

THE



ANIMAL

KINGDOM

What is an Animal?

Levels of Organization

Directions: Complete the flow chart to show how cells are organized in animals

Animal cells are grouped together to form a(n) tissues, which has a specific job in the body



Tissues combine to form a organ, which performs a more complex job than each tissue by itself.



Organs combine to form a organ system, which has a broad function in the body

Directions: Answer the following questions.

1. What are the 4 major functions of animals?

slide
3

movement
reproduction
gather food : obtain oxygen
homeostasis

2. What is an adaptation?

behavior or phys. characteristic that
helps organism survive

3. Why must animals maintain a stable environment within their bodies?

for cells to carry out specific functions in
daily activities

4. What are most animal movements related to?

a. food
b. reproduce

5. What is sexual reproduction?

reproduction by sperm : egg cells

6. The joining of an egg cell and a sperm cell is called fertilization

slide 4 7. What is asexual reproduction? asexual repr. is 1 organism produces identical offspring

slide 5 8. Biologists classify animals in the animal kingdom into 35 major groups, each of which is called a(n) phyla.

9. Based on the branching animal phyla diagram, which of the following group is most closely related to birds?

- a. Insects
- b. Mammals
- c. Amphibians
- d. Reptiles

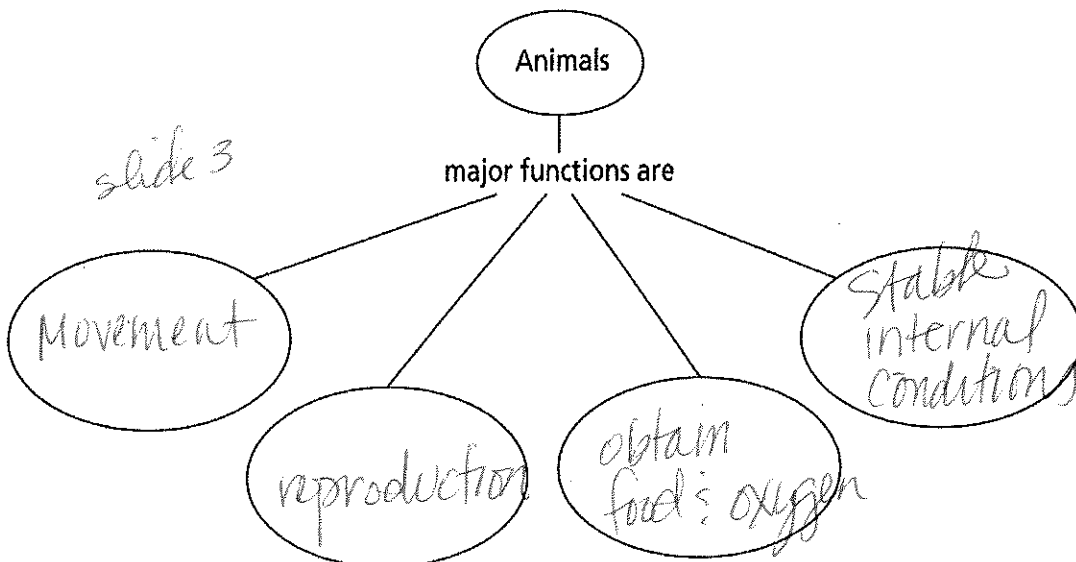
10. What do biologists consider when they classify an animal?

- slide 3
- a. Body structure
 - b. development thru life cycle
 - c. DNA

11. Which of the following is a vertebrate? = BACKBONE

- slide 5
- a. Bird
 - b. Jellyfish
 - c. Spider
 - d. Crab
- invertebrates = No backbone

Directions: Fill in the concept map.



WHAT IS AN ANIMAL?

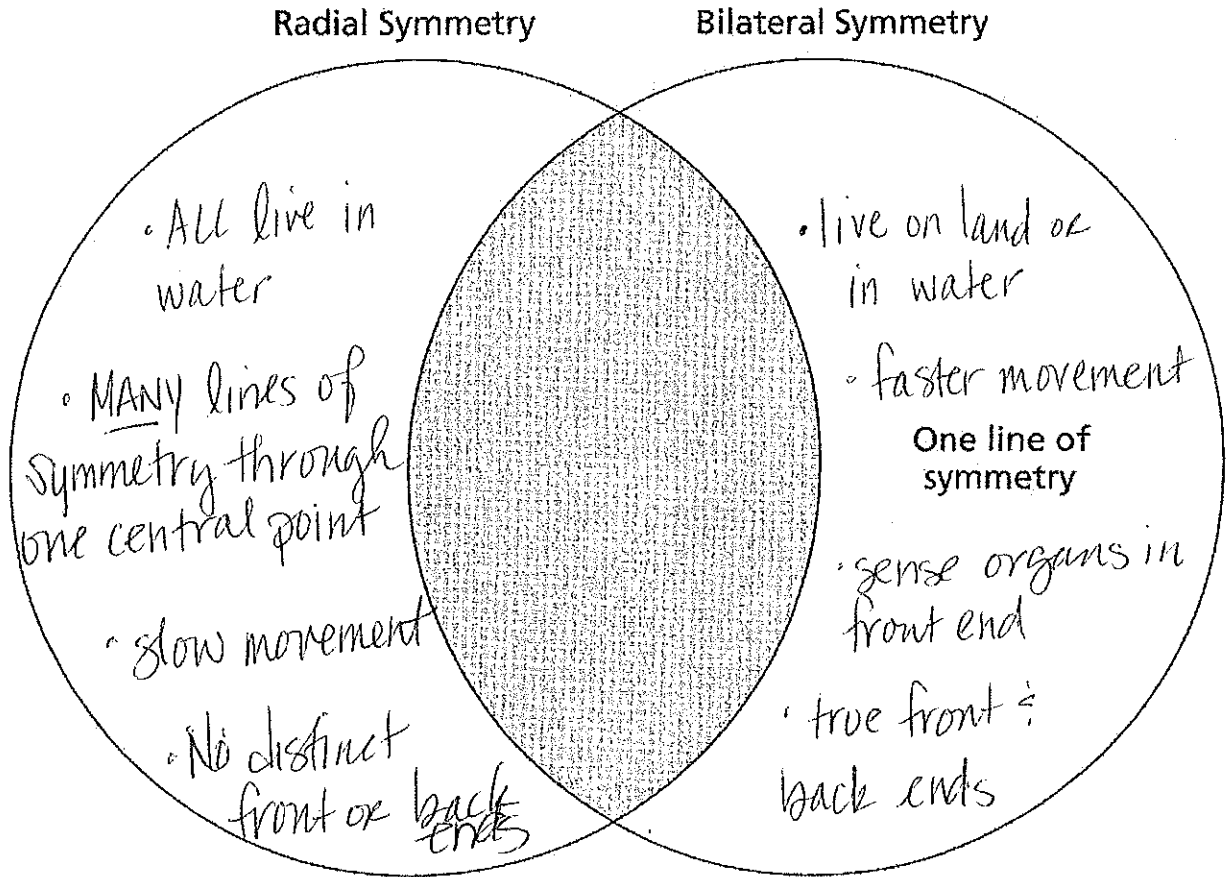
Find the words in the grid. Words can go horizontally, vertically and diagonally in all eight directions.

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

1. A group of several different tissues is called a(n) organ.
2. Biologists classify animals into major groups called phyla.
3. Fertilization is the joining of an egg cell and a sperm cell.
4. Vertebrates are animals that have a backbone.
5. Cells are the basic units of structure and function in living things.
6. Structures or behaviors that allow animals to perform the basic functions in their environment are called Adaptations.
7. An animal without a backbone is called a(n) Invertebrates.
8. Asexual reproduction is the process by which a single organism produces a new organism identical to itself.

ANIMAL SYMMETRY

Directions: Compare and contrast animals with radial and bilateral symmetry. In the shaded region, put characteristics that are shared by both animals.



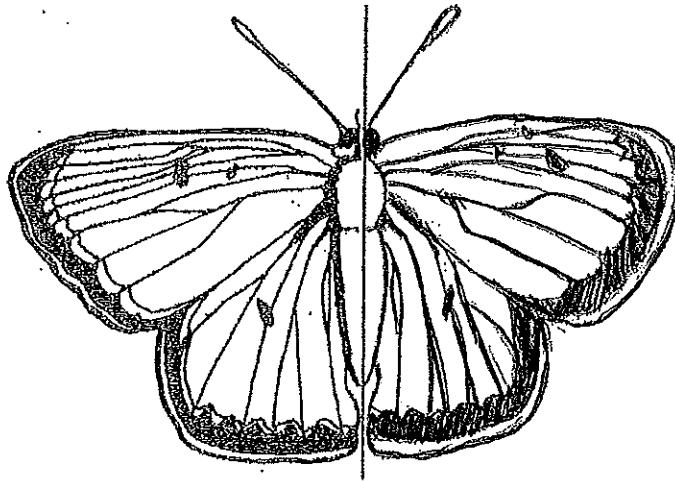
Directions: Fill in the blank with the appropriate term

1. If an animal has a head end and a tail end, it has bilateral symmetry.
2. All animals with radial symmetry live in the water.
3. Animals with radial symmetry have many line(s) of symmetry that go(es) through a central point.
4. Animals with bilateral symmetry have one line(s) of symmetry that divide(s) them into two parts.

