Ocean Zones & Ocean Floor

http://schoolmediainteractive.com/view/object/clip/25725DA7638381F0F094C952F549F210

Ocean Layers / Zones

There are 5 layers that make up the ocean. They include…

1. Epipelagic Zone (Sunlight Zone)
2. Mesopelagic Zone (Twilight Zone)
3. Bathypelagic Zone (Midnight Zone)
4. Abyssopelagic Zone (The Abyss)
5. Hadalpelagic Zone (The Trenches)

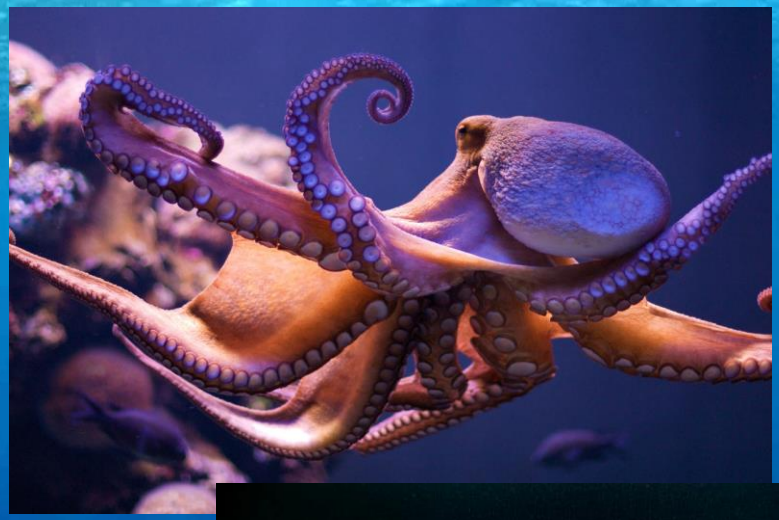
Sunlight Zone

Sunlight Zone

- Lots of light
- 0-300 ft.
- 90% of marine life
- Green plants


-Ah-choo!
-I'm obnoxious.

Twilight Zone



Twilight

- 300-3000 ft.
- Water beginning to get darker
- Temperature decreases
- Pressure increases
- Very little light

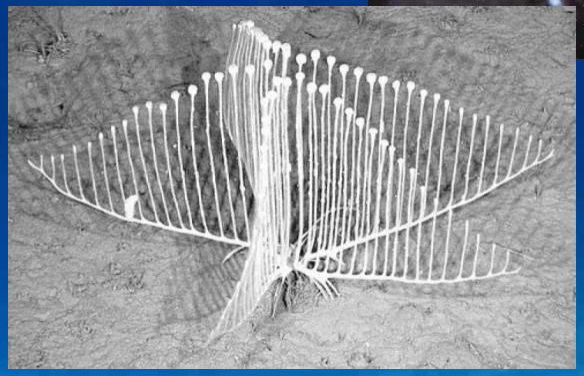
The anglerfish:
The original approach to deep-sea fishing

