🐾 Lesson Plan: Introduction to Animals

Grade Level: 6
Subject: Life Science
Duration: 45–60
NGSS MS-LS1-1: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.

🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Define** the term 'animal' and list the essential characteristics that distinguish animals from other kingdoms.
- **Classify** animals into major phyla based on key structural features such as presence or

nutrients by consuming other organisms. All animals are heterotrophs.
- **Bilateral Symmetry:** A type of body symmetry where an organism can be divided into two nearly identical mirror-image halves by drawing a line through one central plane. Most animals, including humans, have bilateral symmetry.
- **Radial Symmetry:** A type of body symmetry where an organism can be divided into similar halves by drawing multiple lines through a central point, like slicing a pie. Animals with radial symmetry include starfish and jellyfish.
- **Tissue:** A group of similar cells that work together to perform a specific function in an organism. Muscle tissue, for example, allows animals to move.

- **Organ:** A structure made up of two or more different types of tissues that work together to perform a more complex job than any single tissue can do alone. The heart and bones are examples of organs.

Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-6-introduction-to-animals-2.pdf)
- Activity Lesson handouts with animal classification diagrams (https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-6-introduction-to-animals-2-3.pdf)
- Worksheet for animal characteristics assessment (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-introduction-to-animals-2-0.pdf)

- Introduce the lesson objectives and explain that students will learn to define animals, classify them into major groups, and understand their key characteristics.

Step 2: Direct Instruction (15 minutes)

- Use the Study Guide to present the five essential characteristics of animals: multicellular organization, eukaryotic cells, heterotrophic nutrition, ability to move, and sexual reproduction. (https://newpathworksheets.com/api/guide/study-guide-science-grade-6-introduction-to-animals-2.pdf)

- Explain the difference between vertebrates and invertebrates using the classification tree diagram from the Activity Lesson, emphasizing that the presence or absence of a backbone is a key classification feature. (https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-6-introduction-to-animals-2-3.pdf)
- Demonstrate bilateral versus radial symmetry by drawing a line through images of a butterfly and a starfish, showing how bilateral symmetry creates mirror images while radial symmetry allows multiple lines through a central point.
- Discuss the concept of tissues, organs, and organ systems, using the example of bones as organs made of blood, nerve, and bone tissue that together form the skeletal system. (https://newpathworksheets.com/api/guide/study-guide-science-grade-6-introduction-to-animals-2.pdf)

Step 3: Guided Practice (12 minutes)

- Distribute the Activity Lesson handout and work through the vertebrate classification matching activity as a class, having students draw lines connecting each animal to its correct group. (https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade

invertebrate animals they know, with one key characteristic for each.

- Encourage students to draw and label an example of an animal with bilateral symmetry and one with radial symmetry, marking the lines of symmetry on each drawing.

Step 5: Assessment (10 minutes)

- Review answers to the Worksheet as a class, discussing any questions students found challenging and clarifying misconceptions about animal classification. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-introduction-to-animals-2-0.pdf)

- Conduct a quick oral quiz asking students to classify named animals (for example: 'Is a snail a vertebrate or invertebrate? Does a butterfly have bilateral or radial symmetry?').
- Have students explain in their own words why all animals are heterotrophs and what this means for how animals obtain energy.

Differentiation Strategies

For advanced learners:

- Challenge advanced learners to research one animal phylum in depth and create a mini-poster showing three species from that phylum with their unique adaptations.
- Have students compare the organ systems of a simple invertebrate like a sponge with those of a complex vertebrate like a mammal, identifying which systems are present or absent in each.

For learners needing support:

Complete List of Available Resources:

- NewPathWorksheets: Introduction to Animals (https://newpathworksheets.com/science/grade-6/introduction-to-animals-2)
- Study Guide: Introduction to Animals (https://newpathworksheets.com/api/guide/study-guide-science-grade-6-introduction-to-animals-2.pdf)

- Activity Lesson: Animal Classification (https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-6-introduction-to-animals-2-3.pdf)
- Worksheet: Animal Characteristics (Set 1) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-introduction-to-animals-2-0.pdf)
- Worksheet: Animal Characteristics (Set 2) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-introduction-to-animals-2-1.pdf)
- Worksheet: Animal Characteristics (Set 3) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-introduction-to-animals-2-2.pdf)
- Vocabulary: Introduction to Animals (Set 1) (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-6-introduction-to-animals-2-1.pdf)
- Vocabulary: Introduction to Animals (Set 2)

INTRODUCTION TO ANIMALS

What Is an Animal?