REVIEW: Animal Symmetry

Directions: Complete the drawing of the butterfly's body on the other side of the line of symmetry

slides 6-8




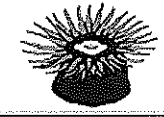











Directions:

Classify the following as HAVING NO SYMMETRY, BILATERAL SYMMETRY, or RADIAL SYMMETRY. If the animal has a line(s) of symmetry, draw them.

<p>1. many lines lives in H₂O</p>	<p>2. No line lives in water</p>	<p>3. 1 line true front/back end.</p>
<p>Sea Urchin</p>	<p>Sponge</p>	<p>Beaver</p>
<p>radial</p>	<p>no symmetry</p>	<p>bilateral</p>
<p>4. 1 line sense organs up front</p>	<p>5. many lines lives in water</p>	<p>6. 1 line; true front & back end</p>
<p>Frog</p>	<p>Sea Star</p>	<p>Ant</p>
<p>bilateral</p>	<p>radial</p>	<p>bilateral</p>

Animal Symmetry and Phyla

	Animal	Phylum	Symmetry
	Snail	Mollusks	Bilateral
	Trout	Chordata	Bilateral
	Earthworm	Annelids	Bilateral
	Anemone	Cnidarians	Radial
	Owl	Chordata	Bilateral
	Sponge	Porifera	None!
	Roundworm	Nematoda	Bilateral
	Sea Star	Echinoderms	Radial
	Alligator	Chordata	Bilateral-
	Ant	Arthropods	Bilateral
	Tapeworm	Platyhelminthes	Bilateral
	Frog	Chordata	Bilateral
	Elephant	Chordata	Bilateral

ANIMAL KINGDOM SURVEY

Directions: Observe the specimens @ http://www.biologycorner.com/resources/slideshows/animal_kingdom/index.html

Specimen Name or Station	Questions at Station	Scientific Drawing
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

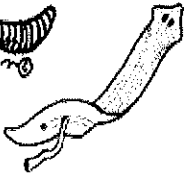
Animal Phylum Matching

Directions: Draw a line from the Phylum to the organism that matches it. Draw another line from the organism to its description.

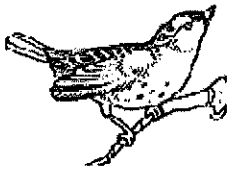
Cnidaria



Chordata



Mollusca



Arthropoda



Echinoderm



Annelida



Platyhelminthes



These marine animals have plates with spines

Three body parts, jointed legs, tough exoskeleton

Soft, thin, flat bodies

Soft bodied animals usually have a shell

Long animals divided into segments

Jelly-like animals that have a bell or umbrella shape

Animals that have a notochord that supports the body (or backbone)

Quick Match: For each animal or description listed, name the phylum it is associated with:

1. Cow: _____

2. Lobster: _____

3. Leech: _____

4. Tapeworm: _____

5. Sea anemone: _____

6. Sea urchin: _____

7. Octopus: _____

8. Bell or umbrella shaped bodies

9. Most have a backbone

10. Jointed legs

11. Thin, flat bodies

12. Soft bodies, some have shells

13. Spiny plates

14. Exoskeleton _____

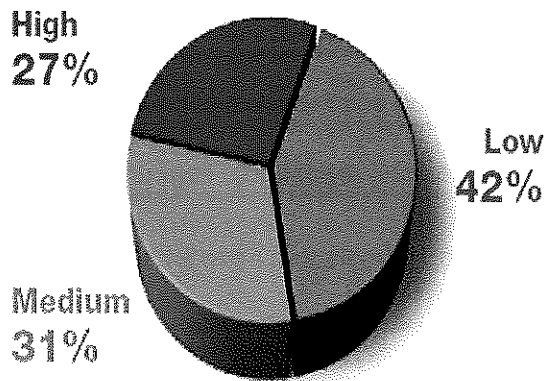
15. Segmented, long bodies

CORAL CRISIS

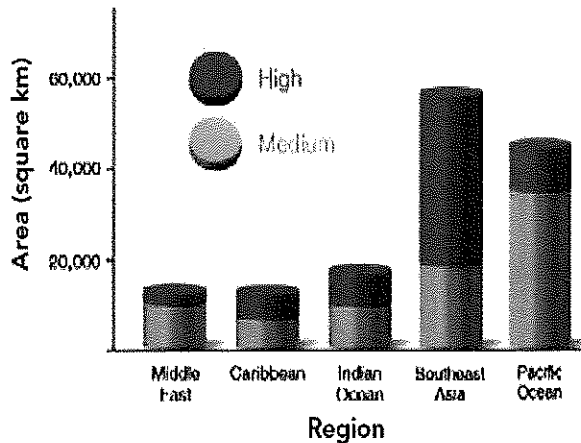
More than 1 million plants and animals live in the world's coral reefs. Coral reefs protect coastlines from storm damage, and organisms that live in them have been used to develop drugs to treat diseases.

Many of the world's coral reefs are at risk. The threats include destructive fishing practices and pollution. Global warming is also threatening reefs. Scientists have found that warming ocean waters are killing off many coral plants. Use the graphs to answer questions about the threats to coral reefs.

PERCENTAGE OF THE WORLD'S REEFS THAT ARE AT RISK OF DISAPPEARING



TOTAL AREA OF CORAL REEFS THAT ARE AT MEDIUM TO HIGH RISK OF DISAPPEARING



1. According to the pie chart, what percentage of the world's reefs are at high or medium risk of disappearing?

2. There are approximately 255,000 square kilometers of coral reefs in the world. Look at the pie chart. Roughly what area of coral reef is at low risk?

3. In which region of the world is the largest area of coral reef at risk?

4. Approximately what area of coral reef in the Caribbean and the Indian Ocean is at risk?

5. The Coral Triangle in Southeast Asia holds the greatest diversity of coral in the world. Based on the bar graph, are the reefs in the Coral Triangle at risk?

6. Do you think the reefs in the Coral Triangle and other places should be protected? Why or why not?

HOT SPOT

The Coral Triangle is an area of the oceans between Southeast Asia and the northern tip of Australia containing 53% of the world's coral reefs. Read below and study the map to discover more about this important ocean region. Then answer the questions that follow on a separate sheet of paper.



More than 75 percent of the world's species of coral are found in the Coral Triangle.



The region is home to more than 3,000 species of fish and acts as a breeding ground for many sea organisms.



Its beaches serve as nesting grounds for five of the world's seven species of sea turtles.



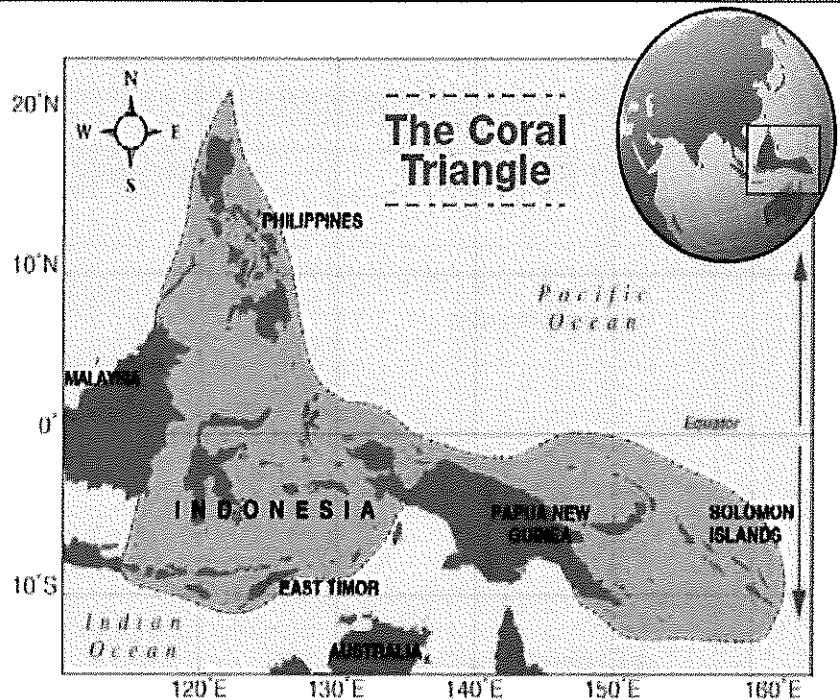
The reefs in the Coral Triangle are being threatened by human activities. Destructive fishing methods, such as the use of explosives, can destroy reefs.



More than 150 million people call the Coral Triangle home. Many of these people rely on the coral reefs for food and jobs.



Rising levels of carbon dioxide are harming the coral. Carbon dioxide causes Earth's temperatures to rise, warming the oceans and harming some ocean life.