M B A R I

Midnight

- No light
- Less food
- Less animal life
- Bioluminescence

https://www.youtube.com/watch?v=8101vCjM7nY



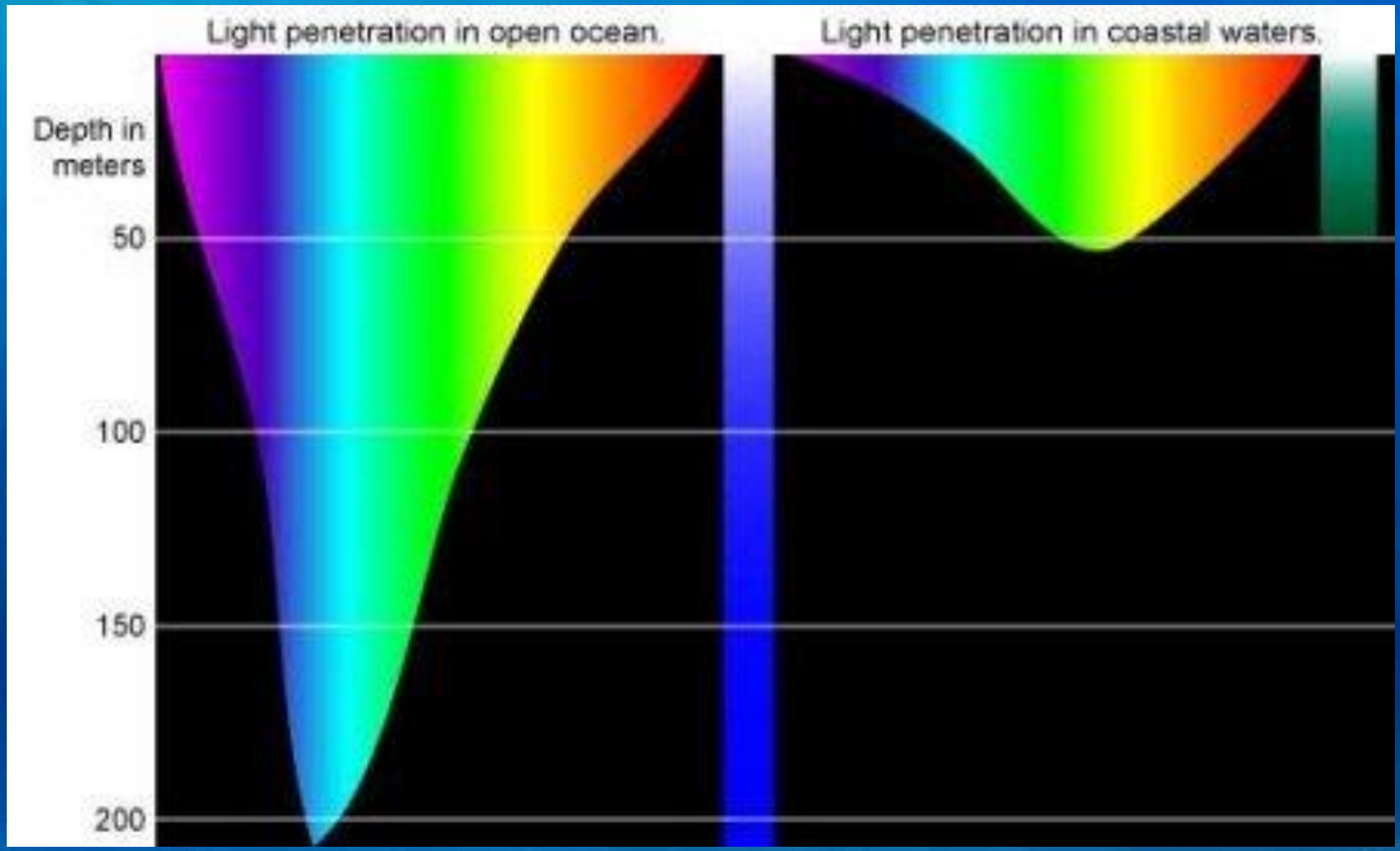
Abyss

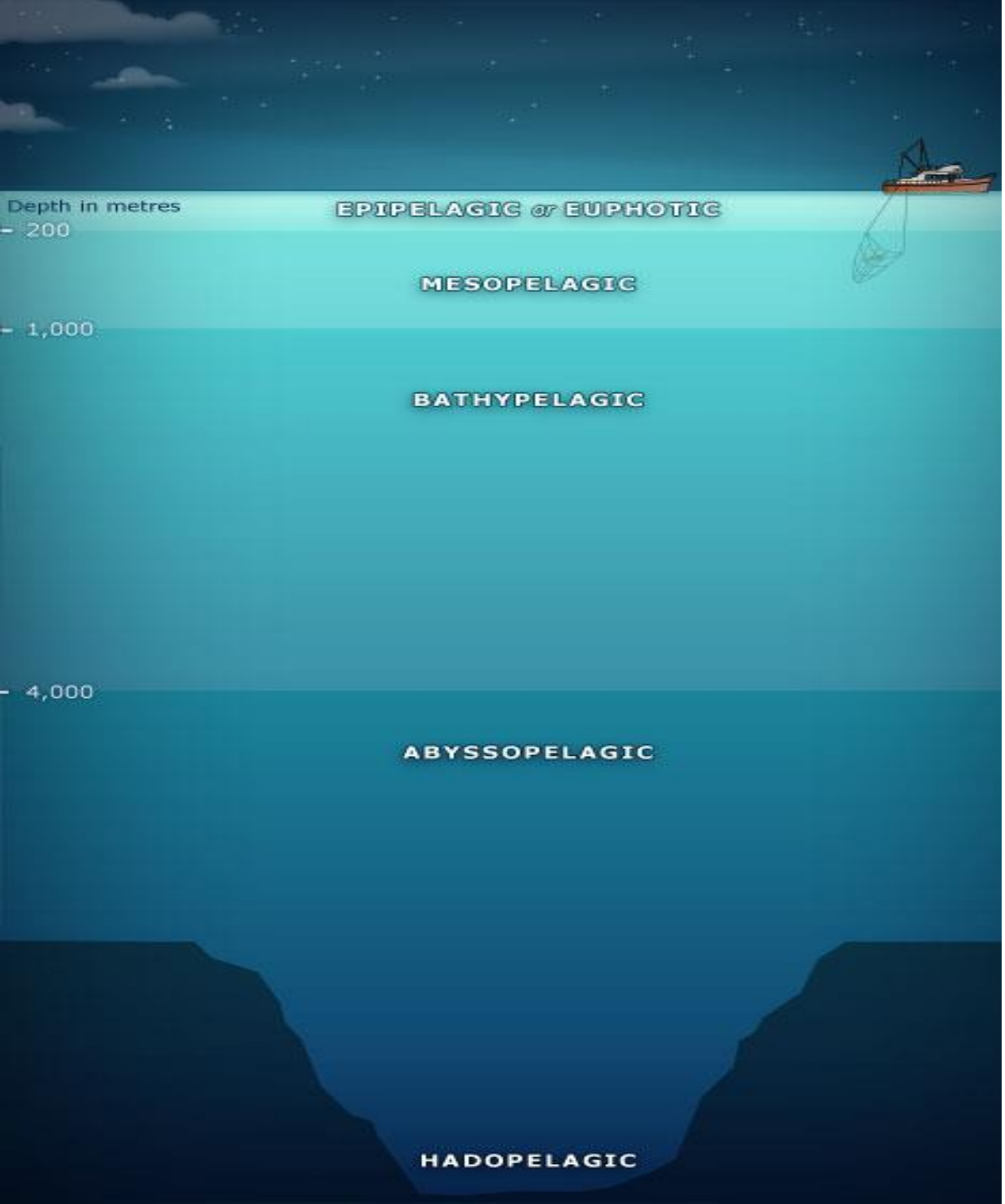
- Scarce food supplies
- Organisms grow slowly
- High water pressure
- Goes to ocean floor
- Remains of marine life from upper zones
- Fewer life forms

Ocean Zones

Sunlight	Twilight	Midnight	Abyss
Closest to surface Lots of light 90% of marine life Green plants	Water beginning to get darker Temperature decreases Pressure increases Very little light	Less food Less animal life Bioluminescence Glow in the dark animals	Very dark Scarce food supplies High water pressure Goes to ocean floor Remains of marine life from upper zones

Ocean Light


Light penetration in open ocean.
Light penetration in coastal waters.
Depth in meters
50
100
150
200

