Marine Biology 6/11/19

EQ: What are the characteristics of sharks?

CW: Intro to sharks
HW: Shark Senses if not completed in class

Agenda

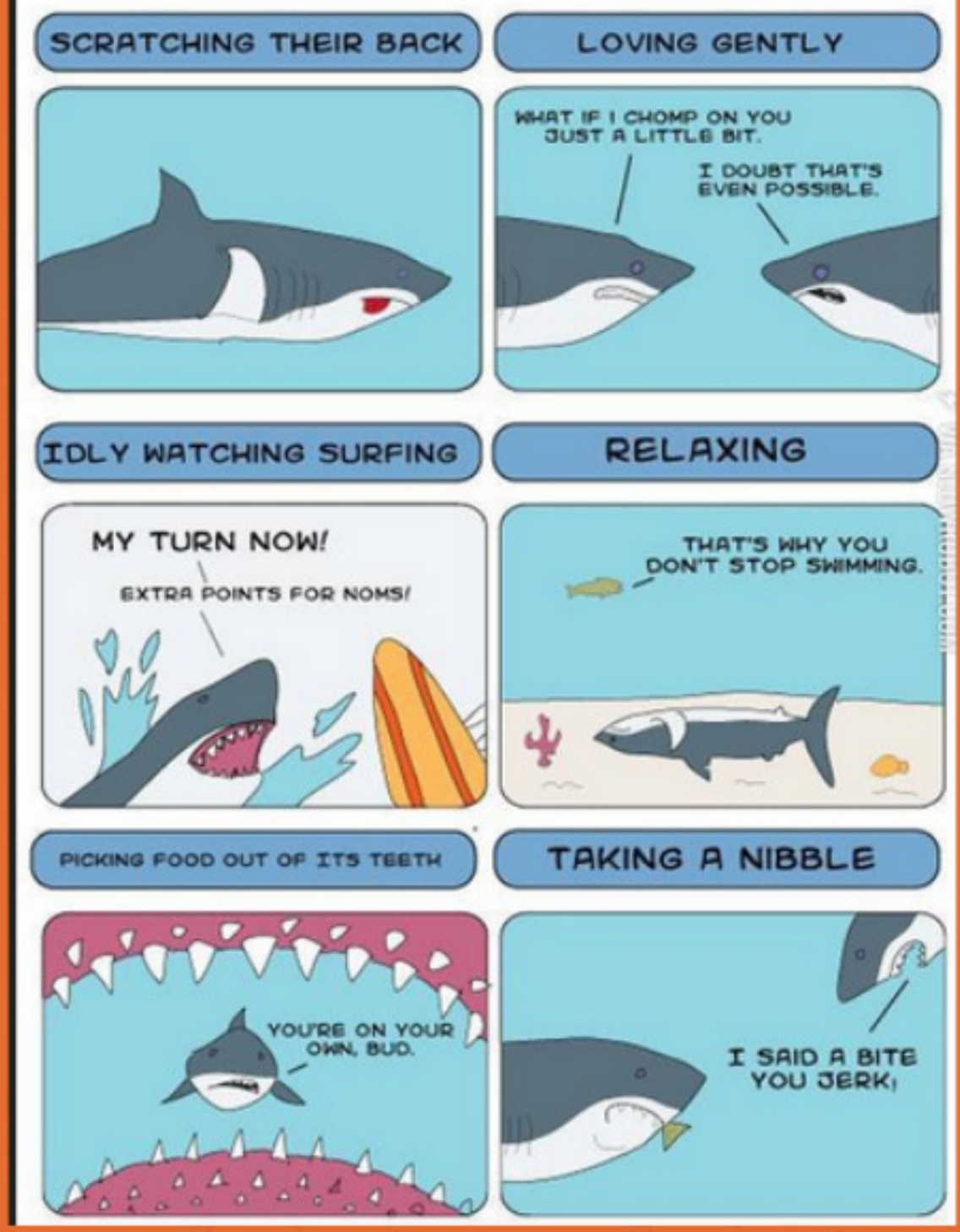
1. Writing prompts
2. Final sea animal of the days
3. Shark Senses

Open Ended Question

Write silently for three minutes: Write a story about what is happening in this picture.