1. In which hemisphere is most of the Coral Triangle located: Northern or Southern?
2. Which of the following countries do not border or are not within the Coral Triangle: Australia, Philippines, Indonesia, Malaysia?
3. How does an increasing amount of carbon dioxide in the air affect coral reefs in the Coral Triangle?
4. What do you think would happen to the populations of fish and animals like sea turtles if the reefs in the Coral Triangle disappeared?
5. Conservation organizations are working with people who live in the region to try to protect the Coral Triangle. Why might it be beneficial for local people to protect the reefs?

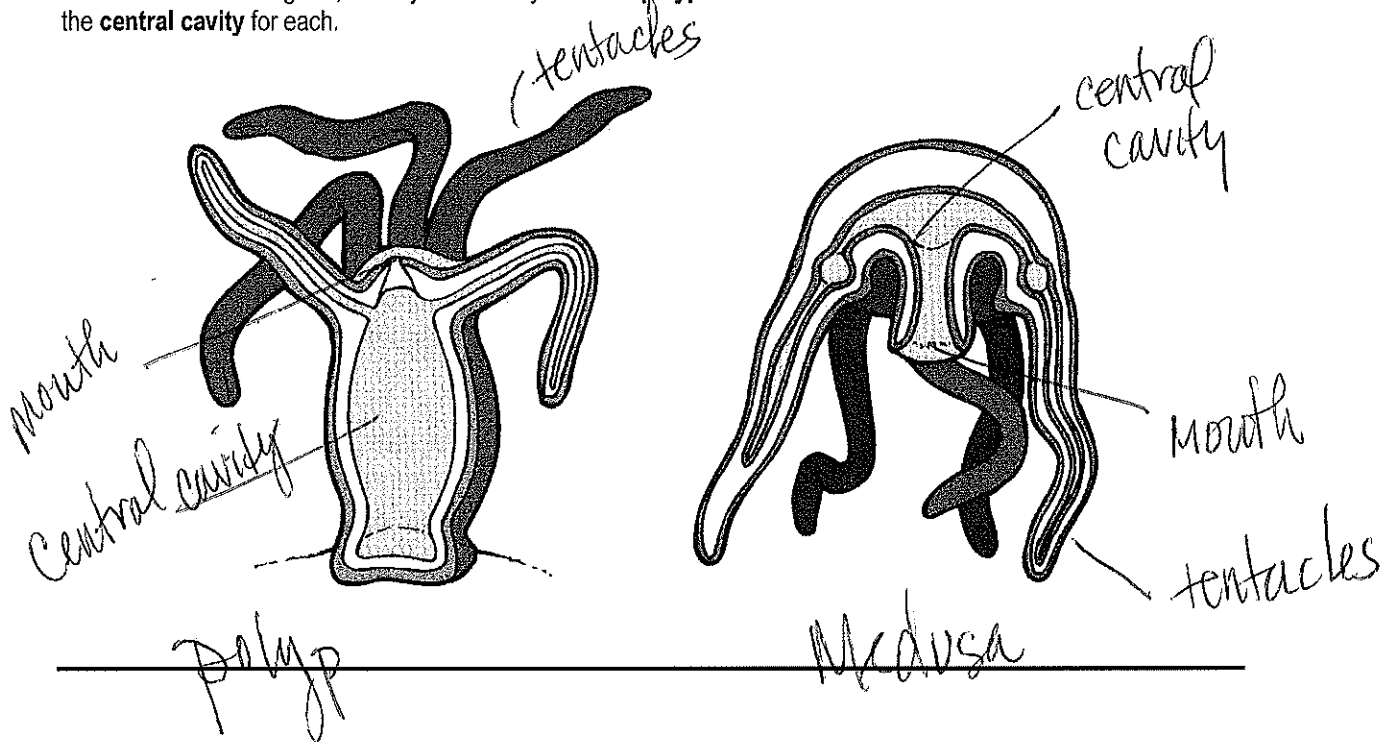
SPONGES VS. CNIDARIANS

9.3

Directions: Fill in the chart that compares and contrasts the following organisms

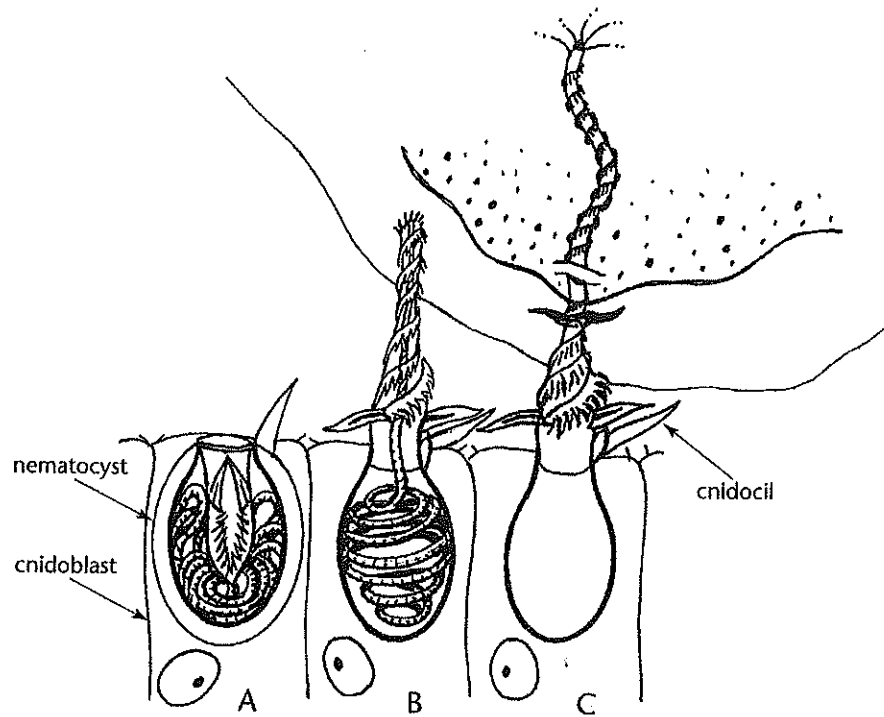
FEATURE	SPONGE	CNIDARIAN
	Porifera "having Pores"	
Body Structure	invertebrate; NO symmetry No tissues or organs	invertebrates Radial Symmetry polyp or medusa
Cell Type that traps Food	Collar cells	stinging cells + tentacles
Method(s) of Reproduction	asexual = budding Sexual = sperm + egg cells	asexual = budding sexual = 2 sexes each sex

Directions: In this diagram, identify which body form is a **polyp** and which is a **medusa**. Then label the **mouth** and the **central cavity** for each.



Cnidarians and Nematocysts

Cnidarians have specialized cells in their tentacles called cnidoblasts. Within the cnidoblasts are tiny stinging capsules called nematocysts. Inside the nematocyst capsule is a coiled thread. This thread injects venom into anything that brushes against the capsule's trigger. The capsule's trigger is called a cnidocil. The diagram below will help you understand how this occurs.



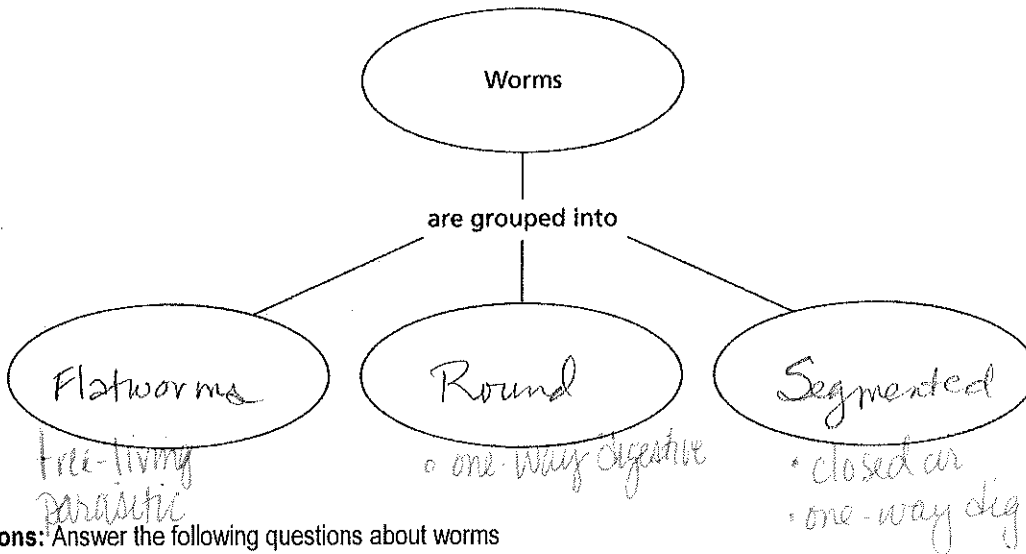
Directions: Answer the following questions.

1. List and describe the steps that occur in A, B, and C when a cnidarians captures food. You will need to include a D step as well. [HINT: What does the cnidarians do with its food after it stings it?]
2. People may be stung if they step on a dead jellyfish washed up on the beach. Why do you think this is so?
3. What functions do the stinging cells of a cnidarians serve?