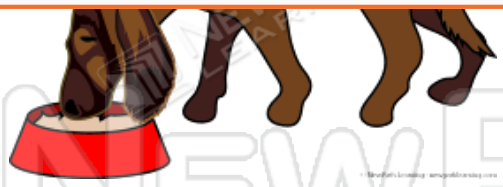
Scientists have discovered over a million different species of animals on our planet.

The species that fit into the animal group are similar in that they have many cells and that they obtain food by eating other organisms.

Other characteristics that animals share are that they are able to move around their environment and they reproduce sexually.

Structure of Animals

As we said, all animals are multicellular organisms. Most animals have cells that are grouped together to form **tissue**. As we learned in Topic



An animal's food can either be another animal, plants, or organisms in another Kingdom. Reproduction is normally completed sexually. As we already learned, sexual reproduction is when two parent sex cells come together to form a new organism. Some animals are capable of reproducing asexually.

An organism called a hydra forms a bud, which breaks off and forms another individual organism that is identical to the parent.

Adaptations

Some scientists believe that organisms adapted to have the ability to move so that they could catch their food, reproduce, and escape predators. There are some animal species that do not move around their environment during every stage of their life. The majority do move at some point during their life. An oyster is an organism that swims when it is a larvae until it finds a surface to attach itself to where it will remain for the rest of its life.

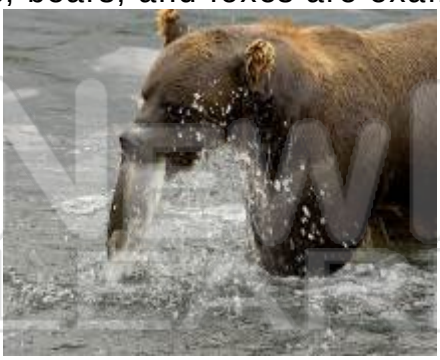
Functions of Animals

Animals have three needs within their environments: **oxygen, food, and water.** In order to release the energy stored in food, the animal

Carnivores: Most carnivores are predators that will hunt and kill other animals for food. These animals have adapted to capture the prey they feed on. A cheetah hunts for its food by stalking its prey and then quickly running it down.
The cheetah adaptations are fast speed, excellent eye sight, excellent hearing, and sharp claws. Most carnivores have sharp and pointed teeth to help stab and cut their prey.

Herbivores: Cows, pandas, and horses have adapted to the food that they eat by growing teeth that are broad with long, flat surfaces to help them grind the plant material down.

Omnivores: Humans, bears, and foxes are examples of omnivores.



Animals have also adapted to avoiding their predators.

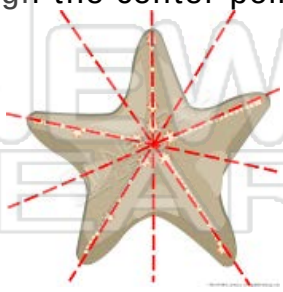
An important characteristic of classifying animals is whether or not the species has a backbone. If an animal species has a backbone, it is called a **vertebrate**. If an animal species does not have a backbone, it is called an **invertebrate**. Mammals, birds, fish, amphibians, and reptiles are all vertebrates.

Insects, worms, snails, and jellyfishes are all examples of invertebrates. Approximately 95% of animal species are invertebrates.

Animal Symmetry

If you have ever looked into a mirror, you will notice that you could draw a line down the center of your face and the arrangement of facial structures will be balanced. This is called **symmetry** and it is another important characteristic of the majority of animals. The line that could be drawn is called lines of symmetry.

drawing a line of symmetry through an apple pie. Notice that you would be able to draw a line of symmetry through the pie anywhere as long as the line went through the center point. Note the starfish below.



Animals that have **radial symmetry** share many different characteristics, including living in water, not having a front or back end, and not being able to move or moving slowly.

Animals like sponges do not show any symmetry. This is called **asymmetry** and the animals that have this type of symmetry are usually organisms with simple body plans like sponges. Complex animals have either radial or bilateral symmetry.

