Round Edge: Insect & Spider Study (Entomology)

I. Introduction:

Lesson 1: Insect Overview
Learning Objectives:
• Learn what insects are
• Learn about insect anatomy
• Learn how insects see, smell, hear, taste and feel

Lesson 2: Insect Safari
Learning Objectives:
• Learn how to collect and preserve insects
• Learn about insect safari equipment

Lesson 3: Insect Taxonomy
Learning Objectives:
• Learn the purpose of taxonomy
• Learn insect taxonomy nomenclature
• Learn how to use a dichotomous key to identify the insect order

Lesson 4: Insect Lifecycle
Learning Objectives:
• Learn about insect molting
• Learn how baby insects grow into adults
• Learn about the stages of development

Lesson 5: Review
Learning Objective:
• Review of learning objectives

II. Order: Coleoptera “sheathed wing” (beetles)

Lesson 6: Observing Beetles
Learning Objectives:
• Learn about major families of beetles
• Learn about the external and internal anatomy of beetles
• Learn about dung and bombardier beetles

Lesson 7: Observing Ladybugs
Learning Objectives:
• Learn about the ladybug insect family
• Learn about ladybug anatomy
• Learn about the life cycle of ladybugs
• Learn how to find and collect ladybugs
• Watch ladybugs fly in slow motion

Lesson 8: Collecting Insects
Learning Objectives:
• Learn how to collect insects
• Learn how to make an insect ground trap
• Learn how to collect insects in the water
• Learn how to identify the insects you catch

Lesson 9: Preserving Insects
Learning Objectives:
• Learn three simple ways to kill insects for preservation purposes
• Learn how to handle insects once caught
• Learn how to make a kill jar
• Learn how to transfer a stinging insect to a kill jar
• Learn how to pin insects on a pinning block
• Learn how to mount tiny insects

Lesson 10: Displaying Insects
Learning Objectives:
• Learn how to label insect specimens
• Learn how to spread butterflies
• Learn how to display insects
• Learn how to make a display case

III. Order: Lepidoptera “scale wing” (butterflies and moths)

Lesson 11: Observing Butterflies
Learning Objectives:
• Learn about the butterfly and moth insect order
• Learn to identify the four developmental stages of complete metamorphosis
• Learn to identify the anatomical features of caterpillars and butterflies
• Experience a butterfly farm

Lesson 12: Observing Sunset Moths
Learning Objectives:
• Learn about Sunset Moths
• Learn why butterfly and moth wings are so beautiful

Lesson 13: Collecting & Preserving Butterflies
Learning Objectives:
• Learn how to collect butterflies
• Learn how to immobilize butterflies
• Learn how to preserve butterflies for display

Lesson 14: Displaying Butterflies
Learning Objectives:
• Learn how to "relax" an insect specimen for displaying
• Learn how to pin a butterfly
• Learn how to use an adjustable spreading board

Lesson 15: Unbelievable Caterpillars and Moths
Learning Objectives:
• Learn about caterpillars that use each other as legs
• Learn about a "hole" moth cocoon

IV. Order: Hymenoptera (ants and bees)

Lesson 16: Observing Ants
Learning Objectives:
• Learn how ants are classified
• Learn about ant anatomy
• Learn how ants communicate, defend and store food
• Learn how to make an ant carry a piece of paper
Lesson 17: Observing Bees
Learning Objectives:
• Watch how baby bees develop
• Learn about bee anatomy
• Learn how bees defend against predators

Lesson 18: Observing Termites
Learning Objectives:
• Learn about the termite queen
• Learn about termite behavior
• Learn how termite mounds cool termite colonies

Lesson 19: Project: Ant Observation Jar
Learning Objective:
• Learn how to make an ant observation jar

Lesson 20: Project: Ant Observation Jar & Review
Learning Objective:
• Review of learning objectives

V. Order: Diptera “two wings” (flies)

Lesson 21: Observing Houseflies
Learning Objectives:
• Learn about the Diptera insect order
• Learn about the anatomy of a house fly
• Learn to draw a house fly

Lesson 22: Observing Mosquitoes
Learning Objectives:
• Learn about mosquitoes
• Learn why mosquitoes are considered the most dangerous animals in the world
• Learn about mosquito larvae anatomy
• Learn about adult mosquito anatomy
• Draw a mosquito

VI. Order: Odonata “tooth” (mosquito hunters)

Lesson 23: Observing Dragonflies
Learning Objectives:
• Learn about the Odonata insect order
• Learn to identify a dragonfly
• Learn a key difference between dragonflies and damselflies
• Learn why dragonflies are expert fliers
• Draw a dragonfly

Lesson 24: How to Catch a Dragon(fly)
Learning Objectives:
• Learn how to catch a dragonfly with a net
• Learn the secret to catching a dragonfly barehanded
• Learn how to preserve a dragonfly

Lesson 25: Review
Learning Objectives:
• Learn how to use Odonata Central to identify Odonata in your county
• Review of learning objectives

**VI: Class: Arachnida / Order: Araneae (spiders)**

**Lesson 26: Observing Jumping & Trapdoor Spiders**
Learning Objectives:
• Learn about spider taxonomy
• Learn about spider anatomy
• Learn about jumping spiders
• Learn about trapdoor spiders
• Learn how to draw a spider

**Lesson 27: Observing Black Widows**
Learning Objectives:
• Learn to identify black widows from across the world
• Learn about the life cycle of a black widow
• Learn about black widow predators
• Learn to draw a black widow

**Lesson 28: Observing Tarantulas**
Learning Objectives:
Learn about the tarantula spider family
Learn about the wolf spider family
Learn to draw a tarantula

**Lesson 29: Tarantula Pets**
Learning Objectives:
• Learn which tarantulas are best for beginners
• Learn about tarantula venom
• Learn how to care for pet tarantulas
• Learn how to handle a tarantula
• Learn how to find an escaped tarantula

**Lesson 30: Review**
Learning Objective:
• Review of learning objectives

Course developer, Daniel Dignan. Content can be changed at any time.