PRACTICE: WORMS

9.4
slide 18

Directions: Complete the following concept map about worms



Directions: Answer the following questions about worms

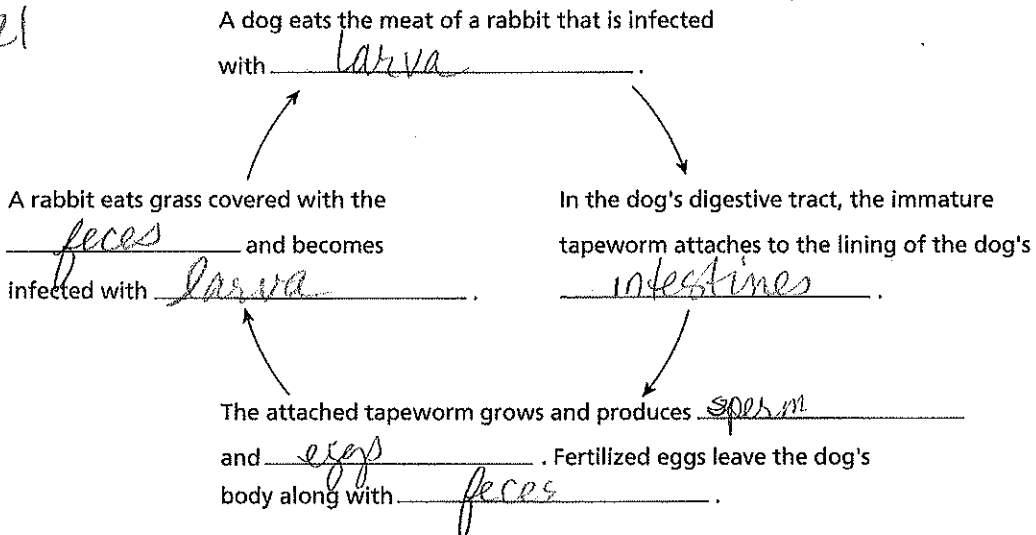
List five characteristics shared by all worms.

slide 17

1. Invertebrates
2. Bilateral sym
3. Brains
4. Asexual / Sexual Reproduction
5. No legs

Directions: Complete the cycle diagram to show the life cycle of a dog tapeworm *parasitic*

slide 21



REVIEW: WORMS

Directions: Decide whether the statement is true or false. If it is false, correct the underlined portion of the statement in order to make it true.

1. False Three major phyla of worms are flatworms, roundworms, and segmented ~~tube~~ worms.
2. False Worms reproduce only through sexual reproduction.
3. True Worms are the simplest organism with a brain.
4. True Planarians are non-parasitic flatworms.
5. False Tapeworms are parasitic segmented worms.
6. True Planarians have one opening in their digestive system.
7. False Roundworms have a two-way digestive system.
8. True Worms have bilateral symmetry.
9. True Earthworms are segmented worms.
10. False Earthworms have a(n) open circulatory system.
11. True Earthworms must keep their skin moist.

Directions: Match the following terms to their definitions

12. B scavenger
 13. E anus
 14. A parasite
 15. D free-living organism
 16. C host
- a. Organism that gets its food from living in or on another organism
 - b. Organism that feeds on dead or decaying material
 - c. Organism in or on which another organism lives and gets its food from
 - d. An organism that does not live in or on other organism
 - e. Opening through which waste exits in a one-way digestive system

REVIEW: KEY TERMS FOR PHyla 1-5

Directions: Answer the following questions by writing the correct key term in the blanks. Unscramble the circled letters from each term to find the hidden key terms. Then, write a definition for the hidden key terms.

1. What is an animal without a backbone?

invertebrate

2. What is a bowl-shaped cnidarian that is adapted for swimming?

medusa

3. What is a basic unit of structure and function found in all living things?

cell

4. What is the symmetry shown by objects if there is one line that divides the object into halves that are mirror images?

bilateral symmetry

5. What does a group of different tissues form?

organ

6. What is an animal that has a backbone?

vertebrate

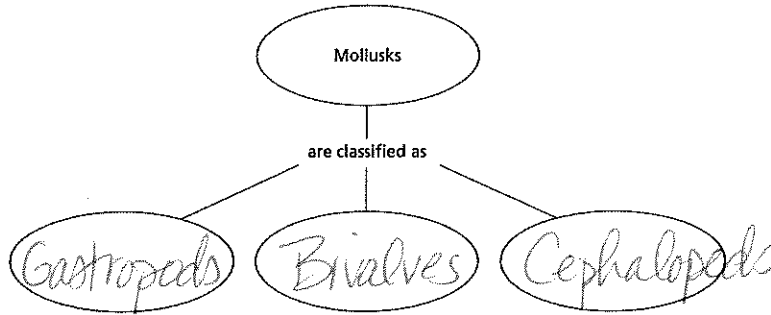
7. What is an organism that lives inside or on another organism?

parasite

rscaegnrse

PRACTICE: Mollusks

Directions: Fill in the following concept map



page 330

Directions: Fill in the following chart

TYPE OF MOLLUSK	HOW THEY OBTAIN FOOD	HOW THEY MOVE
Gastropod	herbivores; carnivores RADULA	carpet of mucus
Bivalve	filter feeders	float, swim, dig w/ foot
Cephalopod	carnivores; beak & radula	swim by jet propulsion

p330
331

Directions: Answer the following questions.

1. What is the function of each of the following parts of a mollusk:
 - a. Hard outer shell: protection p329
 - b. Mantle: Covers internal organs p329
 - c. Foot: crawling, digging, catching prey p329
2. Mollusks have bilateral symmetry.
3. What are the characteristics that scientists use to classify mollusks?
 - a. presence of a shell
 - b. type of shell
 - c. type of foot
 - d. type of nervous system

slide 4

PRACTICE II: MOLLUSKS

Directions: Answer the following questions.

- p331 1. What are bivalves? mollusks w/ 2 shells held together by hinge & muscles
2. How are bivalves different from other mollusks?
p331 Do not have Radula; filter feeders
-
- p330 3. Mollusks that have a single shell or no shell at all are called gastropods
- p332 4. Mollusks whose feet are adapted to form tentacles around their mouths are Cephalopods
5. How do cephalopods find and capture food?
Suckers respond to chemicals in water

Directions: Complete the following matching section.

- | | |
|------------------------|--|
| 1. <u>J</u> radula | <u>a.</u> shell outside the body |
| 2. <u>B</u> octopus | <u>b.</u> no shell |
| 3. <u>I</u> bivalve | <u>c.</u> organism that eats plants |
| 4. <u>E</u> cilia | <u>d.</u> small shell inside the body |
| 5. <u>A</u> nautilus | <u>e.</u> tiny, hair-like structures that move water over the gills |
| 6. <u>K</u> gastropod | <u>f.</u> organism that eats other animals |
| 7. <u>L</u> gills | <u>g.</u> group that contains octopus and squid |
| 8. <u>G</u> Cephalopod | <u>h.</u> organism that eats both plants and animals |
| 9. <u>D</u> squid | <u>i.</u> group that contains oysters and clams |
| 10. <u>C</u> Herbivore | <u>j.</u> a flexible ribbon of tiny teeth that scrapes food from a surface |
| 11. <u>F</u> Carnivore | <u>k.</u> group that contains snails and slugs |
| 12. <u>H</u> Omnivores | <u>l.</u> organs that remove oxygen from water |

REVIEW: MOLLUSKS

Directions: Complete the following table about Mollusks

	GASTROPODS	BIVALVES	CEPHALOPODS
COMMON EXAMPLE	Snail, slug	clam, oyster	Squid, octopus
HOW DO THEY EAT?	Radula	filter feeders	beak; suckers, Radula
HOW DO THEY MOVE?	Stomach foot mucus	float; dig	jet propulsion
DO THEY HAVE A SHELL?	1 or None	2 shells	internal; external; None
ADAPTATIONS OF THE FOOT	oozes mucus	Secretes pearly coat to make pearls	tentacles around mouth

Do Not
need to
complete

Directions: Choose the term that best completes each sentence.

Omnivore
Gills

Cephalopod
Bivalve

Radula
Gastropod

1. A row of tiny teeth found in gastropods and cephalopods is called a Radula.
2. The group of mollusks with the most complex nervous system of any invertebrate is the Cephalopod group.
3. A(n) omnivore eats both plants and animals.
4. A Bivalve is a two-shelled mollusk.
5. A snail is a gastropod.
6. Most water-dwelling mollusks have gills, organs that remove oxygen from water.