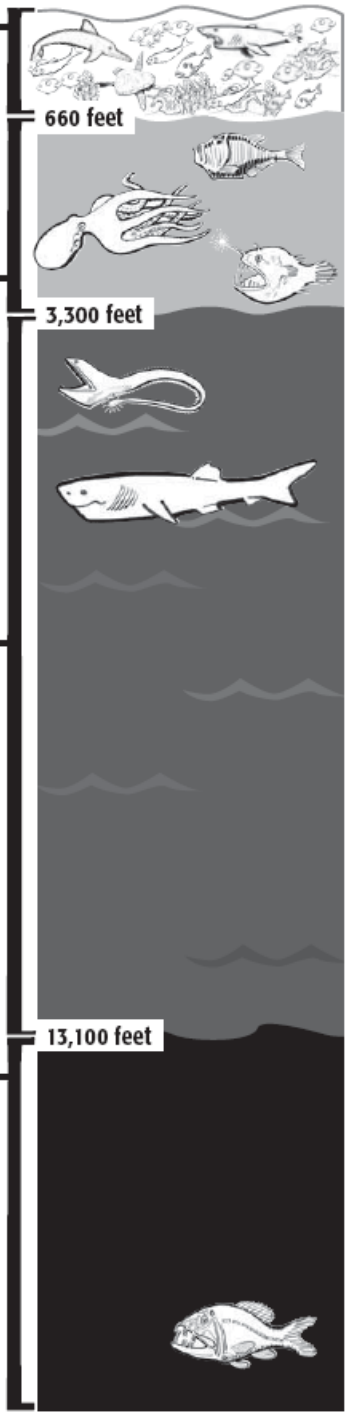


Sunlight Zone
This zone receives light and heat from the sun. That is why so many plants and animals thrive here. Almost 90% of ocean life is in this zone.

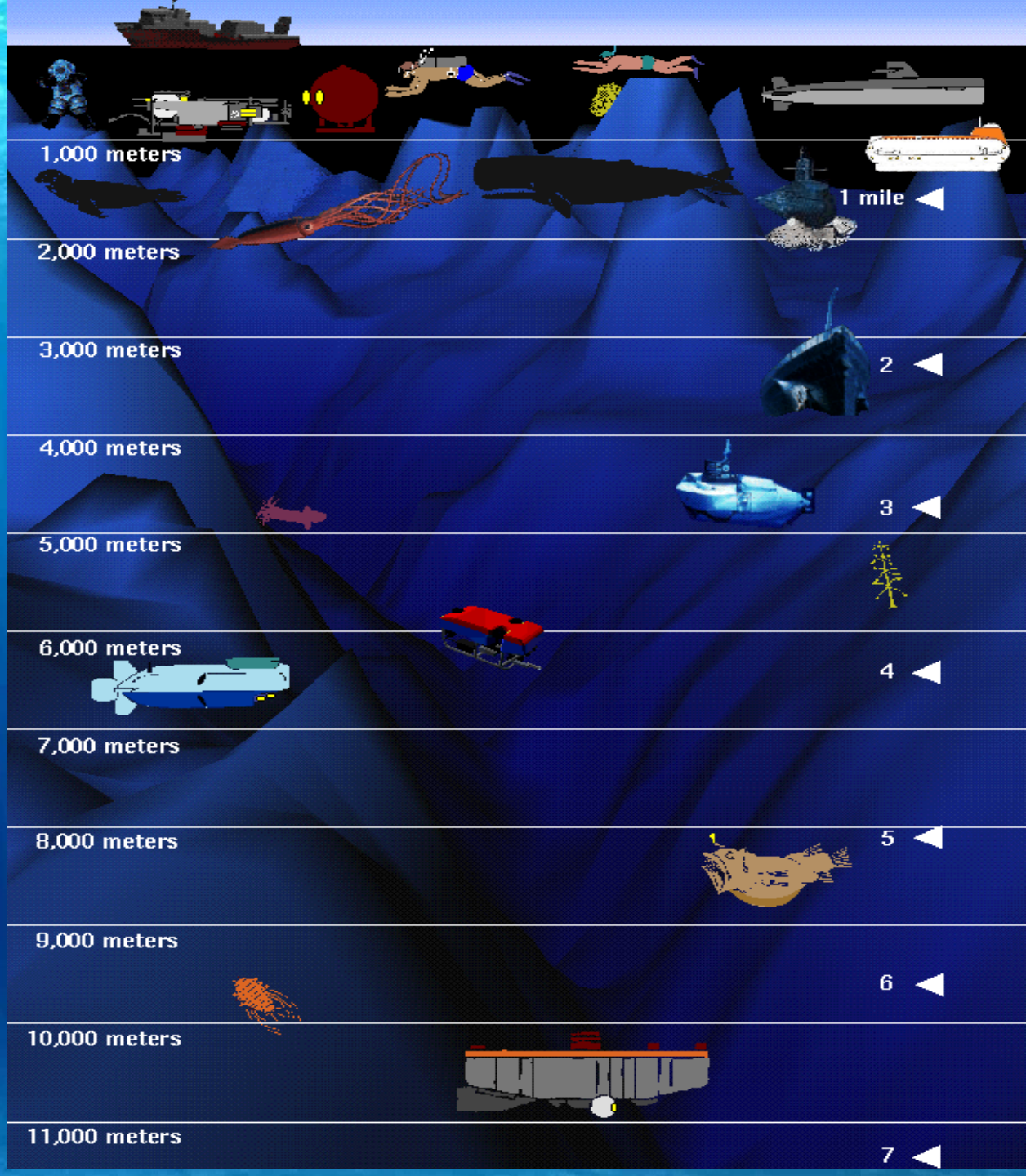
Twilight Zone
Very little sunlight reaches this zone. That is why plants cannot grow here. The animals that live here must be able to survive in a cool, dark habitat. Some of the twilight zone's creatures have light-producing organs.