Some animals know how to perform a certain behavior by instinct. **Instinct** is performing a behavior without being taught how to do it. Other behaviors need to be learned.

Learning is when a behavior changes due to experiences. Learning can take place many different ways depending on the situation.

Introduction to Animals

Sci F

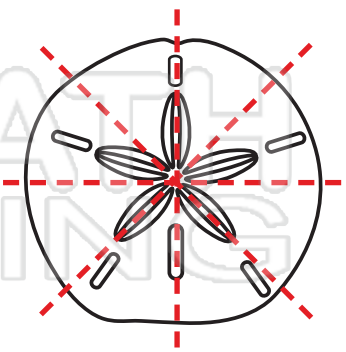
Name _____ Class _____ Date _____

Characteristics of Animals

- Animals **cannot** make their own food.
- Most animals **move** in order to meet basic survival needs.
- Animals are **multicellular**.
- Animal cells are **eukaryotic**. Each cell has a nucleus and organelles surrounded by membranes.
- Most animals undergo **sexual reproduction**.

Symmetry is an important characteristic of most animals. There are 2 types of symmetry: **bilateral** and **radial** symmetry.

bilateral symmetry



radial symmetry

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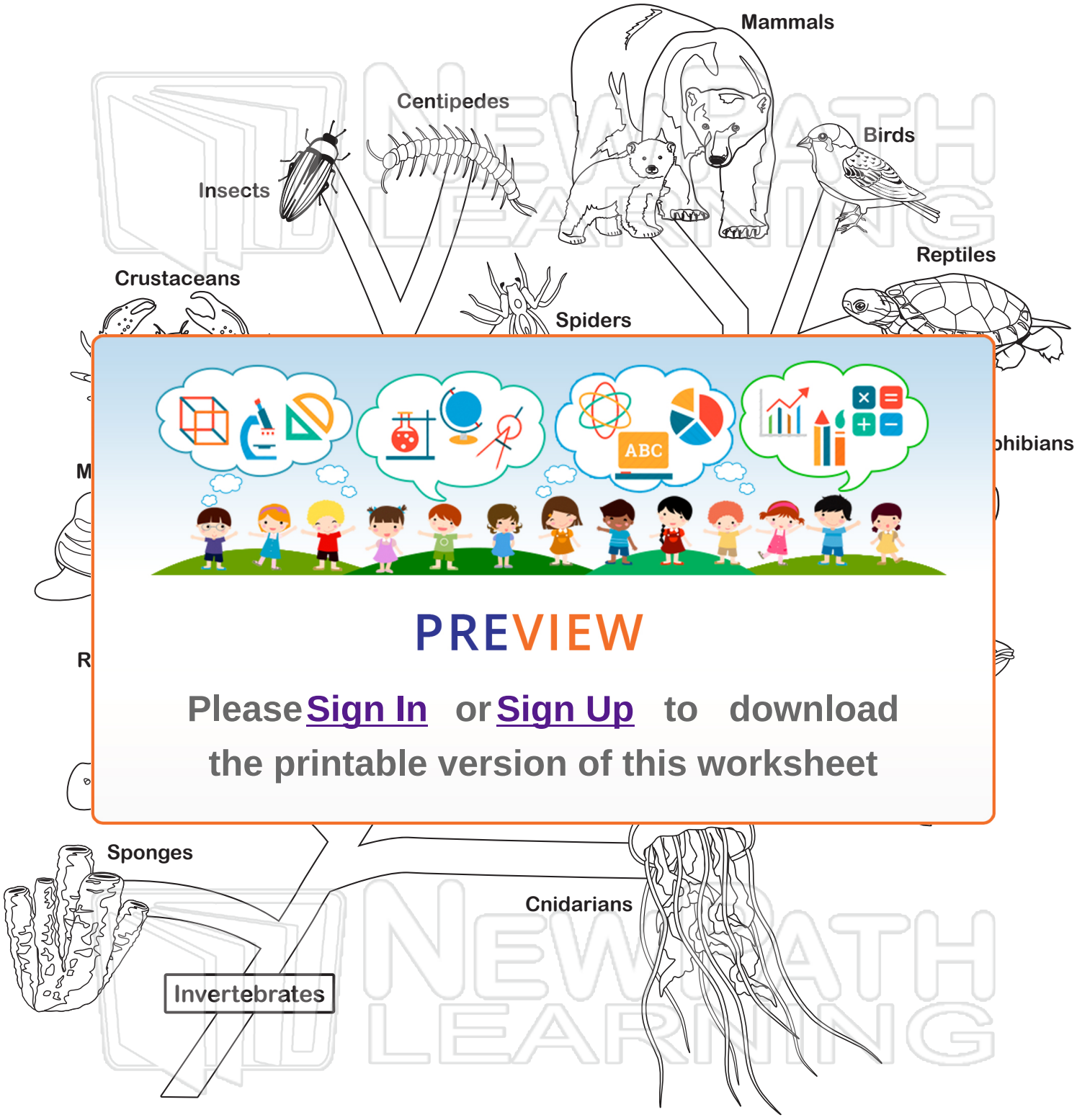
Name _____ Class _____ Date _____

