Arthropod Classification Activity

"Bugs" Post-Visitation Activity

Time:
30 – 45 minutes

Grades:
3 – 8

Activity Summary:
Students learn how to classify and identify arthropods using an arthropod identification chart.

Goal:
To teach students how to classify and identify arthropods using an arthropod identification chart.

Anticipatory Set:

- Tell the Students (TTS): 1.7 million different organisms have been identified on Earth.
- TTS: 7,000 new insect species are discovered every year.

Input:

- TTS: that scientists classify living things into groups.
- Use the following chart to compare the classification of a house cat and dog.

	House Cat	Dog
Kingdom:	Animalia	Animalia
Phylum:	Chordata	Chordata
Class:	Mammalia	Mammalia
Order:	Carnivora	Carnivora
Family:	Felidae	Canidae
Genus:	*Felis*	*Canis*
Species:	*Felis catus*	*Canis familiaris*

- TTS: Cats and dogs are in the same kingdom, phylum, class, and order, but belong to different families.
- Ask the Students (ATS): to name other organisms that would be in the same family as a cat or dog.
- Hand out a copy of the "Arthropod Pictures" worksheet.

- ATS: to observe drawings and determine what characteristics all organisms share. They include jointed legs, bilateral symmetry, and appendages.
- TTS: these common characteristics help scientists organize them into a phylum, within the Kingdom Animalia called Arthropoda.
- Hand out the "Arthropod I.D. Chart" and explain that organisms in the Phylum Arthropda are classified into subgroups called Subphylum, Class, and Order.
- Arthropods in the class Insecta have six legs and a body divided into three segments – head, thorax, and abdomen.
- Scientists use an arthropod identification chart to identify unknown organisms and relate them to more familiar species.

Model:

- Discuss the following with students:
    - Hold up Arthropod Pictures worksheet. Ask students to identify which subphylum organism A (Mandibulata) belongs to by having them read descriptions on Arthropod I.D. Chart.
    - ATS: to read each Class description located below Mandibulata and decide which Class organism A belongs to (Insecta). Continue to Order (Coloptera). Write letter of organism in answer box located below Order it belongs to.

Guided Practice:

- TTS: they will be using the Arthropod Identification Chart to classify each organism on the "Arthropod Pictures" worksheet.
- TTS: all organisms seen on the Arthropod Pictures worksheet are in the Kingdom Animalia and Phylum Arthropoda.
- TTS: their job is to find which Subphylum, Class, and Order each organism belongs to.
- REMIND STUDENTS to begin from top of chart (Subphylum) when classifying.
- Give answers.

Instructional Materials:

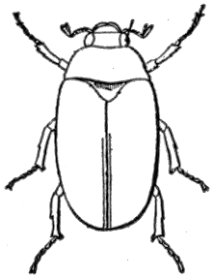
- Arthropod Pictures
- Arthropod I.D. Chart
- Answers

Reference:

DNR on the Internet. 2012. Illinois Department of Natural Resources. www.dnr.illinois.gov.

Arthropod Pictures

Each of the following creatures represents a group of arthropods. First identify all 10, and then write the letter of each one in the correct place on the Arthropod I.D. Chart.

A. 

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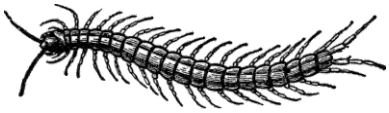
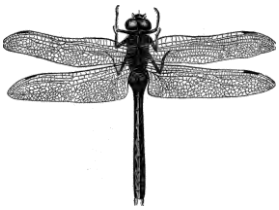
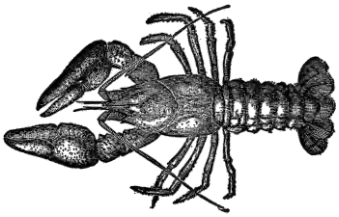
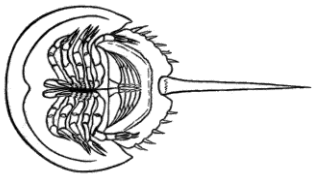
C. 

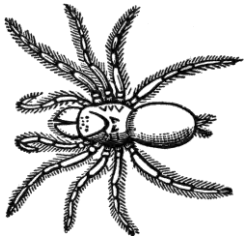
 D.

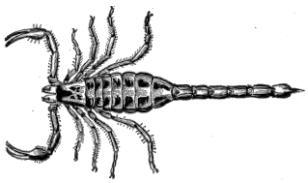
E.

F.

G. 

 H.

I. 

 J.

Arthropod I.D. Chart

Kingdom Animalia
Many-celled organisms with specialized tissues, most with organs or organ systems. Unlike plants, they cannot make their own food: Animals cells do not have cell walls.

Kingdom Arthropoda
Animals with a segmented body, segmented legs, and other appendages, an external skeleton (exoskeleton) and soft internal organs.

Subphylum Chelicerata
No antennae. Mouthparts consist of fangs or pincers. Two main body segments.

Subphylum Mandibulata
One or two pairs of antennae. Mouthparts consist of mandibles adapted to chewing or sucking.

Class Merostomata
Body with a broad oval shell and long slender tail. Legs not visible from above.

Class Arachnida
Eight legs. Live mostly on land.

Class Crustacea
Two pairs of antennae and at least five pairs of leg-like appendages.

Class Chilopoda
Long and worm-like, with one pair of legs per body segment.

Class Insecta
One pair of antennae. Six legs and three body parts. Usually have wings.

Order Xiphosura
Large compared to other arthropods. Live in salt water. The only order in its class.

Order Scorpionida
Large Front claws. Have a tail with a poisonous stinger.

Order Acari
Tiny head. Rounded body with no waist.

Order Araneae
Thin waist. Structures for spinning silk located on abdomen.

Order Cirripedia
Most adults live firmly attached to an object and use feathery legs to filter food from water.

Order Decapoda
First pair of legs usually has large claws. Most live in salt water.

Order Amphipoda
Seven pairs of leg-like appendages.

Order Scolopendromorpha
21 or 23 pairs of legs.

Order Odonata
Large compound eyes. Four clear or patterned wings

Order Coleoptera
Hard, leathery front wings cover membranous (softer) hind wings. Chewing mouthparts.

ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER: | ANSWER:

Answers:

A = Coleoptera
B = Cirripedia
C= Scolopendromorpha
D = Odonata
E = Amphipoda
F = Acari
G = Decapoda
H = Xiphoxura
I = Araneae
J = Scorpionida