Midnight Zone
This zone does not get any sunlight. It is extremely dark and very cold. The only light in this zone comes from light-producing animals.

Abyss
It is pitch-black and close to freezing at all times here. Only animals that have adapted to the harsh environment can survive.



How Deep Can They Go?



Zone Info

Sunlight Zone – this zone extends from the surface to a depth of 200 meters (656 feet). All the water present in this zone is fairly well mixed. Under ideal conditions, a beam of sunlight can penetrate this zone and reach it's bottom.

Twilight Zone – this zone extends from a depth of 200 meters (656 feet) to 1000 meters (3281 feet). The sunlight in this zone is extremely faint. It is in this zone that we begin to see the twinkling lights of bioluminescent creatures.

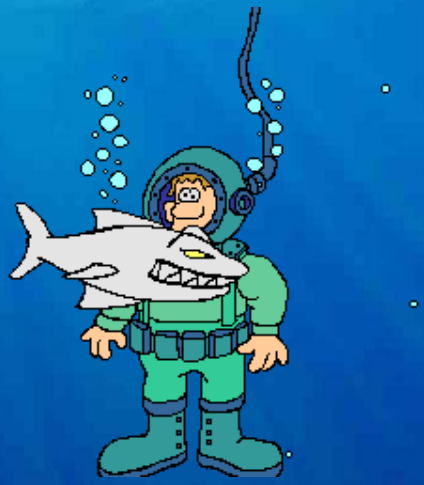
Midnight Zone – this zone extends from a depth of 1000 meters (3281 feet) down to 4000 meters (13,124 feet). The only visible light in this region is the light produced by bioluminescent life forms. The water pressure at this depth is crushing, but a surprisingly large number of creatures can be found here.