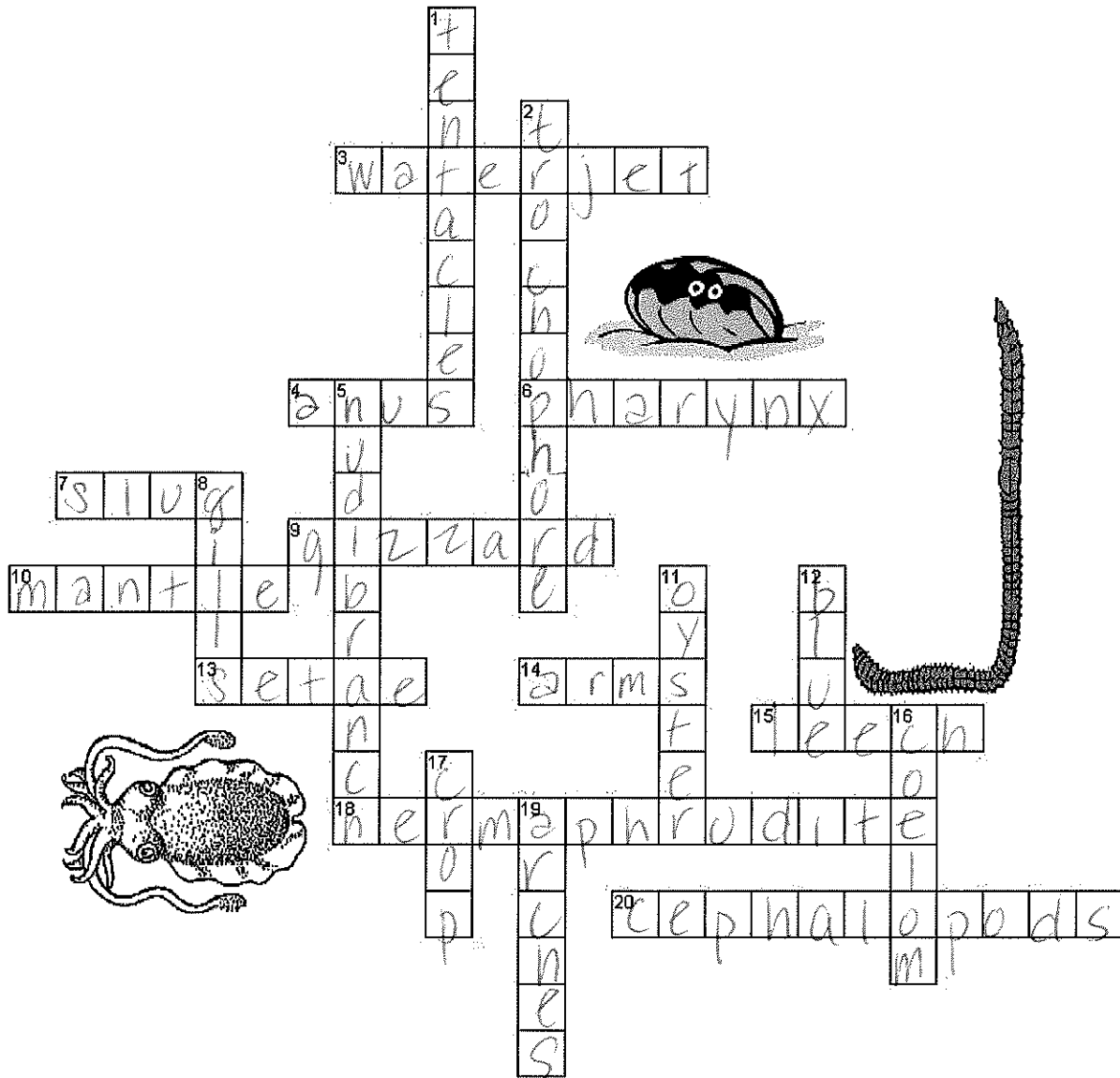
Comparing Mollusks Chart



Using what you know about the three major classes of mollusks, complete the chart below by checking the correct column or columns for each characteristic.

<i>Characteristic</i>	Type of Mollusk		
	Gastropods	Bivalves	Cephalopods
1. Intelligent, well developed nervous system			✓
2. Has no distinct head		✓	
3. Has an open circulatory system	✓	✓	
4. External shells present in some species	✓	✓	✓
5. Bite prey with beak			✓
6. Uses gills for both respiration and food collection	✓	✓	✓
7. All species are carnivorous predators			✓
8. Uses a radula for feeding	✓		✓
9. Can change color for camouflauge			✓
10. Can form pearls		✓	
11. Use a type of jet propulsion for movement			✓
12. Has bilateral symmetry	✓	✓	✓
13. Has a two part hinged shell		✓	
14. Is an invertebrate	✓	✓	✓
15. Some species are venomous			✓

REVIEW: Mollusks and Annelids Crossword



Across

3. used for propulsion in squid (2 words)
4. opening where wastes exit
8. organ used to suck up dirt by worms
7. similar to a snail, but without a shell
9. organ that grinds food in the earthworm
10. the covering of the body of mollusks
13. bristles on the ventral surface of worms
14. 8 of these are found on an octopus
15. related to earthworms, used in "bloodletting"
18. has both male and female sex organs
20. class that contains octopus and squid

Down

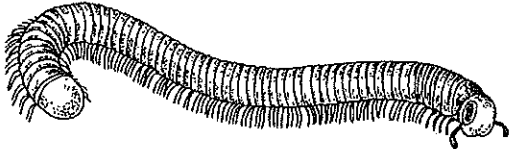
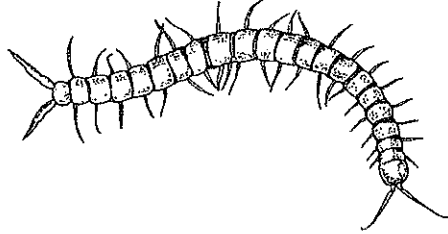
1. a squid uses these to capture prey
2. larval stage of mollusks and annelids
5. a colorful sea dwelling gastropod
8. organs used for respiration in the squid
11. a type of bivalve, makes pearls
12. the color of a poisonous octopus
16. body cavity
17. organ that stores food in the earthworm
19. the heart of the earthworm has five of these

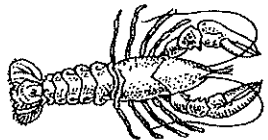
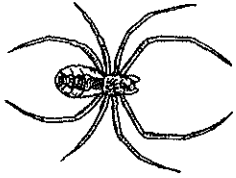
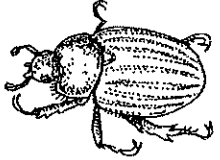
Do not need to complete

The Arthropods

The **arthropods** are animals that have jointed legs. This group of animals is the most successful on Earth because of the number of species, the number of offspring produced, and how well they are able to adapt to their environment. Use the terms in the word box to complete the chart. Some terms are used more than once.

rounded	segmented body	flat
two pairs of legs per segment	flexible exoskeleton	gills
one pair of legs per segment	hard	no antennae
two pairs of antennae	four pairs of legs	three pairs of legs
two body sections	three body sections	one pair of antennae

Diplopoda	Chilopoda
	
rounded	flat
Segmented body	Segmented body
2 pairs of legs/segment	1 pair of legs/segment

The Crustaceans	The Arachnids	The Insects
		
2-3 body sections	2 body sections	3 body sections
antennae	No antennae	antennae
gills	8 legs (4 pairs)	6 legs (3 pair)
hard		
flexible exoskeleton		

visit in class

Phylum

REVIEW: ARTHROPODS

Directions: Answer the following questions.

1. List the four major groups of arthropods:

- a. Crustaceans
- b. Arachnids
- c. centipedes/millipedes
- d. insects

2. What are the characteristics of an arthropod?

invertebrate w/ exoskeleton, segmented body, jointed attachments called appendages

3. How does an exoskeleton help arthropods live on land?

protects; place for muscle attachment; prevents drying out

4. What happens to the exoskeleton when an arthropod grows?

exoskeleton is shed during molting. Then the new "shell or outer skeleton" is soft before it hardens

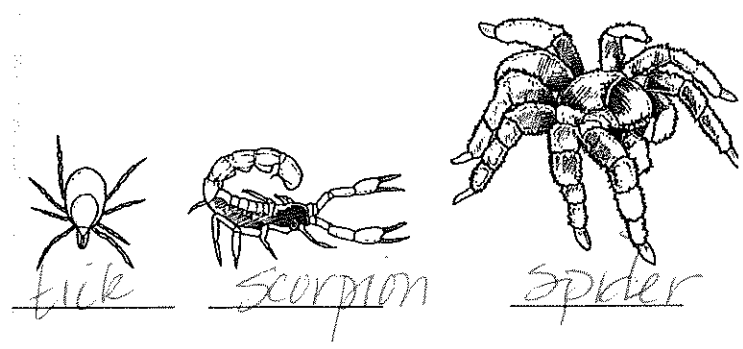
5. Crustaceans have 2 pairs of antennae. Arachnids have 2 body sections. Insects have 3 pairs of legs. The function of legs is to walk, catch prey, and defend against predators. Antennae have sense organs for smelling, tasting, and touching.

6. What is a crustacean? Arthropods w/ 2-3 body sections; 5+ pairs of legs
2 pairs of Antennae!

7. Crustacean larvae develop into adults by metamorphosis, a process in which an animal's body changes dramatically in a short time.