Please enter your answer here.

6 THINGS SHARKS ARE BAD AT



Sharks and Feeding

Sharks do not chew their food. They swallow food whole or in big chunks and rely on enzymes and hydrochloric stomach acids to break the food down.

Great White

Hammerhead

Mako

Sandtiger

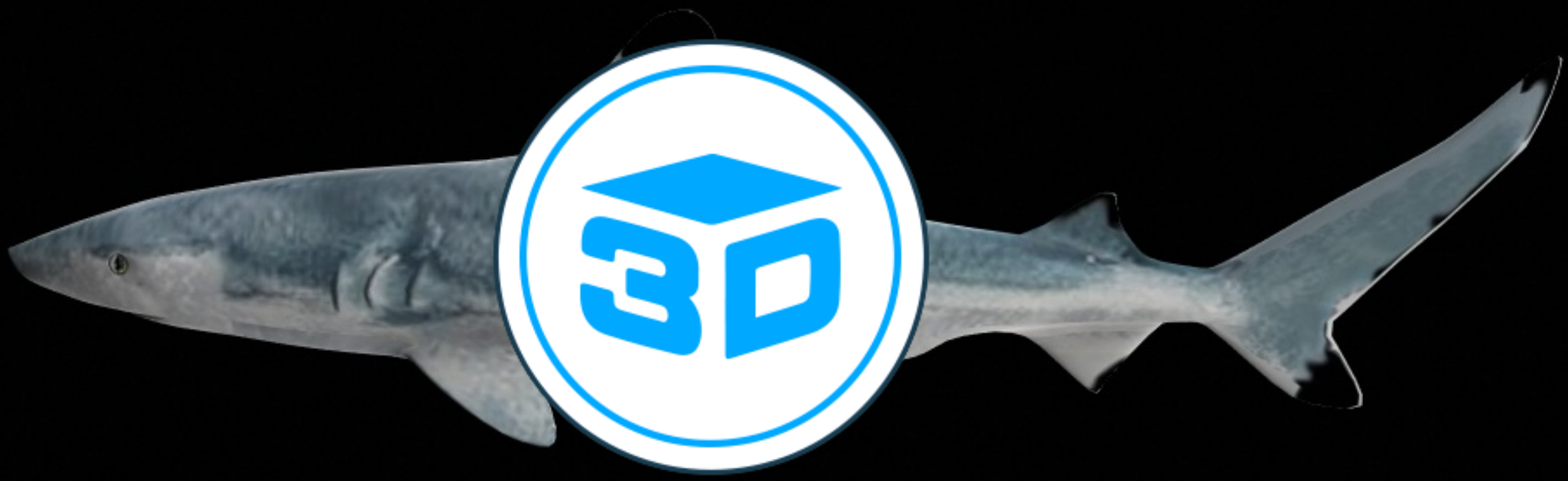
Blue

3 Basic Types of Teeth

1. Triangular, blade-like teeth; often serrated; used for cutting large hunks of meat out of their prey (great whites, tiger sharks)
2. Long, pointed, needle-like teeth; used for impaling, gripping, holding, and tearing (mako sharks, lemon sharks)
3. Flattened, blunt teeth, used for crushing (nurse sharks, rays)

Gill Rakers

A few species of shark, like basking sharks and whale sharks have small, nonfunctional teeth. These sharks filter plankton out of the water, much like whales. They filter water through their gills and catch plankton with tiny, bristle-like projections called gill rakers which are located on the inner margins of the gills.



https://cf.nearpod.com/neareducation/new/3d/player2/Environment-BlacktipShark/index.html

Hammerhead Shark: Have a heightened sense of electro-reception Make meals out of crustaceans,