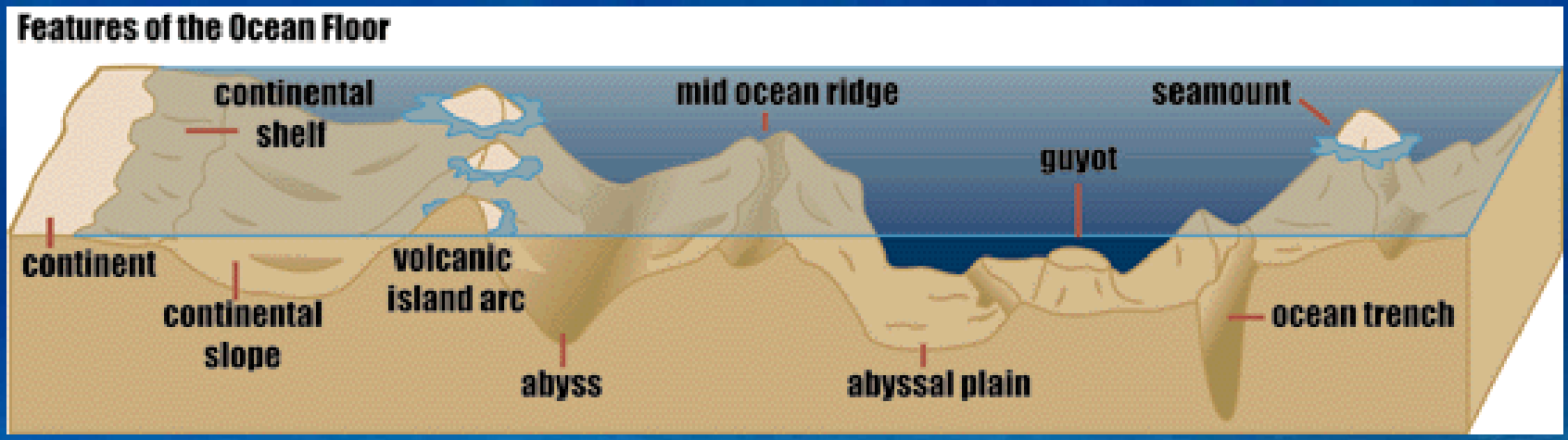
The Abyss - This zone extends from a depth of 4000 meters (13,124 feet) to 6000 meters (19,686 feet). Its name comes from a Greek word meaning "no bottom". The water temperature of this zone is near freezing, and there is no light at all in this zone.

The Trenches - zone extends from a depth of 6000 meters (19,686 feet) to 11,000 meters (36,201 feet). These zones are mostly found in deep water trenches and canyons

Ocean Floor

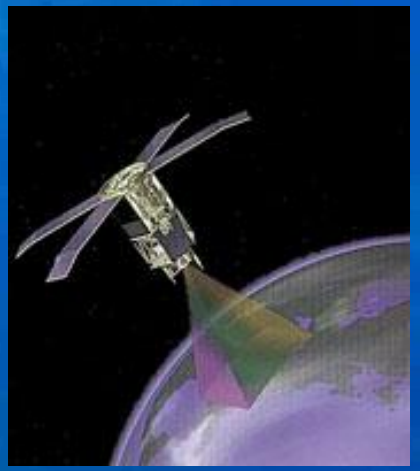
Brainpop
Underwater World
Ocean Floor

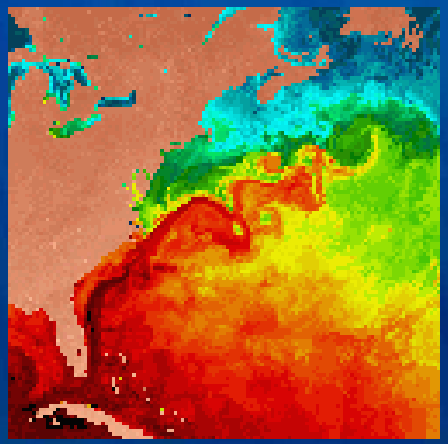




The Ocean Floor

- Oceanographers discovered the shape of the ocean floor by measuring the depth of the floor in many places.
- Early tools included lead weights lowered on ropes or cables to the ocean floor.
- Today, sophisticated side-sonar and satellite data are fed into computers.





