Name:_____Period:_____Date:_____
Ms. Randall Marine Science
Biological Oceanography

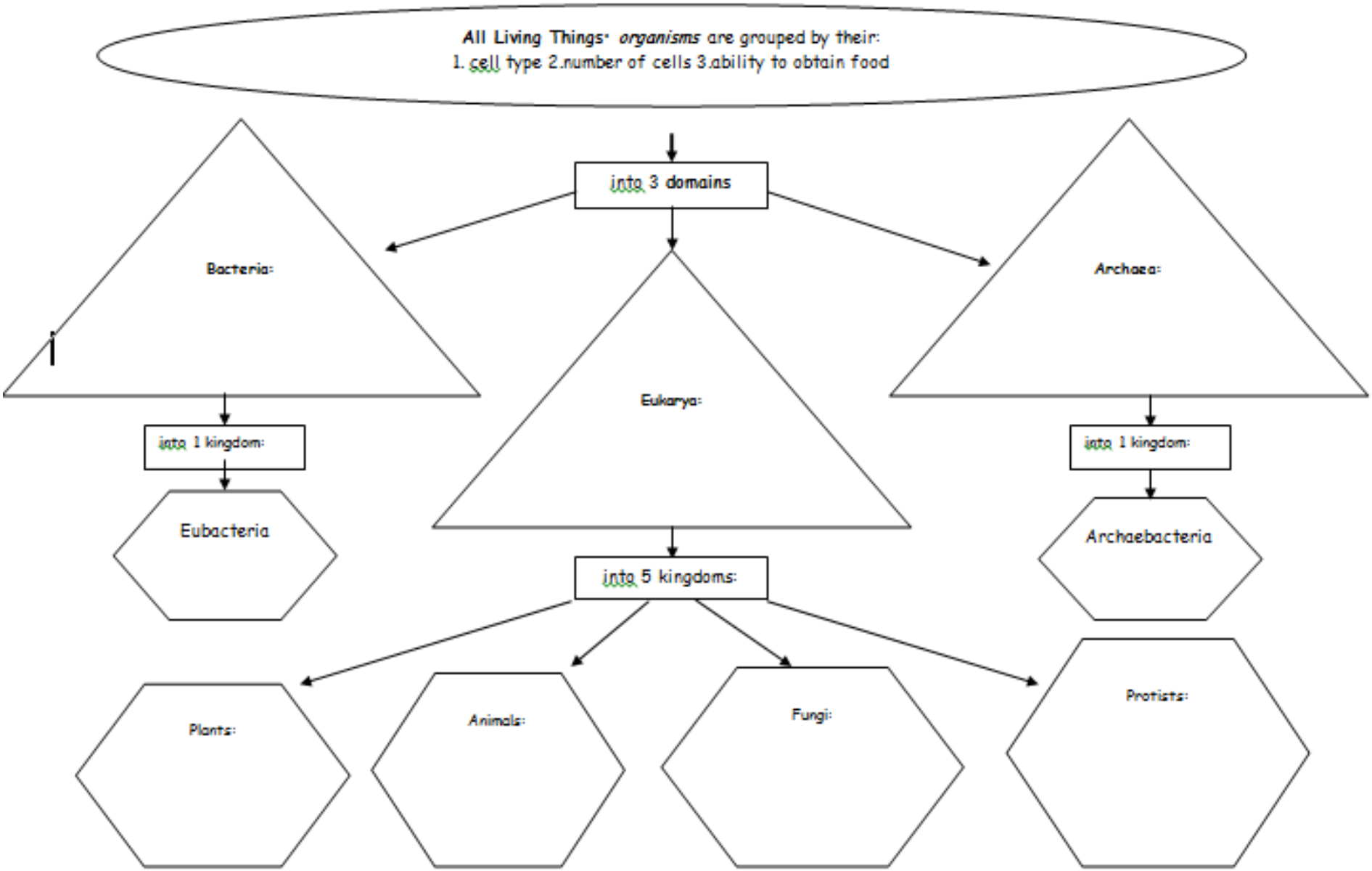
I. Classification of Life:

- There are more than 250,000 identified marine species.
- Most live in sunlit surface seawater.
- A species' success depends on the ability to
  - ✓ find food,
  - ✓ avoid predation,
  - ✓ reproduce, and
  - ✓ cope with physical barriers to movement.