8. An arthropod with only two body sections and four pairs of legs is a(n) arachnid

9. Write the name of the arachnid in each drawing



Wed
in claw

REVIEW II: ARTHROPODS

Directions: Answer the following questions.

1. When are scorpions the most active? night
2. A scorpion has a(n) stinger at the end of its abdomen to inject venom into prey
3. Ticks are parasites that live on the outside of a host animal's body.

Directions: Match the arthropod with its characteristics.

CHARACTERISTICS

4. B two pairs of legs on each segment
5. A one pair of legs on each segment
6. A Predator that injects venom
7. B Scavenger

ARTHROPODS

a. centipede

b. millipede

↳ more legs
milli = 1000
but they don't
really have that
many

Directions: Fill in the blank

8. An arthropod's exoskeleton protects it and keeps it from drying out.
9. The heads of some arthropods have antennae, which contain sense organs.
10. Some animals go through a process called metamorphosis during their life cycle in which their bodies undergo dramatic changes in form as they develop.
11. The hind body section of an arachnid is called its abdomen.
12. The process of shedding an outgrown exoskeleton is called molting.

Directions: Read the description and decide which animal best fits each question.

1. They are invertebrates with an exoskeleton, segmented body, and jointed appendages. They have an open circulatory system and reproduce sexually. Their name comes from the Greek for "joint-leg". What are they? Arthropods
2. They have highly segmented bodies with one pair of legs attached to each segment. They are predators with venom. Some of them have more than 100 segments. What are they? centipedes
3. They all have two body sections and eight legs. Some of them are predators with fangs or a stinger; others are parasites. None of them have antennae. What are they? arachnids
4. They have segmented bodies with two pairs of legs on each segment. Most eat decaying leaves. They curl up into a ball when something disturbs them. What are they? millipedes

Arthropod Poetry

Read the rhymes about arthropods below. Each provides a clue to a term related to arthropods.

1. When I'm scurrying, fast and fleet,
I seem to have a thousand feet.
When I slow down, it's evident
I have just four on each segment

Who am I? _____

2. My exoskeleton never grows
Even though I do
And so I have to take it off
To grow one bigger and new.

What is this process? _____

3. When I come out of an egg
I look like a worm with legs.
But someday - wait and see -
An adult insect I'll be.

What am I? _____



4. We're crustaceans, arachnids, and millipedes
We're also insects and centipedes.
We're famous for our legs that are jointed
Guess who we are, or we'll be disappointed.

Who are we? _____

5. Feelers, mouth parts, legs, or wings
We can be any of these things.

What are we? _____

6. I'm body part number three
If you start from the head
Though belly's a common name for me,
There's a fancier name instead

What is the fancier name? _____



7. My body has three main parts,
An abdomen, thorax, and head
I often fly to get around
Or I use my six legs instead.

Who am I? _____



8. Lobsters, crabs, and crayfish are we,
We often make our homes in the sea.
We have five pairs of legs to walk
And eyes often perched atop a stalk.

Who are we? _____

9. Some people think we're scary things
We're kind of like insects, but we never have wings
Our body parts number two, not three
We're not usually harmful if you let us be.

What are we? _____

10. We're long and thin.
We're used so much.
When arthropods taste, hear or touch.

What are we? _____

11. First egg, then larva, then pupa --
Everything gets rearranged,
As step by step I become an adult
And my body's completely changed.

What is this process? _____

12. Lenses, lenses everywhere.
One lens here and one lens there.
We're found on crayfish, found on flies.
We're a very special kind of eyes.

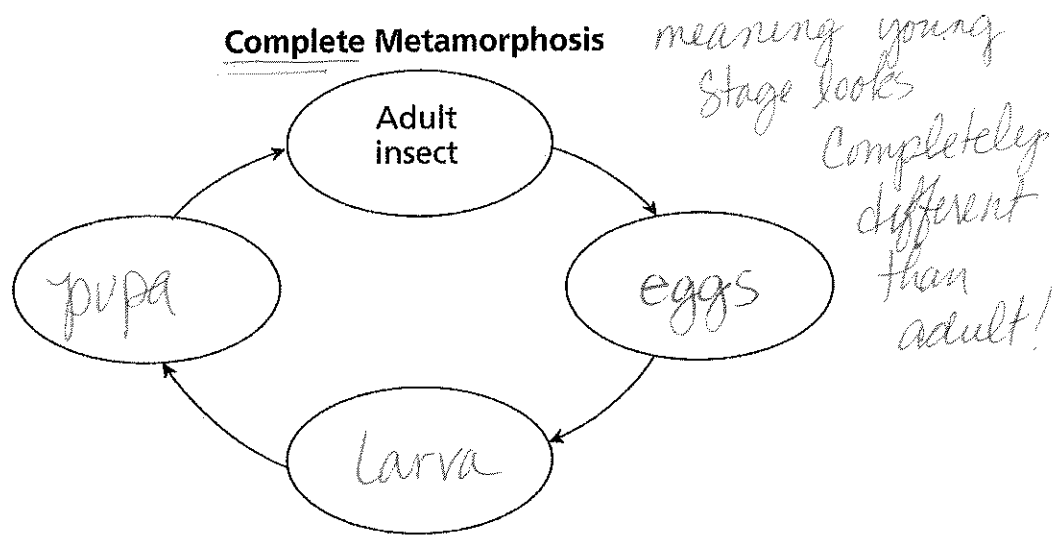
What are we? _____

*Write Your Own Poem in the space below
about arthropods.

Do not complete

PRACTICE: INSECTS

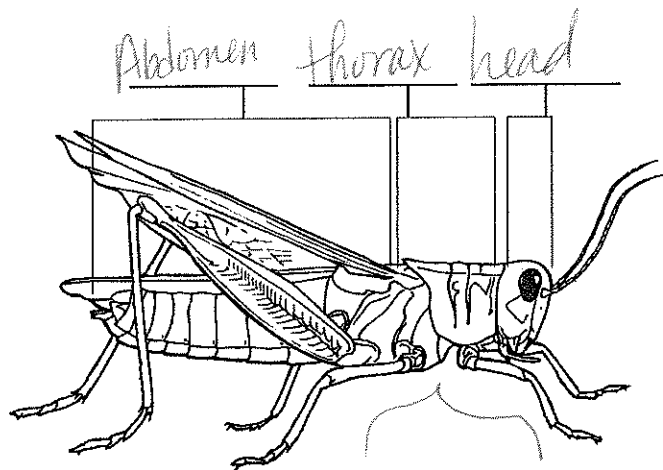
Directions: Complete the following life cycle diagram.



Directions: Fill in the blanks

1. The wings and legs of an insect are connected to the body section called the thorax
2. Insects have two compound eyes, which contain many lenses
3. Insects get oxygen into their bodies through a system of tubes in abdomen
4. Insects get food using mouthparts that are highly specialized
5. In gradual metamorphosis, the egg hatches into a(n) nymph, which looks like a small adult

Directions: Identify the body sections of the grasshopper below

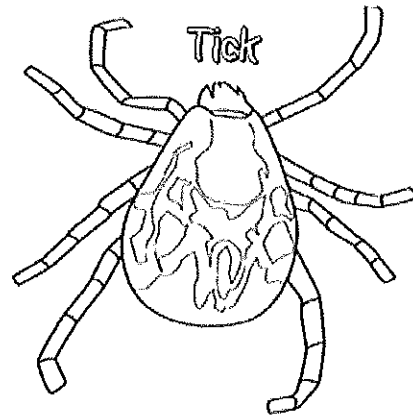
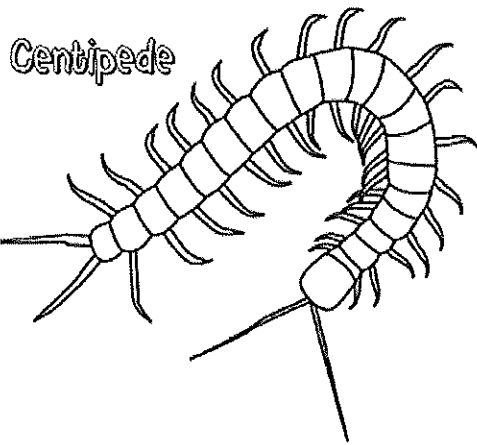
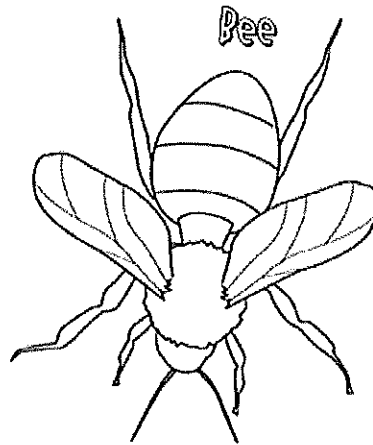
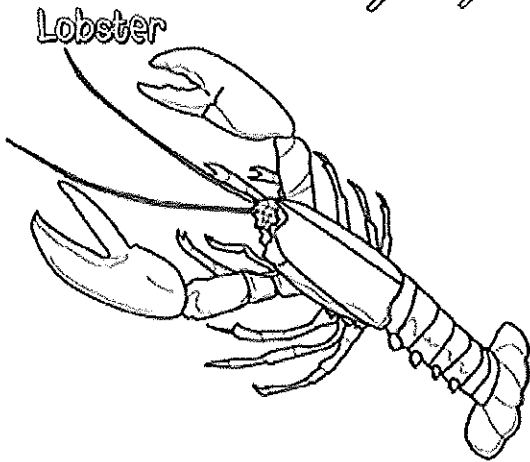
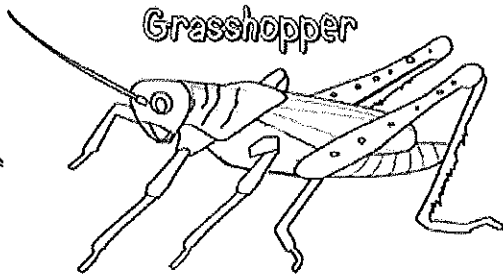
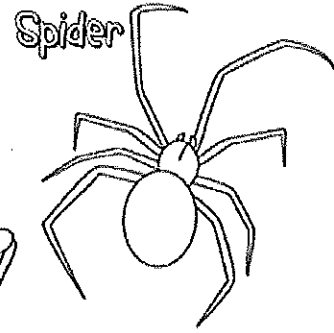
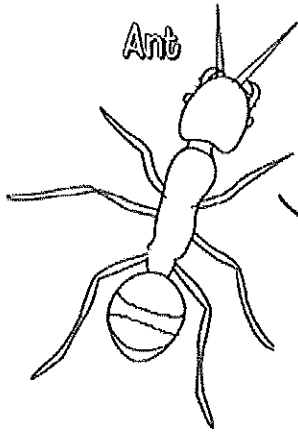