Brainpop: Ocean Floor

A Note About Ocean Models

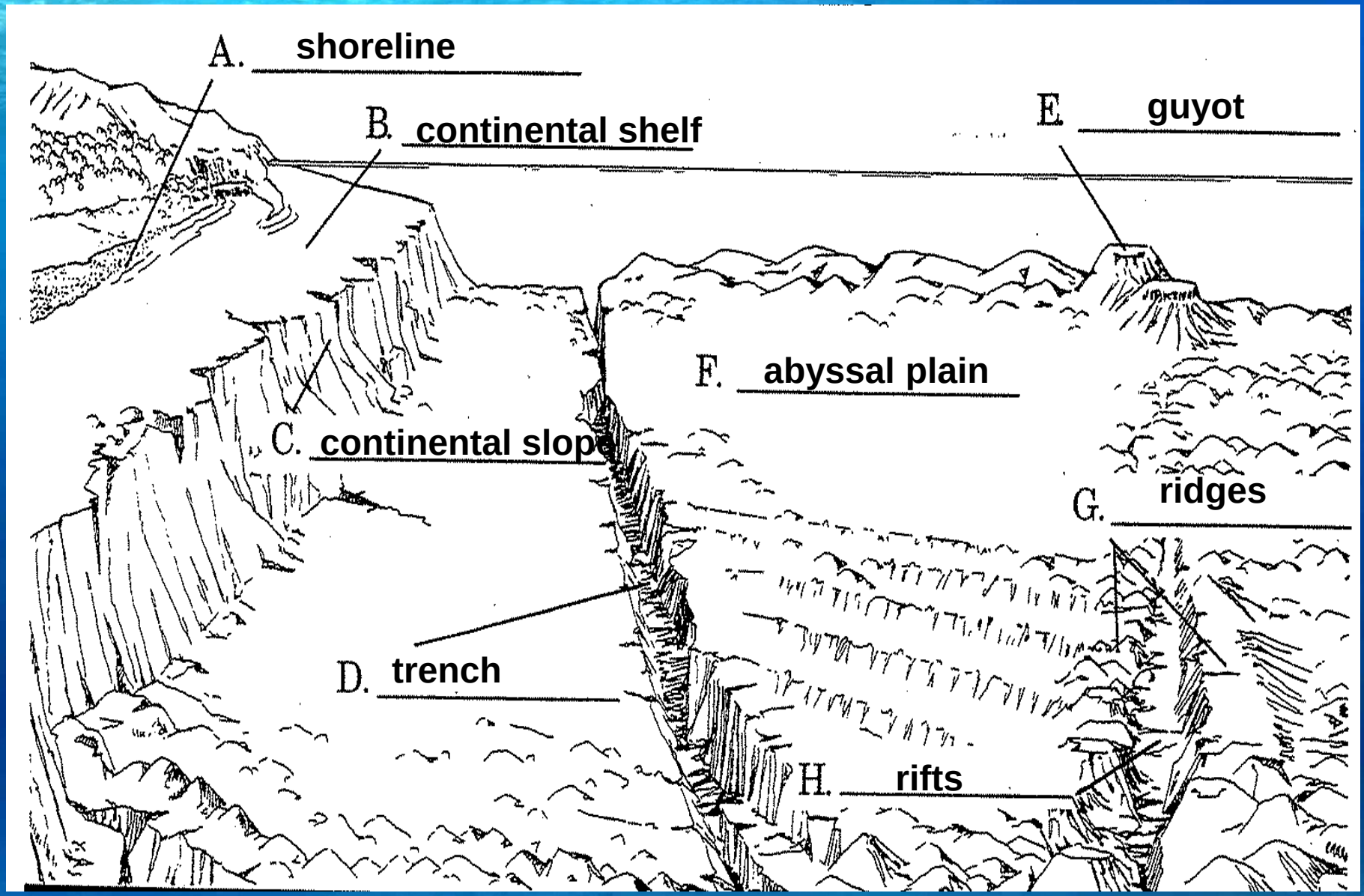
- All models of the ocean floor show features with vertical exaggeration – the models are taller and steeper than they actually are.
- If models were drawn to scale, they would need to be very large.
- The Pacific Ocean is 6,000 miles wide and 6 miles deep in some places. If you made a model where 1 foot = 6 miles, the model would be more than 1,000 feet wide and more than 3 football fields in length.



