We J.A.M.I.N.! Using Program-based Learning to Inspire the Next Generation of Mangrove & Environmental Stewards in Jamaica

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Mangrove Education & Restoration

2014

Jamaican Awareness of Mangroves In Nature (JAMIN)

2015

Bahamas Awareness of Mangroves (BAM)
J.A.M.I.N. Project Partner
Program Objectives

• Project-based learning
• Science, Technology, Engineering, Art, & Math (STEAM)
• Increase Ocean Literacy
Participating High Schools

William Knibb

Marcus Garvey
Program – Phase I

2. Teacher Professional Development Training (All three phases)
Program – Phase I

3. Threats & Benefits Presentation and Mangrove Propagule Planting
Program – Phase I

• Propagule Media Types
Program – Phase II

1. Mangrove Food Web Show-and-Tell
Program – Phase II

2. Mangrove Food Web Activity
Program – Phase III

1. Graphing Data & Drawing Conclusions
Program – Phase III

2. Mangrove Restoration
Evaluation

• Teachers:
  – Educator Needs Assessment
  – Program Evaluation

• Students:
  – Pre-survey Knowledge & Attitude Assessment
  – Post-survey Knowledge & Attitude Assessment
  – Retention & Knowledge to Action Survey
Evaluation Questions

• Types of Questions:
  – True and False
  – Multiple Choice
  – Matching
  – Likert Scale
  – Fill in Answers
Results

- William Knibb High School (N = 39)

**Students’ Gender**

- Male: 38%
- Female: 62%
Student Comprehension of Mangrove Benefits to Human & Environmental Role

Phase 1, Pre-test
Phase 1, Post-test
Phase 2, Post-test
Phase 3, Post-test

Not at all aware: 137, 7, 3, 9
Slightly Aware: 82, 10, 8, 5
Somewhat Aware: 106, 39, 24, 14
Moderately Aware: 104, 103, 97, 62
Extremely Aware: 211, 430, 511, 571

Colors in the bar chart represent:
- Orange: Phase 1, Pre-test
- Blue: Phase 1, Post-test
- Green: Phase 2, Post-test
- Red: Phase 3, Post-test
Student Attitude Towards Mangroves & Their Conservation

<table>
<thead>
<tr>
<th></th>
<th>Phase 1, Pre-test</th>
<th>Phase 1, Post-test</th>
<th>Phase 2, Post-test</th>
<th>Phase 3, Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>11</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Disagree</td>
<td>13</td>
<td>13</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>64</td>
<td>24</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Agree</td>
<td>65</td>
<td>50</td>
<td>57</td>
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<tr>
<td>Strongly Agree</td>
<td>69</td>
<td>108</td>
<td>124</td>
<td>138</td>
</tr>
</tbody>
</table>
Student Understanding of Threats to Mangroves

- Not a Threat
  - Phase 1, Pre-test: 31
  - Phase 1, Post-test: 3
  - Phase 2, Post-test: 3
  - Phase 3, Post-test: 12

- Is a Threat
  - Phase 1, Pre-test: 191
  - Phase 1, Post-test: 270
  - Phase 2, Post-test: 294
  - Phase 3, Post-test: 285

- Don't Know
  - Phase 1, Pre-test: 69
  - Phase 1, Post-test: 7
  - Phase 2, Post-test: 7
  - Phase 3, Post-test: 15
Future Programming

• Finish analyzing data
  – Make adjustments to program
  – Submit to peer-reviewed journal

• Year 2 Program

• Seek funding to expand program
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