Insects have...
 3 body sections
 3 pairs of legs

Where wings AND legs attach HW

ARTHROPOD COLORING

Directions: Use the Edline Link to Color the ARTHROPODS according to the instructions.

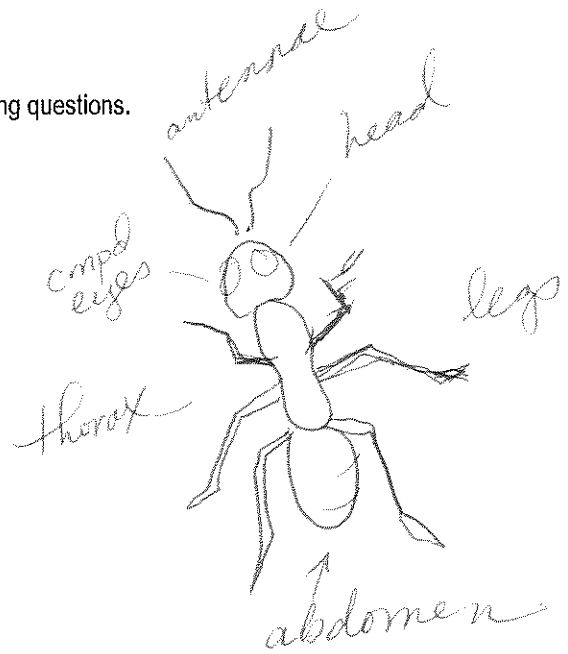


do not need
to complete

REVIEW: INSECTS

Directions: Sketch an insect to the right and then answer the following questions.

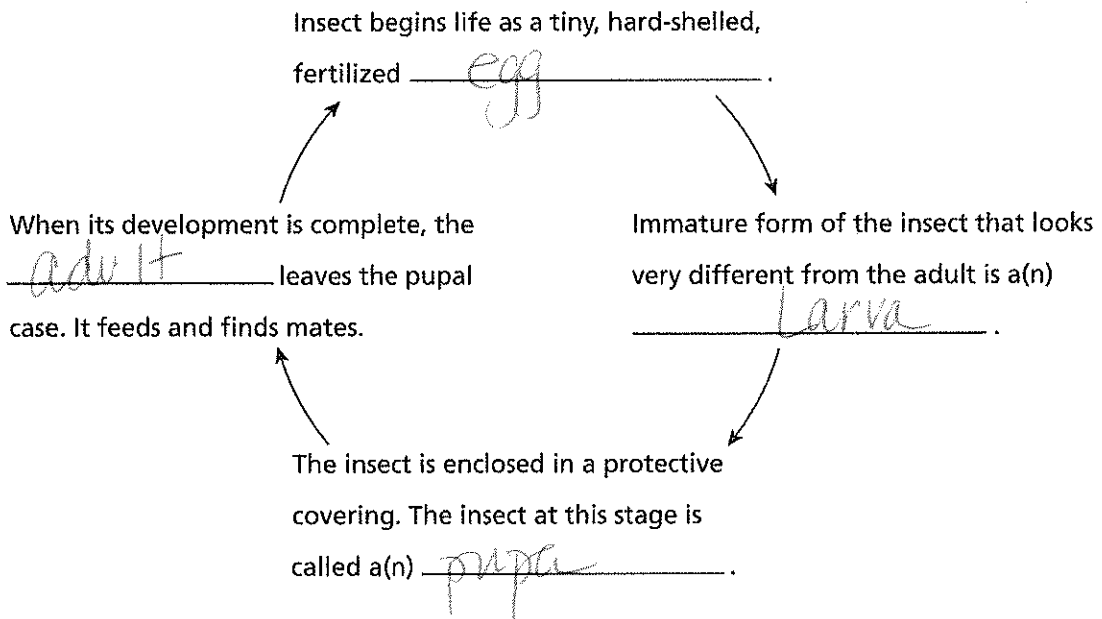
1. How many body sections does an insect have? 3
2. Name and label the body parts on your drawing
3. How many legs does an insect have? 6
4. Label the legs on your drawing
5. List two other features most insect have



antennae, wings,
compound eyes,

6. Label the two features on your drawing.
7. Name two ways insect mouthparts are used for feeding. sucking
chewing

Directions: Complete the cycle diagram to show the stages of Complete Metamorphosis.

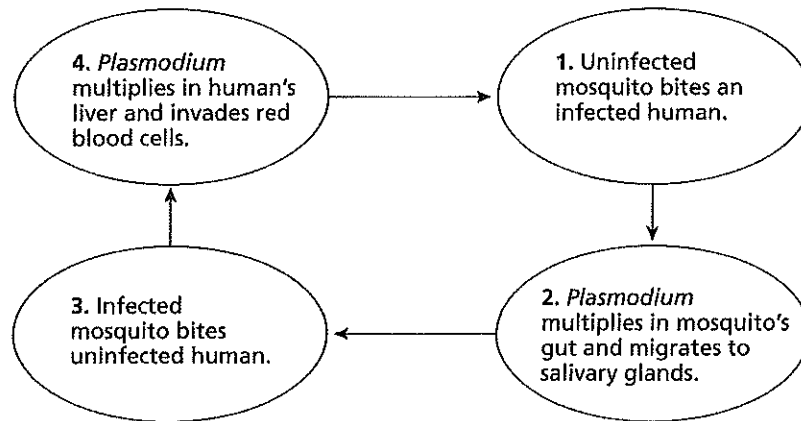


4/10

MALARIA

Malaria is a disease caused by the protozoan parasite *Plasmodium*. The symptoms of malaria include fever, chills, and a severe headaches lasting for 2-3 days at a time, followed by a period of wellness between attacks. Some forms of malaria are fatal. Malaria is spread from one person to another by mosquitoes. When a mosquito bites a person infected with malaria, *Plasmodium* gametes are carried to the mosquito's gut. The *Plasmodium* gametes mature in the gut of the mosquito and eventually enter the mosquito's salivary glands. When the mosquito bites a new, uninfected person, *Plasmodium* enters that person's bloodstream. *Plasmodium* is transported to the liver where it multiplies, then invades the red blood cells, continuing to multiply. The red blood cells break open, releasing toxins and new *Plasmodium* cells that infect even more red blood cells.

Malaria is a serious health problem in many areas of the world that have tropical climates. More than 300 million people worldwide are infected with malaria. More than one million people die each year from malaria. To date, there is no effective vaccine for malaria.