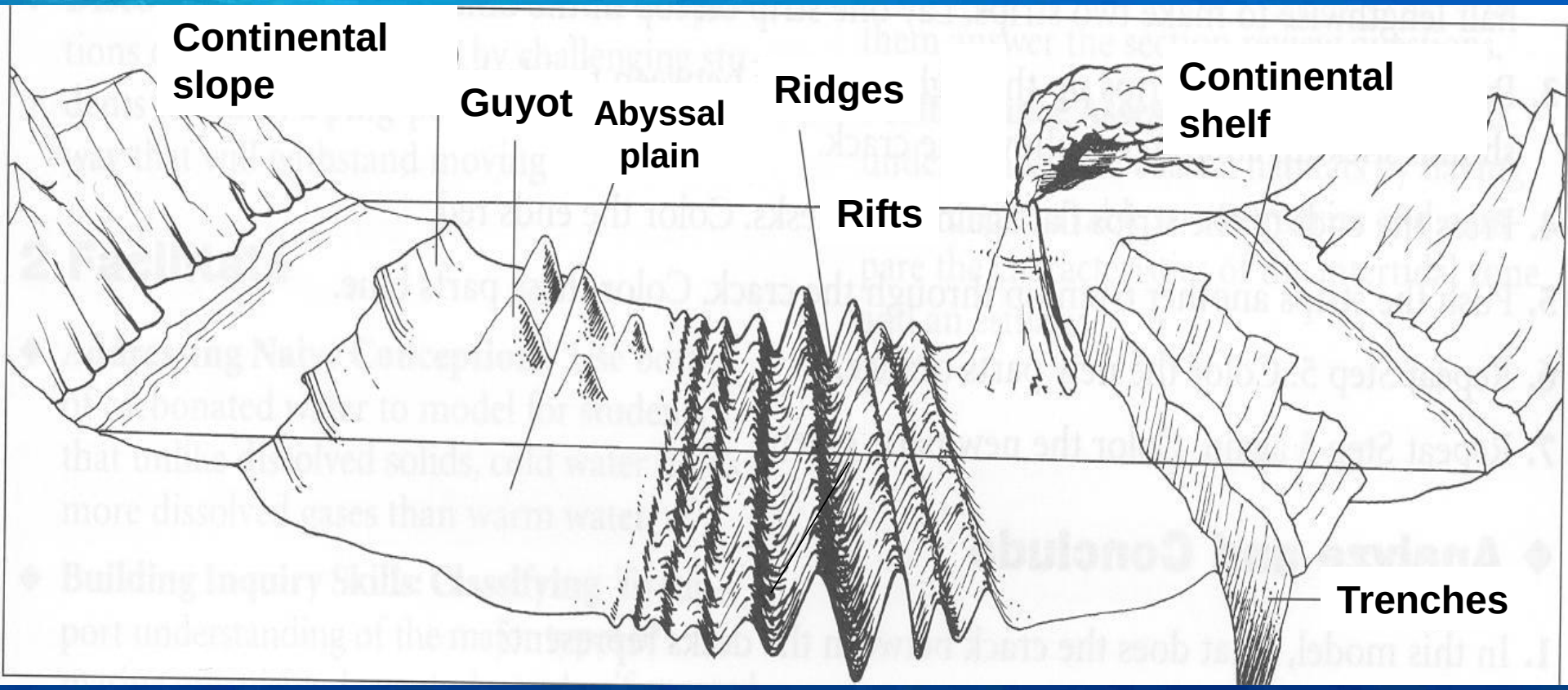
Ocean Floor Vocabulary

A. **Shoreline**: line which marks the edge of the ocean water
B. **Continental Shelf**: shallow, submerged part of the continent just off shore
C. **Continental Slope**: land from continent's end to ocean floor
D. **Trench**: narrow, very deep valley
E. **Guyot**: underwater volcanic mountain
F. **Abyssal Plain**: flat, nearly level areas; forms most of the ocean floor
G. **Ridges**: great underwater mountain ranges
H. **Rift**: valleys between ridges

Ocean Floor Model #1



Ocean Floor Model #2



Ocean Floor Model #3

How do we know what we know?

Alvin!

https://www.youtube.com/watch?v=a5aQ4W9GbpU

Ocean Floor Lab

- Each group will create & label a model of the ocean floor.
- The model must be completed today.
- There are 8 elements that must be included. Each person must design and label at least 2 elements.
- All of the sand stays in the tray.
- The lab is worth 16 points: 2 points for each ocean feature.
- Inappropriate lab behavior = Points taken off grade for the lab.

Design & label the ocean floor that includes the following features