Science Olympiad

Water Quality Testing
B and C Divisions

Anthony Salazar
Breakdown

- 50 minutes long
- Up to 2 people on a team
- A written test containing several stations
- 4 main Sections:
  - Marine and Estuary Ecology
  - Coral Reef Macroflora and Fauna Identification
  - Water Monitoring and Analysis
  - Salinometer Testing
What to Bring

- 8.5” x 11” piece of paper
  - Any information can be listed
  - Can write on both sides
- Eye Protection (Category C)
- Two Non-graphing calculators
- One Salinometer/Hydrometer
Question Types

- Multiple Choice (Can have more than 1 answer)
- Short Answer
- Matching
- Fill in the blank
- True/False
Marine and Estuary Ecology

- Aquatic Ecology
- Water Cycle
- Nutrient Cycling
- Aquatic Chemistry
- Portable Water Treatment
- Watershed Resource Management
- Wastewater Treatment
- Aquatic Food Webs
- Community Interactions
- Population Dynamics
- Sedimentation Pollution
- Harmful Species
- Recently Killed Coral
Division Conly

- Life History Strategies
  - Survival Curves
  - Life Tables
  - Age
  - Structures
  - Succession
  - R and k strategies
Macroflora and Fauna Identification

- General Knowledge of Coral Reefs
- Harmful Effects to Coral Reefs
- Identify Coral Reef Organisms
- Identify Coral Reef Health from indicators
Students should be able to name, identify, and know the importance of the following:

<table>
<thead>
<tr>
<th>Macroflora and Fauna Identification Continued</th>
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<tbody>
<tr>
<td>Students should be able to name, identify, and know the importance of the following:</td>
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<tr>
<td>❑ Banded coral shrimp</td>
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<tr>
<td>❑ Butterfly Fish</td>
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<tr>
<td>❑ Crown of thorns Starfish</td>
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<tr>
<td>❑ Fleshy Algae</td>
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<tr>
<td>❑ Grouper</td>
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<tr>
<td>❑ Hard Coral</td>
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<tr>
<td>❑ Lobster</td>
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<tr>
<td>❑ Long-spined black sea urchins</td>
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Students should be able to name, identify, and know the importance of the following:

- Bumphead parrotfish
- Giant Clams
- Humphead wrasse
- Sea Cucumber
- Flamingo Tongue Snail
- Gorgonia
- Nassau Grouper
For each species, need to know:

- General Ecology
- Life Cycles
- Feeding Habits
Water Monitoring and Analysis

- Interpret Test Procedure Data
- Reason for measuring Salinity
- pH
- Phosphates
- Turbidity
- Dissolved Oxygen
- Aragonite Saturation
- Temperature
- Nitrates
- Fecal Coliform
- Total solids
- Biochemical Oxygen Demand
Salinometer Testing

- Salinity Test will one section
- It will be between 1-10% salt
- The Device must fit in a 400-600mL Beaker with at least 400mL of salt water
- Calculate to 0.1%
- Full points if it within 0.5% error
Difference Between B and C

- Longer
- More short answer questions
- Easy Questions are replaced with highschool specific topics
- More Graphs to Analyze
Scoring

- Tie Breaker Questions will be indicated
- ~1 point per question
- ~90 Questions
- Sections 1 - 3 are 30%
- 5% for bringing a Salinometer
- 5% for the correct salinity
Study Materials

- Science Olympiad Website has a free practice test
- The website also contains a list of online resources and references
Reminders

- If a student leaves an event early, they cannot return to the event
- Cell phones are prohibited; if a student is caught checking/using a phone they are disqualified
- Encourage students not to give up or be disheartened by one section, there is a spirit awards
Questions?