Six- d Shark: Also own as a cow or muc

Ha s unlike the more common 5 gill sli of most sharks

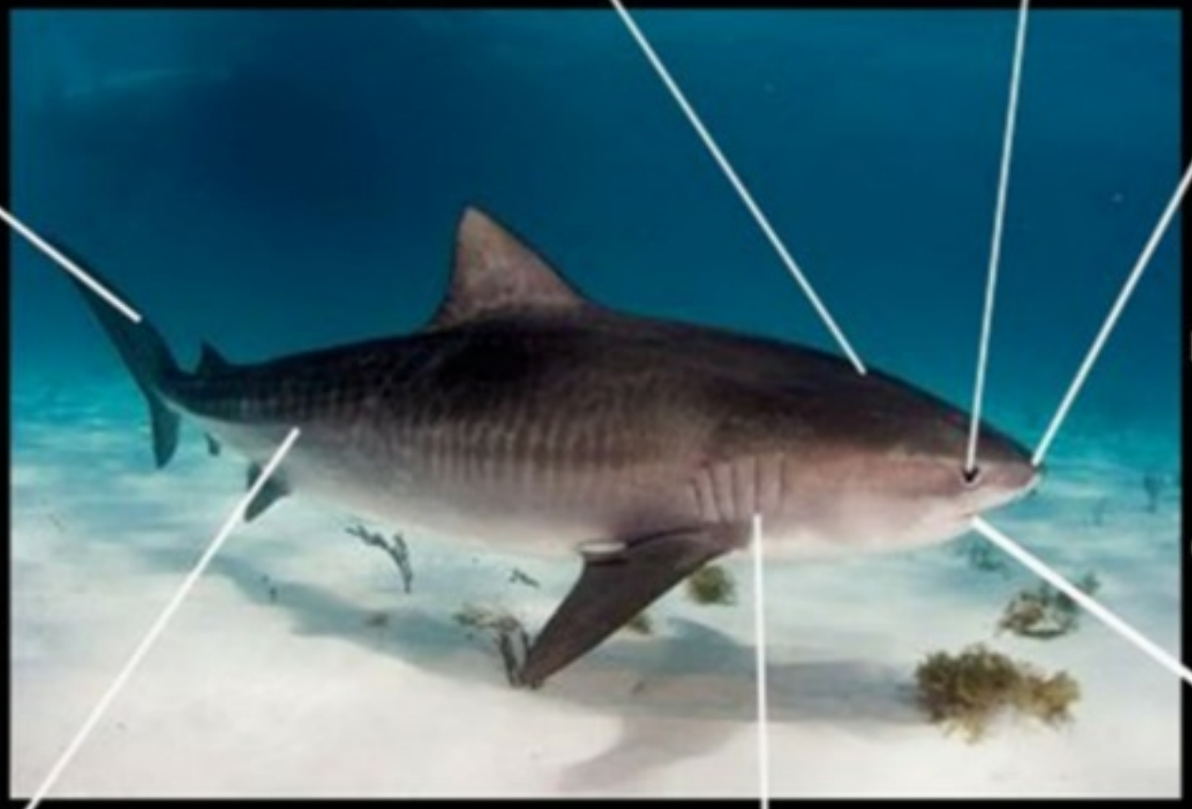
Matching Pairs

Shark Ears!

Sharks have very good hearing. They lack external ears, but instead have two small holes on the top of their head (endolymphatic pores). These openings are thought to transmit sounds and pressure waves down to the hearing organs

Nictitating Eyelid

Sharks can see in colour and can see well during the day as well as in low light conditions. Their upper and lower eyelids cannot move, however, some sharks have a nictitating eyelid, which can close over their eye to protect from damage.



Speed

Sharks such as the Mako are extremely fast. They can reach speeds up to 35km/h and can leap up to 6m into the air. The Mako & Great White Shark can also keep their body temperature 10-15 degrees above the surrounding water which increases muscle performance.

Ampullae of Lorenzini

These organs can detect weak electrical fields emitted by prey, such as a fishes heartbeat. Small pores on the skin lead to chambers lined with hair cells which are connected to tubes filled with conductive jelly. This sense is only effective within 20-30cm

Lateral Line

The lateral line consists of thousands of tiny pores in the skin. Each one containing a hair cell (neuromast) which can detect minute changes in water movement.

