disciplinary core ideas:**
 - **LS4.C: Adaptation:** For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
 - **Crosscutting Concepts**
 - **Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change. (3-LS4-3)

Insects, Spiders and Other Arthropods: Education Standards

Inheritance and Variation of Traits: Life Cycles and Traits

- **3-LS3-2:** Use evidence to support the explanation that traits can be influenced by the environment.
 - **Science and Engineering Practices:**
 - **Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.
 - Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2)
 - **Disciplinary core ideas:**
 - **LS3.A: Inheritance of Traits:** Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3- LS3-2)
 - **LS3.B: Variation of Traits:** The environment also affects the traits that an organism develops. (3-LS3-2)
 - **Crosscutting Concepts:**
 - **Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change. (3-LS3-2)

Excerpted from NGSS: <http://www.nextgenscience.org/>