Creating Earth-Science Learning Opportunities Outside the Classroom at a State College

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Background—Valencia College

- Six campuses in central Florida.
- Total enrollment is about 60,000, with nearly 33,000 at East Campus.

Graduates by Degree
- Bachelor in Science 0.7%
- Associate in Arts 49.3%
- Associate in Science 10.9%
- Technical Certificate 38%

The vast majority of students are non-science majors. They need 6 hrs in non-lab science courses to meet general education requirements.
East Campus Demographics (2013)

- Roughly 52% female; 48% male
- African American 14%
- Hispanic 31%
- White 38%
- Other ethnicity or unknown 17%
- Half of students 19 – 24 years old
- Large number of dual-enrolled, returning, and other non-traditional students
Objectives

- Raise awareness of environmental issues among students (staff and faculty).
- Help create scientifically literate citizens!
- Increase enjoyment of science among non-majors
- Motivate students to major in the Earth sciences
Methods

Engage and educate students (staff and faculty) outside the classroom

- Valencia Earth Studies Association (VESA), an environmental club open to all students. No fees or requirements.
- Earth Day event
- Natural history “museum”
- Native-plant gardens
- Field trips
- Presentations by guest speakers
VES A

Started in Fall 2011.

No fees or requirements for joining.

Supported by Student Development (student activities fees).

Average about 15 – 20 members/semester.
Earth Day

Started in April 2012.

Last year, 28 environmental organizations participated.

Audubon Center for Birds of Prey, Central Florida Zoo, Florida Fossil Hunters, various animal rescue and rehab, state parks, and more.

Music majors and faculty provided entertainment

More than 400 students, staff, and faculty attended.
Earth Day 2018
Museum and Native-Plant Gardens

Started in 2017 with a $5,000 grant

Five glass display cases.

42-in touch-screen kiosk.

Maps and photos

More than 200 native trees and shrubs.

Volunteers by faculty, staff, and students
Museum
Native-Plant Gardens
Native-Plant Gardens
Native-Plant Gardens
Field Trips
Evolution of Field Trips

Day and weekend trips
Extended trips up to a week
Student costs are kept low
Lockheed Martin Endowed Chair in Science
Students are expected to give a presentation to the Science Dept after the trip.
Destinations include state parks, Great Smoky Mountains NP, Rocky Mountain NP, and the Colorado Plateau
Central Florida in 2012
Camping in the Panhandle
2013
Bigger and Greater in 2014
Back to Florida in 2015
Another Great Smoky trip in 2016
Our Grand Year in 2017
We toured Zion National Park
Please do not feed the squirrels Goldfish crackers!
Service Learning
VESÁ Rescuing Gopher Tortoises!
Is it all worth it?
Results from Earth Day Survey on Climate Change

**GENDER**
- Female: 189
- Male: 100
- Undeclared: 6

**AGE**
- <18: 1
- 18-22: 188
- 22-30: 43
- >30: 41

**STATUS**
- Student: 242
- Staff: 23
- Faculty: 12
Results from Earth Day Survey on Climate Change

Before the event, I thought climate change was…

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Happening</td>
<td>4</td>
</tr>
<tr>
<td>Maybe</td>
<td>31</td>
</tr>
<tr>
<td>Yes, But Natural</td>
<td>57</td>
</tr>
<tr>
<td>Yes, By Humans</td>
<td>193</td>
</tr>
</tbody>
</table>

Did this event change your mind?

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, It Helped Me Understand</td>
<td>181</td>
</tr>
<tr>
<td>No, It's a Hoax</td>
<td>9</td>
</tr>
<tr>
<td>I Believed Already</td>
<td>96</td>
</tr>
<tr>
<td>It Convinced Me Against</td>
<td>6</td>
</tr>
</tbody>
</table>
Conclusions

- Valencia College has a diverse student population, most of whom have little exposure to geology and other natural sciences.
- Few students major in science or take classes in geology.
- A multi-prong approach is used to educate and engage students outside the classroom.
- These activities seem to raise awareness of issues like climate change.
- Further study is needed to document effectiveness.
Acknowledgments

◊ Lockheed Martin
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www.facebook.com/clubvesa
@valenciacleubvesa on Instagram
https://www.youtube.com/watch?v=k6SAisKvJvI