

Science Olympiad



Parts I & II



Part I Description:

The ocean is teeming with unique plants and animals. Review the images and identify the organism. Then identify an adaptation associated with that organism [here](#).

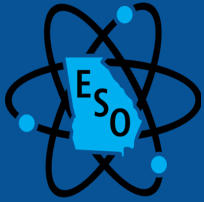
Part II Description:

Many important interactions occur where land meets ocean. Watch this [video](#) on estuaries and analyze this [study guide](#). Then using the information gathered, answer the questions below.

Part II Questions:

1. What is the water called when salt water from the ocean meets fresh water from land?

2. What are three reasons estuaries and mangroves are so important?
_____, _____, _____
3. What is the largest estuary system in the United States? _____
4. How do oysters help estuary systems? _____
5. What are the three type of mangroves? _____, _____, _____
6. What are pneumatophores? _____



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Part III



Part III Description:

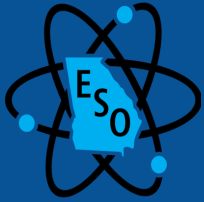
Diving is a vital activity to explore Earth's oceans. Since Georgia Aquarium houses marine animals and has some of the largest aquarium habitats in the world, it is important that we have a team on site diving to clean the habitats and care for the animals. Read the information below and then follow the link to watch a video about Georgia Aquarium's SCUBA team.

Part III Activity:

SCUBA stands for Self Contained Underwater Breathing Apparatus. This is a set of equipment that a diver wears to help their body go deeper underwater for longer than it could on its own. Recreational scuba equipment consists of:

- Mask and fins for the feet (helps the diver see and swim)
- Tank of compressed air attached to a demand regulator (this helps the diver pull air from the tank into their lungs)
- Pressure and depth gauge (to know how far the diver has gone)
- A timer
- Buoyancy compensator device (worn like a vest to help the diver control floating and sinking)
- A dive knife (which helps if a diver becomes entangled in something)

Follow the link to this [video](#) to watch Georgia Aquarium's dive team in action!



Part III Activity continued:

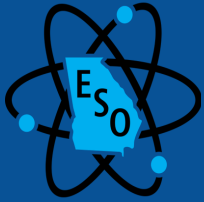
Technical Diving is when a diver goes beyond the limitations of basic and/or recreational SCUBA diving by bringing more special equipment such as different mixtures of gasses to inhale in the compressed cylinder, going deeper into the water, and staying under for much longer.

Aquarius Laboratory is an underwater lab that is off the coast of the Florida Keys. Scientists can dive down to the lab and then stay underwater there for up to 10 days to study the marine environment surrounding it. The inside of the lab is pressure controlled to establish a safe living space for scientists that keeps water from flowing in and is provided with oxygen to breathe.

Follow [this link](#) to get a 3D look around the Aquarius Laboratory!

Finally, to complete this activity, label the SCUBA equipment correctly below!





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Part IV



Part IV Description:

Coral reefs are an important part of the ocean. They are known as the rainforest of the ocean, because they support about 25% of ocean life. Georgia Aquarium is working hard to help restore the coral reefs off the coast of Florida. In order to help with that, it's important to know which corals are healthy and which are struggling.

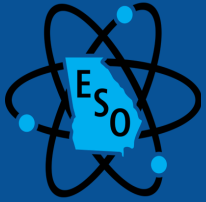
Part IV Activity:

(Adapted from [NOAA](#))

Coral is a bright beautiful animal that has a symbiotic relationship with an algae called Zooxanthellae. The zooxanthellae provides nutrients for the coral and in exchange the zooxanthellae is protected from predators. As the ocean is heating, the zooxanthellae is releasing toxins that make it unsafe for the coral to keep protecting. The coral then expels the zooxanthellae and loses its bright colors known as coral bleaching.

- Study the [infographic](#) by NOAA showing the difference between healthy, bleached and dead coral.
- Compare and contrast the images of healthy coral reefs compared to unhealthy: [America Samoa](#), [Phoenix Island](#) and [Lizard Island](#).