Oxygen Absorption

Some sharks have the ability to continue breathing whilst motionless. Pelagic sharks must keep swimming to allow water flow over the gills for oxygen absorption. However, benthic sharks can pump water over their gills by opening and closing their mouth.

Ultimate Teeth

Sharks have a constant supply of teeth. New teeth are continually moving forward to replace worn or damaged ones. Tooth types include, crushing plates, serrated teeth for cutting or sharp needle-like teeth for grasping prey.

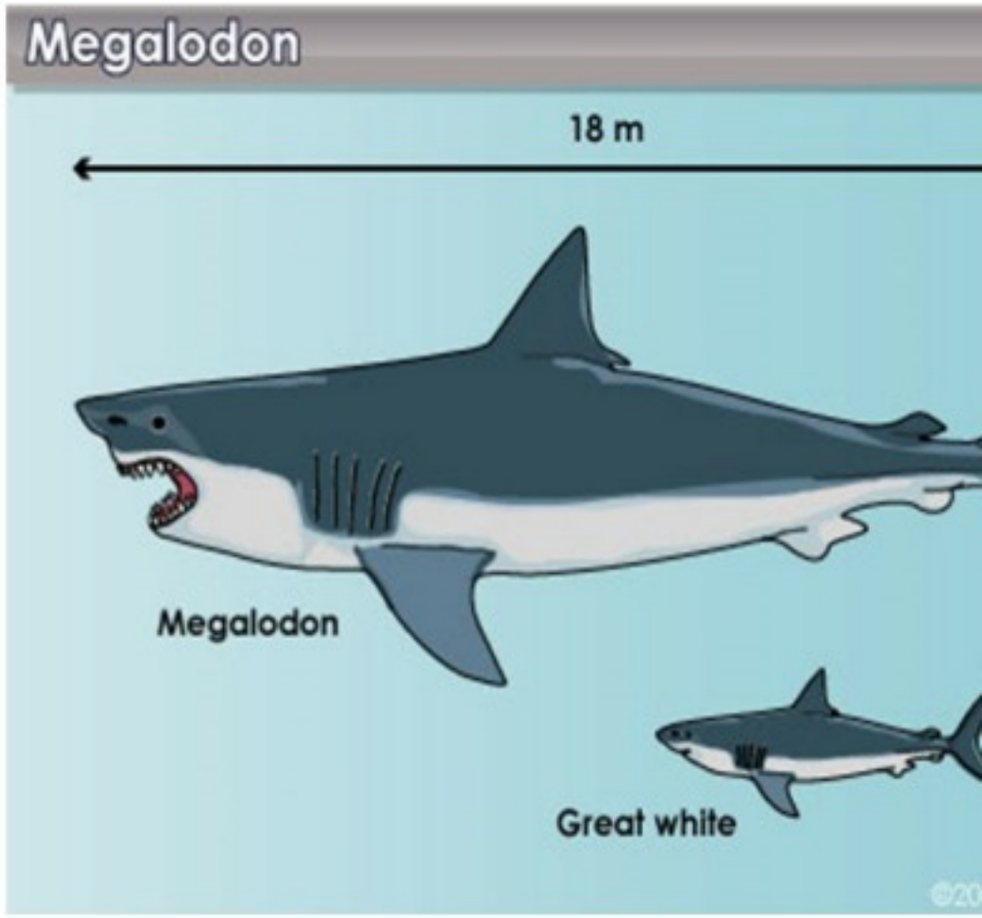
Natural History of Sharks

- Natural history is the study and description of organisms and natural objects, especially their origins, evolution, and interrelationships.

- Primitive fishes resembling sharks were swimming in the oceans over 450 million years ago.

- Their descendants survived successive mass extinctions, including the catastrophe at the end of the Permian period (245 million years ago) when 96% of all marine life was extinguished.

- Their long evolutionary history has refined sharks to the rank of near-perfect predators.