A. Task: Define the following terms:

- *Classification:*
- *Taxonomy:*
- *Prokaryotes:*
- *Eukaryotes:*
- *Autotrophs:*
- *Heterotrophs:*
- *Unicellular:*
- *Multicellular:*

B. Task: Use the above terms to fill in the graphic organizer on the next page.


All Living Things- organisms are grouped by their:
1. cell type 2.number of cells 3.ability to obtain food
into 3 domains
Bacteria:
Eukarya:
Archaea:
into 1 kingdom:
into 1 kingdom:
Eubacteria
Archaebacteria
into 5 kingdoms:
Plants:
Animals:
Fungi:
Protists:

C. Taxonomic Classification

- Carolus Linnaeus – 1758

Task: Watch the following video

http://shapeoflife.org/video/taxonomy

- Developed basis of modern classification of organisms
- Taxonomy – systematic classification of organisms based on physical characteristics and genetic information
    - ✓ Kingdom
    - ✓ Phylum
    - ✓ Class
    - ✓ Order
    - ✓ Family
    - ✓ Genus
    - ✓ Species- Fundamental unit, Population of genetically similar, interbreeding individuals

http://sciencelearn.org.nz/Contexts/Life-in-the-Sea/Science-Ideas-and-Concepts/Classifying-marine-organisms

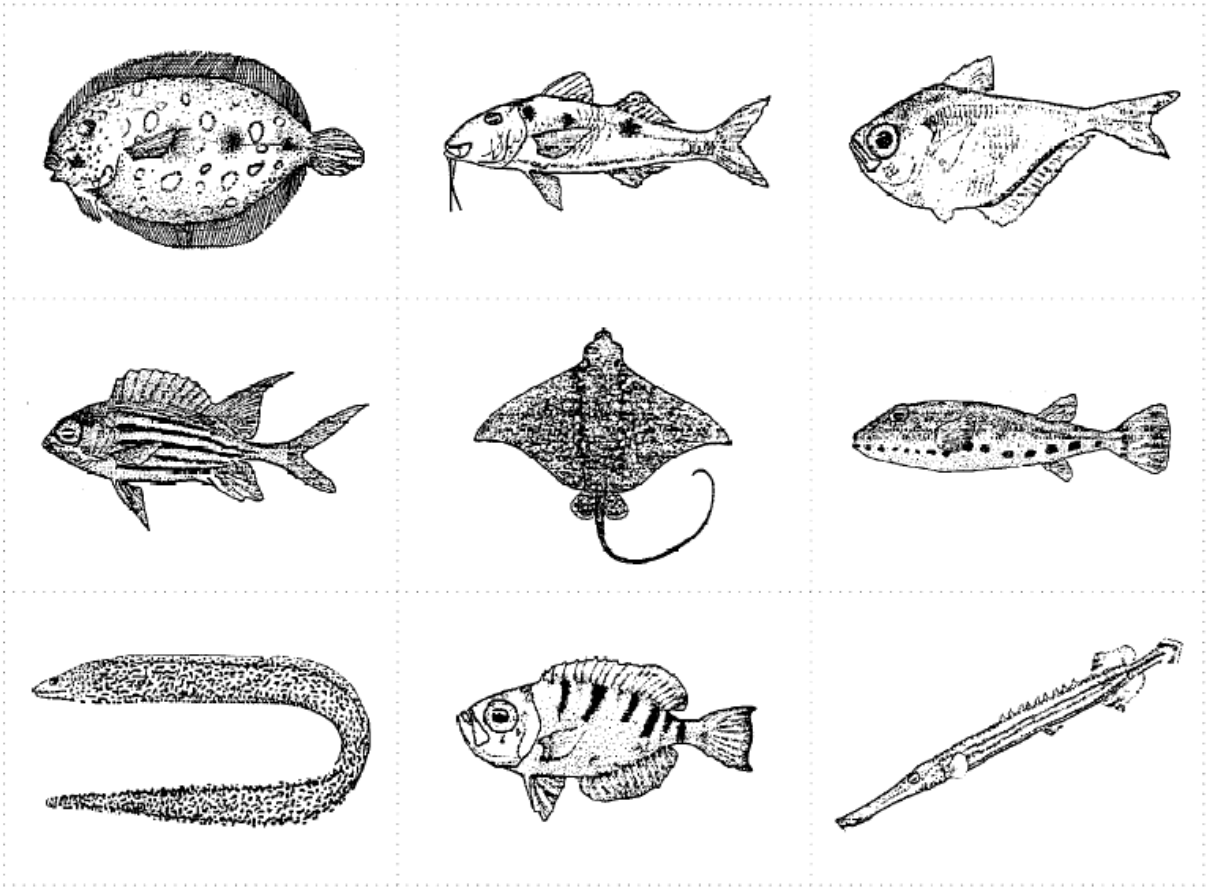
D. Task: Choose any two Marine organisms and fill in the chart below

(common name→)		
Kingdom		
Phylum		
Class		
Order		
Family		
Genus		
Species		

Dichotomous Key:

A **dichotomous key** is a tool that allows the user to determine the identity of items in the natural world, such as trees, wildflowers, mammals, reptiles, rocks, and fish. **Keys** consist of a series of choices that lead the user to the correct name of a given item.