Animals are grouped according to how they are related to other animals. This branching tree shows how **major animal groups** are possibly **related.**



Introduction to Animals

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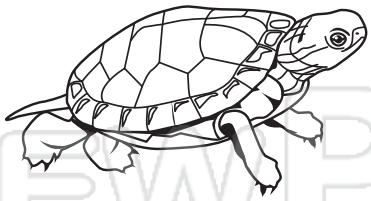
Name _____ Class _____ Date _____

Draw a line to match each animal with the correct group.



mammals

amphibians

fish

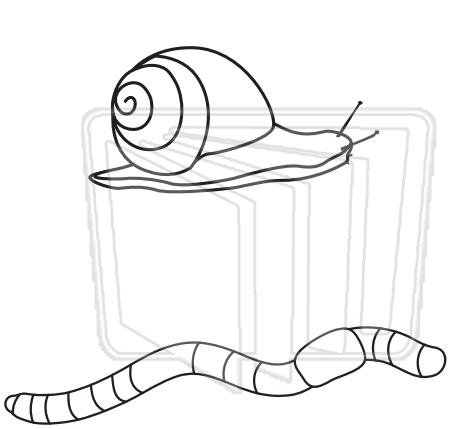
These animals are all _____ because they have _____.

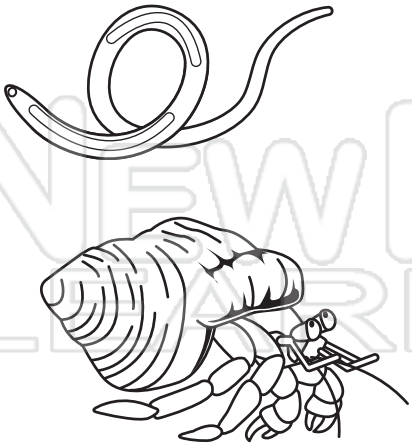
Introduction to Animals

Sci F

Name _____ Class _____ Date _____

Draw a line to match each animal with the correct group.





worms

mollusks

s

PREVIEW

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arthropods

These animals are all _____ because they do not have _____.

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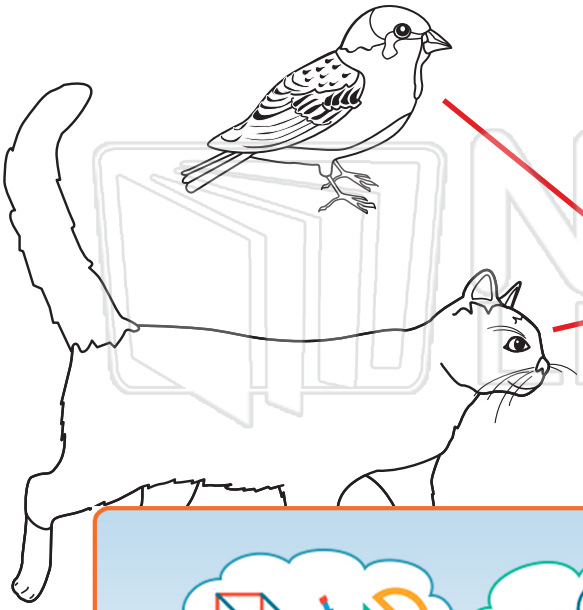
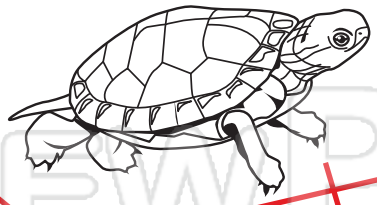
Answer Key

Draw a line to match each animal with the correct group.





mammals

amphibians

fish

These animals are all vertebrates because they have backbones.