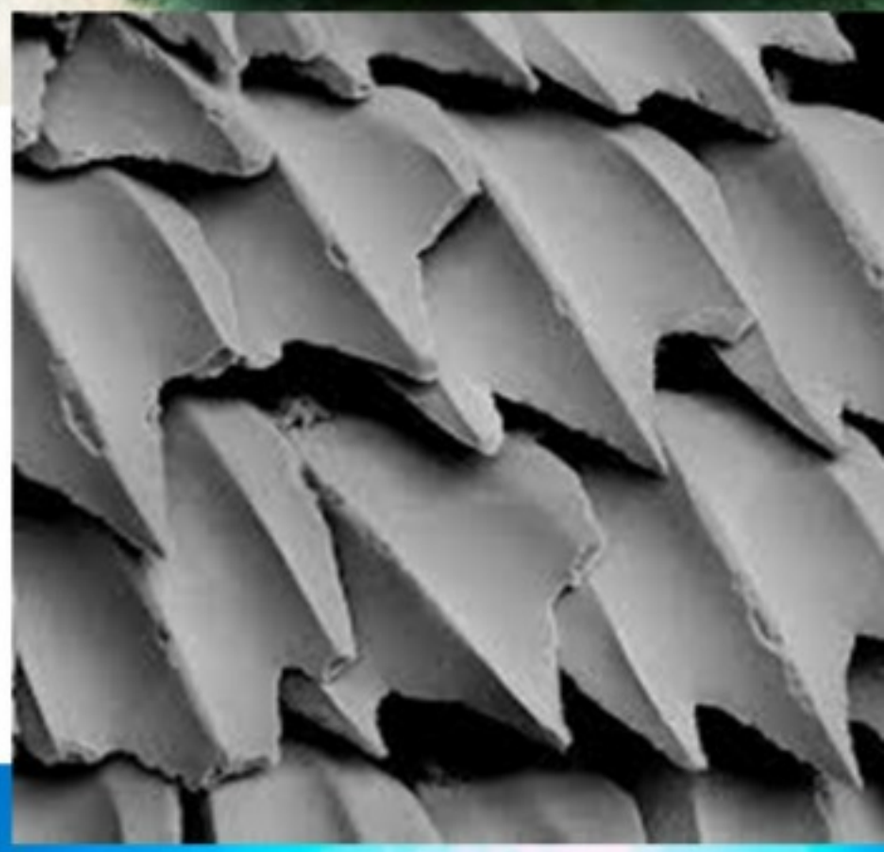
Megalodon

- Literally means "big tooth"
- Grew up to 59 feet in length
- Teeth were about 7 inches long
- Megalodons was one of the greatest apex predators, with their diet including giant whales
- Closest living relatives are the Great White Sharks
- Cause of extinction is unknown

https://www.youtube.com/embed/4L04CFMlGOk

What is a batoid?

- The closest relatives of sharks are called batoids
- Like sharks, they have tooth-like scales an skeletons made of cartilage
- What makes them different from sharks is that their bodies are flat, and the front fins are fused with the heads
- Some batoids, like stingrays, have one or more venomous spines on a whiplike tail, which can deliver a painful sting
- Examples: Stingrays, mantarays, starryskates, etc.



Human Impact on Sharks

- "The United Nations Food and Agriculture Organization estimates that we're catching one billion pounds of sharks each year," said Robert Hueter, director of the Mote Marine Laboratory's Center for Shark Research. "That's many, many millions of animals."
- In a lot of developing nations, shark is a major source of protein in people's diets
- In some countries, Mexico is an example, they don't target one species while fishing, they just bring in what they catch

Sharks in Danger!!

- Over the years, people have used sharks for food, medicines, vitamins, weapons, jewelry—even sandpaper
- Shark meat has become a more popular food
- Each year, thousands of sharks are caught accidentally as **bycatch**
- Shark **finning** (removing the fins and tossing back the rest of the shark to die at sea)
- Sharks grow very slowly compared to other fishes, so depleted shark populations may take years to recover

Shark Senses

1. Read through entire article silently
2. Highlight main ideas and vocabulary
3. Use the article to answer the questions.