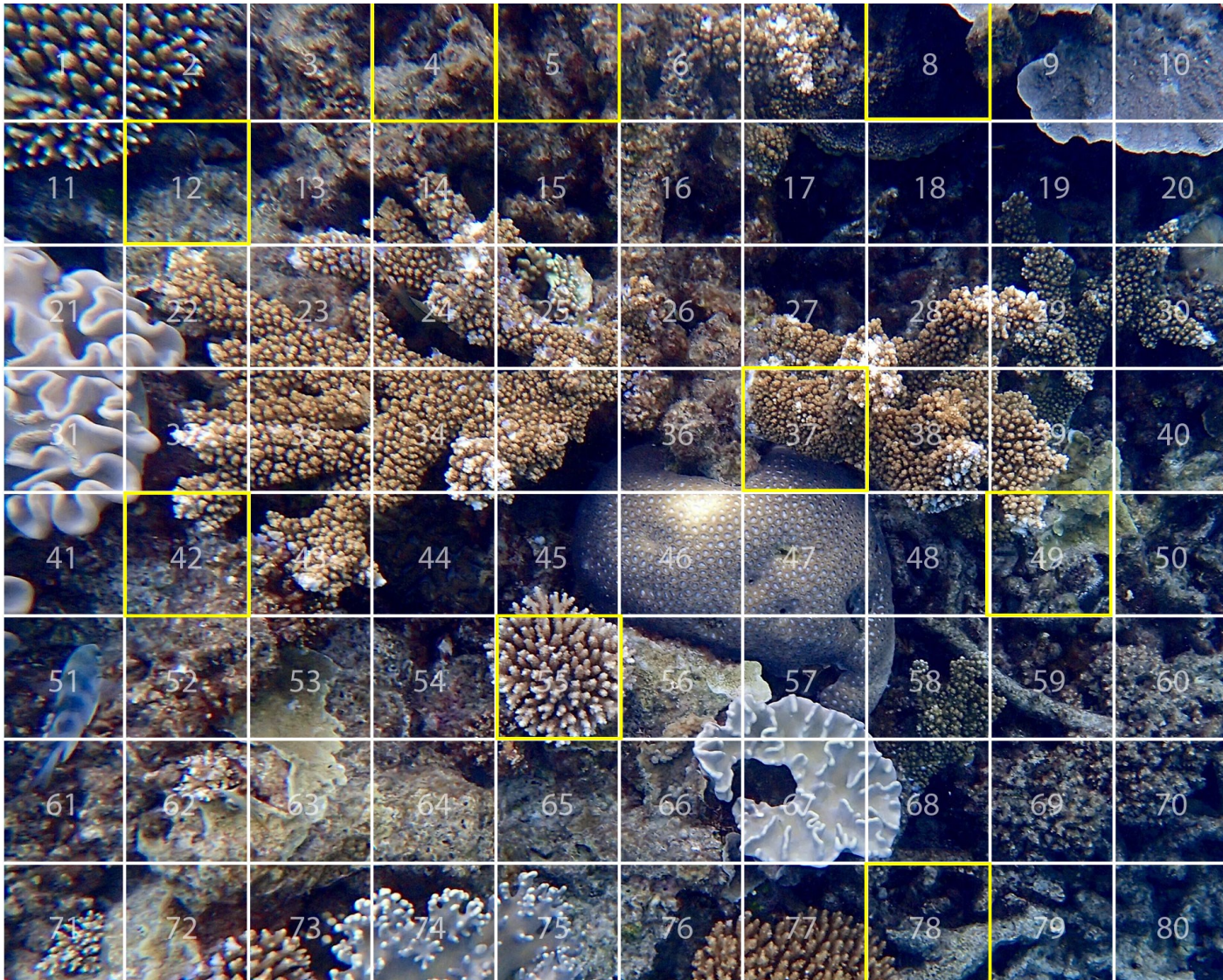
To help quantify the amount of healthy coral in an area scientist will use a transect like this [one](#). They can then identify the corals based on quadrants.



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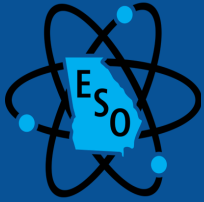


Part IV cont.



Part IV Activity continued:

- Assess the coral transect.
- Analyze the yellow blocks numbered: 4, 5, 8, 12, 37, 42, 49, 55, and 78.
- On the next page, determine if the coral present in the yellow blocks is dead or bleached.
- Provide a number for the effects of the bleaching on a scale of 0-10.
 - 0= not bleached at all.
 - 10= completely bleached



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Resources



Identify and reflect on more animals at Georgia Aquarium from our [website](#).

Watch how we feed our different animals from a [whale shark feed](#), to an [archerfish feed](#), to even our [albino alligators](#)!

Assess animal movement and interactions with our live [webcams](#).

Georgia Aquarium staff took what they learned about health assessments and diving in Ocean voyager out to Indonesia to learn more about whale sharks in this riveting [video](#).

PADI trains scuba divers all over the world. Wonder through some incredible scenes on their exploration [website](#).

Discover the [Chesapeake Bay's](#) complex habitats and plant and animal interactions.

Estuaries are found on both east and west coasts of the US, check out [Oregon's conservation efforts](#).

Mangroves are pertinent to protecting coastlines, read all about it [here](#).

Georgia Aquarium is working hard to help restore corals down in the Florida Keys, learn more about those efforts in this [video](#).

Get up close and personal with Coral reefs at [NOAA's virtual dives](#).

Craft your own [edible corals](#) with one of Georgia Aquarium's educators.