Introduction to Animals

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Answer Key

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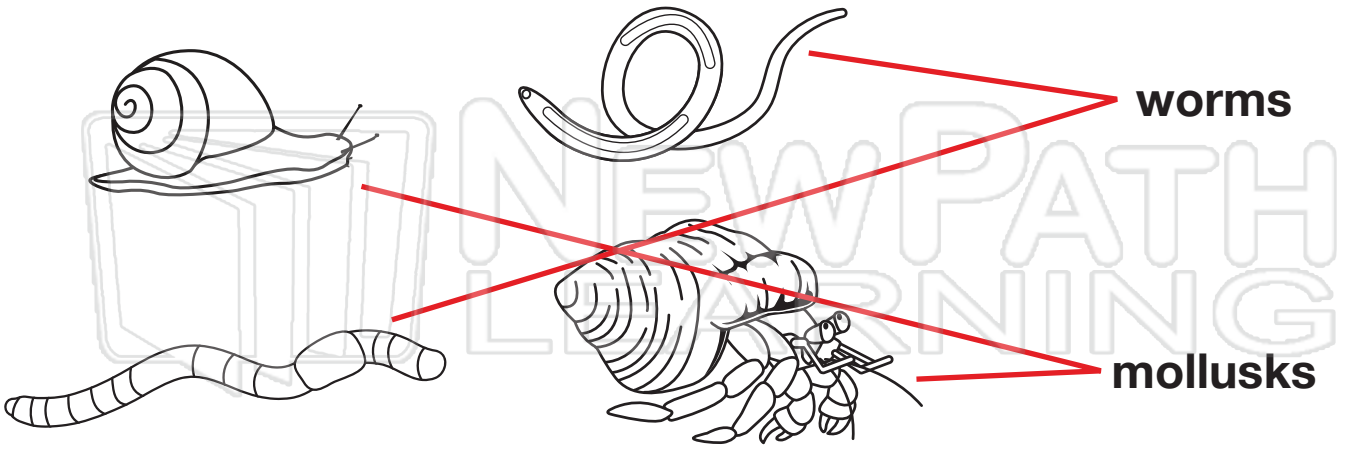

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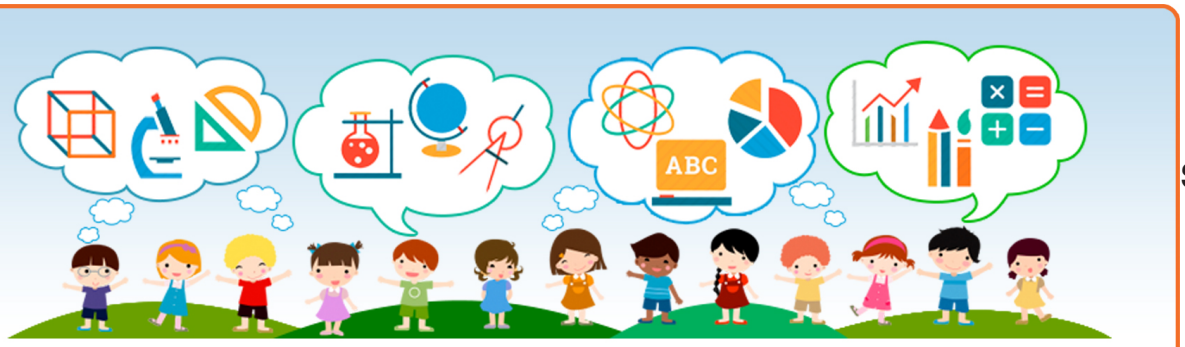

arthropods

These animals are all vertebrates because they do not have backbones.

Introduction to Animals

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Name_____ Class_____ Date_____

1 Which is characteristic of an **animal**?

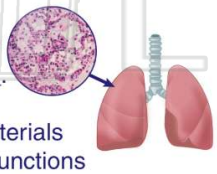
A heterotrophic
B autotrophic
C unicellular
D prokaryotic

2 Animals are able to move around their environment and they reproduce sexually.

A true
B false

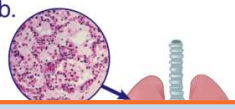
3 In animals, a **tissue** is made up of similar cells that _____.