E. Task: Use the dichotomous key to correctly label each organism



Fish key

Step 1
If fish shape is long and skinny…
then go to Step 2

If fish shape is not long and skinny…
then go to step 3

Step 2
If the fish has pointed fins, it is a trumpet fish

If the fish has smooth fins, it is a spotted moray eel

Step 3
If fish has both eyes on top of the head…
then go to step 4

If fish has one eye on each side of the head…
then go to step 5

Step 4
If the fish has long whip-like tail, it is a spotted eagle ray

If the fish has short, blunt tail, it is a peacock flounder

Step 5
If fish has spots…
then go to step 6

If fish does not have spots…
then go to step 7

Step 6
If fish has chin "whiskers," it is a spotted goat fish

If fish does not have chin "whiskers," it is a band-tail puffer

Step 7
If fish has stripes…
then go to step 8

If fish does not have stripes, it is a glassy sweeper

Step 8
If fish has a v-shaped tail, it is a squirrel fish

If fish has a blunt tail, it is a glass-eye snapper

II. Classification of Marine Organisms

http://www.ck12.org/earth-science/Types-of-Marine-Organisms/lesson/Types-of-Marine-Organisms-HS-ES/

A. Task: Define the following terms

1. Planktonic

- *Phytoplankton*

- *Zooplankton*

2. Nektonic

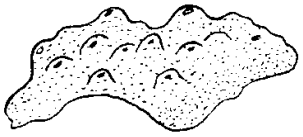
3. Benthic

B. Task: Use the definitions to sort the following organisms into the correct categories.

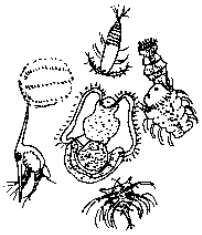
Plankton

Nekton

Benthic

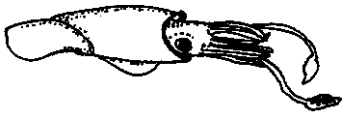


sponge

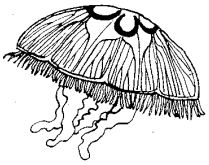


zooplankton

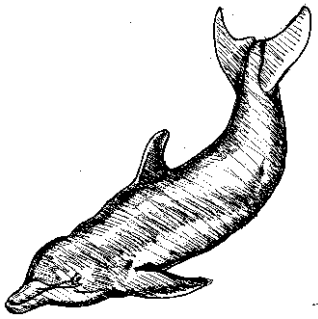
sea urchin



squid

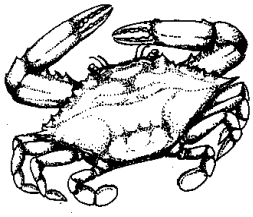


jellyfish



dolphin

sea whip



crab

phytoplankton

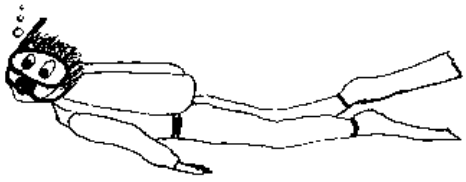
sea turtle

fish

comb jelly

shrimp

sea star



human

III. Adaptations of Marine Organisms

http://sciencelearn.org.nz/Contexts/Life-in-the-Sea/Science-Ideas-and-Concepts/Adaptations-of-marine-organisms

A. Task: Define the three main categories of marine adaptations and give an example of each.

***1.*_____**

Define:

Example:

***2.*_____**

Define:

Example:

***3.*_____**

Define:

Example:

B. Task: Answer the following focus questions

1. Focus question: In this video scientists are challenged by the ability of sea stars to drop limbs.

www.sciencelearn.org.nz/Contexts/Life-in-the-Sea/Sci-Media/Video/How-do-you-electronically-tag-a-starfish

How would this adaptation help the sea star to survive life in the sea?

2. Focus question: Think about the environmental conditions in the sea.
www.sciencelearn.org.nz/Contexts/The-Noisy-Reef/Sci-Media/Video/Non-visual-sensory-systems

Describe which sensory systems are most important in that environment and why.

C. Task: Choose a Marine Organism and complete the Animal Adaptation Chart below.

Draw a picture of your animal:

Describe its body form:

Describe how it moves:

Describe how it feeds:

Describe how it protects itself:

Describe what its young look like:

D. Task: Complete the Lab activity Adaptive Features of Marine Reptiles and Birds
Use the following textbook pages as a resource.

http://www.ws.k12.ny.us/Downloads/Chapter_13.pdf

IV: Ocean Zones

A. Task: use the following links to answer the questions below

http://www.ck12.org/book/CK-12-Earth-Science-Concepts-For-Middle-School/section/6.21/
http://legacy.mos.org/oceans/life/index.html

1. Why is there so little life at the bottom of the ocean?

2. Compare and contrast the intertidal, neritic, and oceanic zones.

3. What would you expect to find in the photic zone? How would you expect that to be different from the aphotic zone?

4. Where can 90% of of the ocean's life be found?

5. Where is the twilight zone? What lives there?

6. Where is the dark zone? What lives there?

7. Why is little life found in the dark zone?

8. What is the abyss? Where is it found?

9. Why are trenches so deep?

B. Task: Complete the Physical Properties of Ocean's Life Zones Lab Activity