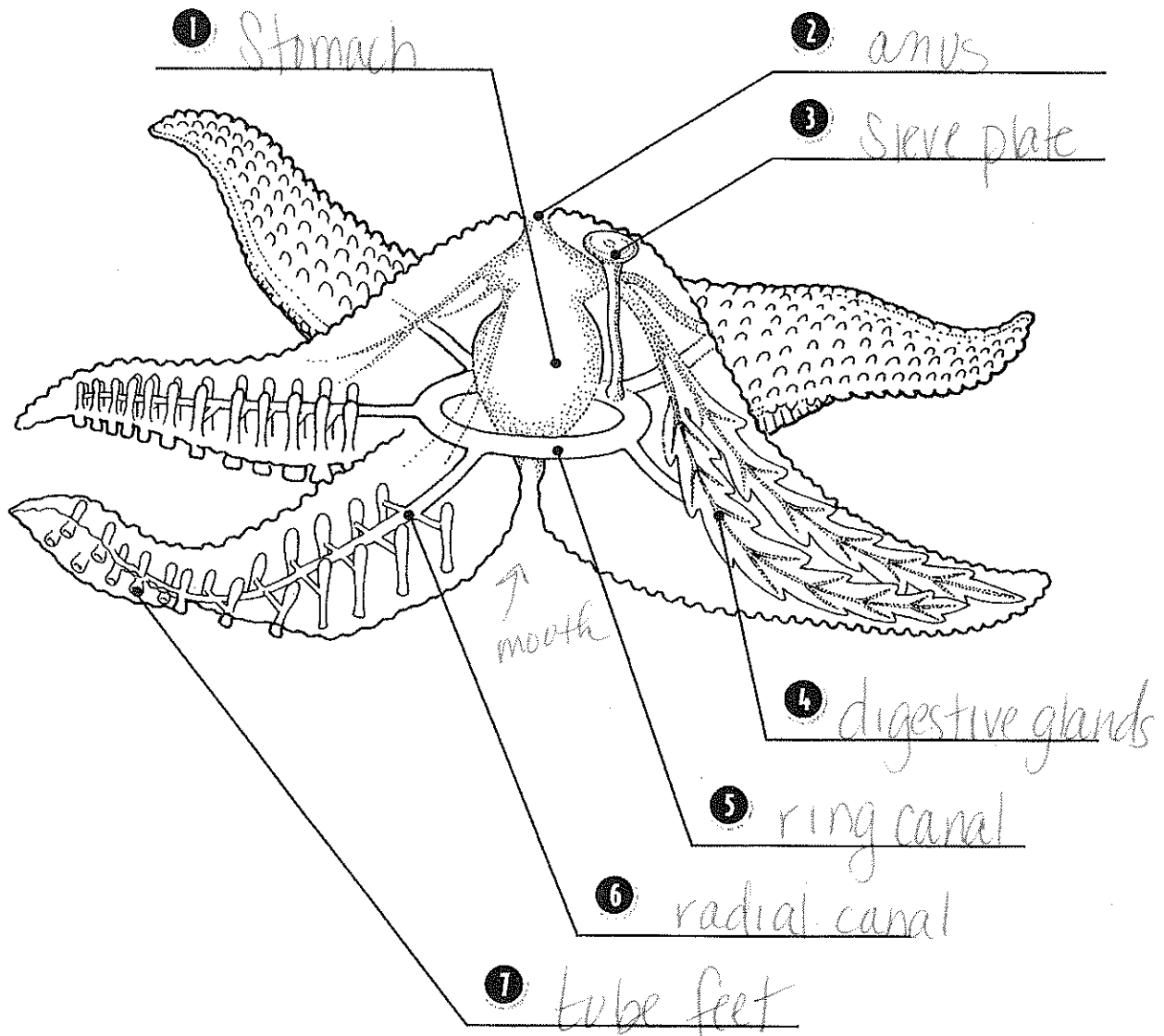
Directions: Answer the following questions

1. How is malaria transmitted?
2. Why do you think there are more cases of malaria in tropical climates than in other areas of the world?
3. How would effective mosquito control affect the number of cases of malaria?
4. What precautions might you take if you were traveling to an area of the world where malaria was a threat?

An Echinoderm—The Sea Star

Echinoderm means "spiny skin." The animals in this phylum often have a spiny, rough exterior, radial symmetry, and tube feet. Sea stars, sea urchins, sand dollars, and sea cucumbers are members of this phylum. Use the terms in the word box to label the diagram.

ring canal	sieve plate	tube feet
radial canal	anus	digestive glands
stomach		



In class

REVIEW: Key Terms for Phyla 6-8

Directions: Use the clues to help you unscramble the Key Terms from the chapter. Then put the numbered letters in order to find the answer to the riddle.

Clues

Key Terms

It's a dramatic change in an animal's body.

ashosmtemopri metamorphosis
1

It looks like a small adult.

myphn nymph
2

It's a flexible ribbon of teeth.

dalaru radula
3

It's shedding an outgrown exoskeleton.

tinomig molting
4

It's a mollusk with one shell or none.

sogpotdar gastropod
5

It's a soft-bodied invertebrate with a mantle and a foot.

skulmlo mollusk
6

It's the hind section of an arthropod.

omabnde abdomen
7

It's an animal that carries pollen from one plant to another.

intorpallo pollinator
8

It's an animal with a water vascular system.

nehroicmde echinoderm
9

It's the middle section in insects.

rxaoht thorax
10 11

It's on the head and has sense organs.

neantan antenna
12

Riddle: What are the calcium plates that support echinoderms?

Answer: endoskeleton
1 2 3 4 5 6 7 8 9 10 11 12

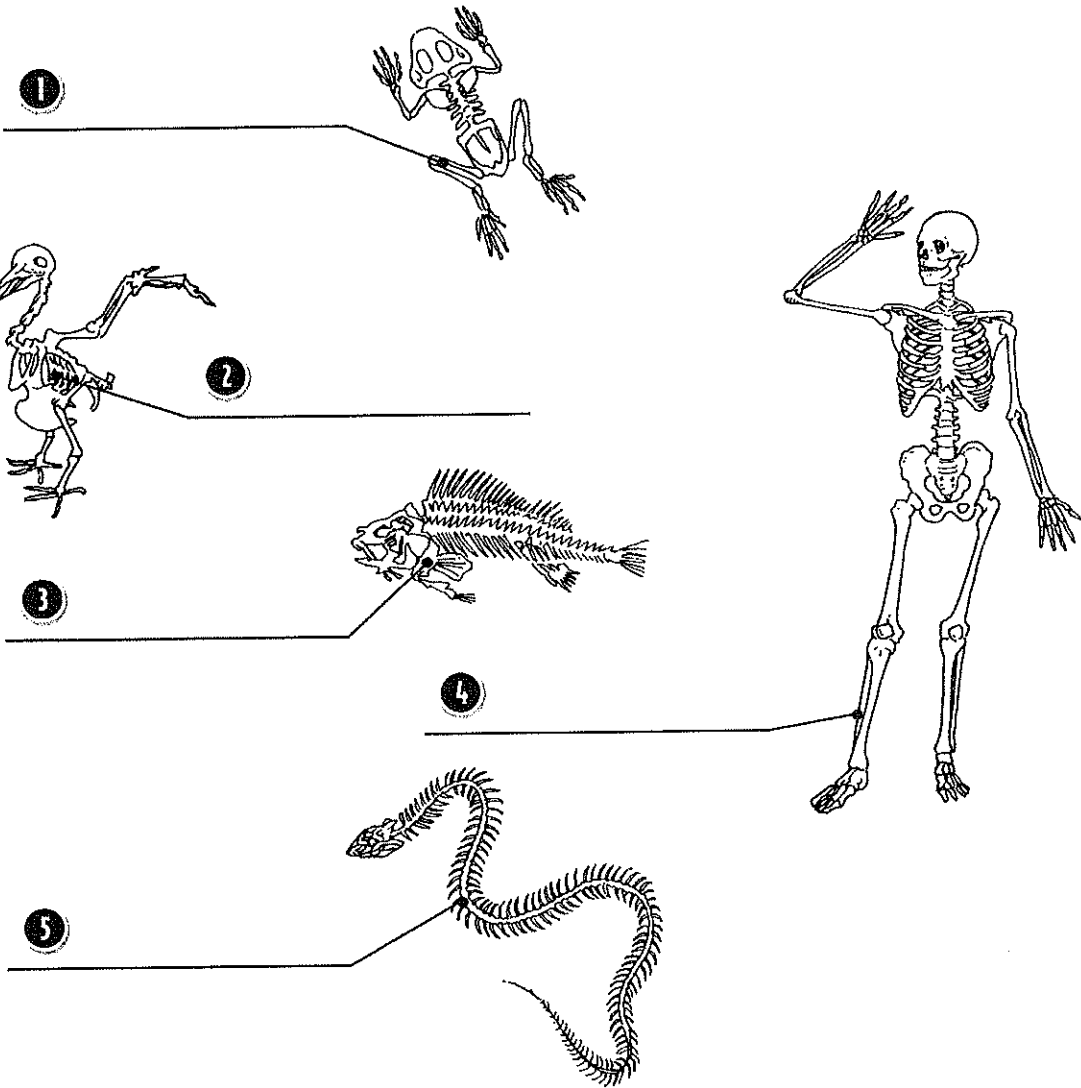
in class

stop here Term 2

The Vertebrate Animals

The phylum Chordata includes those animals that are vertebrates. These bilateral animals have a backbone made of either cartilage or bone. Their brains are protected inside a chamber of skull bones. There are seven main classes of living vertebrates. Use the terms in the word box to label them.

bony fish	amphibian	bird
reptile	mammal	cartilage fish
jawless fish		



6 These do not have bones: _____