A make different materials
B perform different functions
C perform similar functions



4 _____ is a **group of tissues** that come together to perform a specific job that is more complex than each individual tissues specific job.

A A tissue
B An organ



5

7

9 Which is not a reason that scientists believe animals adapted to have the ability to **move**?

A to reproduce
B to gather food
C to clean themselves
D to escape predators

10 An animal does not need _____ from its environment.

A carbon dioxide
B oxygen
C food
D water

Introduction to Animals

Sci F

Name_____ Class_____ Date_____

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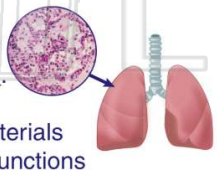

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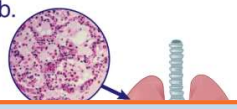

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Name_____ Class_____ Date_____

1 Animals need **oxygen** because it _____.

A makes blood oxygen-rich
B releases energy from food
C allows chemicals reactions to take place
D helps with all of the above

2 What does an animal species need to continue to do while it lives in its environment?

A adapt
B help others
C shrink
D photosynthesis

3 Which is not a type of **heterotroph**?

A carnivore
B herbivore
C heterovore
D omnivore

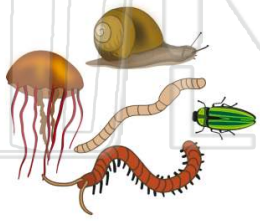
4 Which is an **adaptation** of a **carnivore**?

A broad teeth
B rigid shell
C smelly spray
D sharp teeth

5

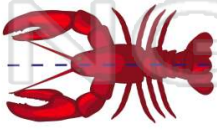
7

9 The **majority** of the animal species are _____?



A vertebrates
B invertebrates
C autotrophic
D omnivores

10 _____ is when you draw a line of symmetry and the **two halves** would be nearly identical or mirror images.



A A geometric line
B Asymmetry
C Radial symmetry
D Bilateral symmetry

Introduction to Animals

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Name_____ Class_____ Date_____

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D

5

C

PREVIEW

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7

A

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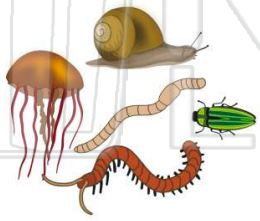

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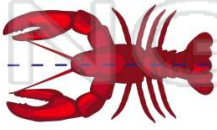

A A geometric line
B Asymmetry
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D

Introduction to Animals

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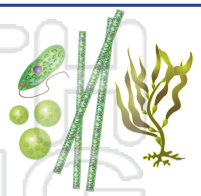
Name_____ Class_____ Date_____

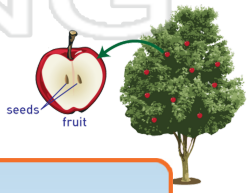
Match each of the following terms to its definition:

Animal	Carnivore	Archaebacteria	Autotroph
Behavior	Bilateral symmetry	Algae	Angiosperm

1. - a large and diverse group of simple, plant-like protists ranging from unicellular to multicellular organisms; plant-like protists that contain chloroplasts and are autotrophic



2. - a plant that produces flowers and develops fruit around its seeds



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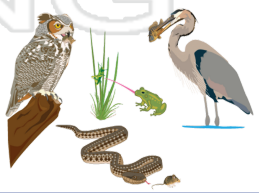
7. - symmetry produces a mirror image if a line is drawn through it at one certain place only

8. - a consumer that gets its energy by eating only other animals



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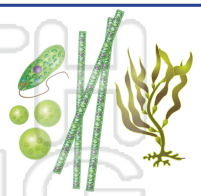
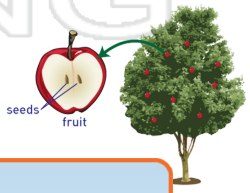


2. angiosperm - a plant that produces flowers and develops fruit around its seeds



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7. bilateral symmetry - symmetry produces a mirror image if a line is drawn through it at one certain place only

8. carnivore - a consumer that gets its energy by eating only other animals