



**Fairchild Challenge 2009-2010**  
**How to Guide for Teachers**  
**Option 8D: Seed Germination**

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**I. Overview for teachers**

This research project is designed to teach students how to apply the scientific method to a seed germination project. You will be provided with a packet of seeds to distribute to the participating students. The students will grow the seeds while conducting experiments to determine optimal germination conditions. Students will use the scientific method to test different germination methods of the native plant species.

**II. Incorporate Your Class**

1. Math
  - Keep an accurate record of all the plants and their germination state
  - Divide all the plants up into different plots
  - Determine various rates of growth under different conditions
2. Science
  - Come up with germination practices to attempt
  - Follow the scientific method
  - Make accurate measurements and keep reliable records
  - Hypothesize how environmental factors affect the germination and growth of species in its native habitat
3. History
  - Study the history of botany and seed germination
  - History of the Green Revolution (agriculture revolution between the late 1960's to early 1980's)
  - How does the students experiment compare with similar experiments in the past?

### **III. Approaching the Option**

1. You will be given seed packets from the Fairchild Challenge
2. The Display:
  - Must be a stand alone tri-fold project display board
  - Include a timeline of photos from the experiment (including pictures of the students working on the experiment)
  - Include a summary of the experiment
3. The Research project showcase will be at Fairchild Tropical Botanic Garden on Saturday, April 10 at 1:00 p.m.

### **IV. Sunshine State Benchmarks**

1. Health  
A.1.4.1, A.1.4.4, A.1.4.6, A.1.4.9, A.2.4.1, A.2.4.2, B.1.4.2, B.1.4.4, B.2.4.1, B.2.4.2, B.2.4.4, B.3.4.1, C.1.4.2, C.1.4.3, C.1.4.6, C.2.4.1, C.2.4.2, C.2.4.3, C.2.4.4, C.2.4.5, C.2.4.6
2. Language Arts  
A.1.4.1, A.1.4.2, A.1.4.3, A.1.4.4, A.2.4.1, A.2.4.2, A.2.4.4, A.2.4.5, A.2.4.6, A.2.4.7, A.2.4.8, B.1.4.1, B.1.4.2, B.1.4.3, B.2.4.1, B.2.4.2, B.2.4.3, B.2.4.4, C.1.4.1, C.1.4.3, C.3.4.1, C.3.4.2, C.3.4.3, C.3.4.4, C.3.4.5, D.1.4.2, D.2.4.2, D.2.4.3, D.2.4.4, E.2.4.4
3. Math  
A.1.4.1, A.1.4.2, A.1.4.3, A.1.4.4, A.3.4.1, A.3.4.3, A.4.4.1, B.1.4.1, B.1.4.2, B.2.4.1, B.2.4.2, B.3.4.1, B.4.4.1, B.4.4.2, D.2.4.1, E.1.4.1, E.1.4.2, E.1.4.3, E.3.4.1
4. Science  
B.1.4.1, B.1.4.5, B.1.4.7, D.2.4.1, F.1.4.7, G.2.4.6, H.1.4.1, H.1.4.7, H.2.4.2, H.3.4.1, H.3.4.3, H.3.4.5, H.3.4.6
5. Social Studies  
B.1.4.1, B.2.4.1, B.2.4.7, C.2.4.2, C.2.4.7
6. The Arts  
VA.A.1.4.1, VA.A.1.4.2, VA.A.1.4.3, VA.A.1.4.4, VA.B.1.4.2, VA.B.1.4.4, VA.E.1.4.2

### **V. Checklist**

- Students are able to attend the Research project showcase at Fairchild Tropical Botanic Garden on Saturday April 10, from 1:30 to 3:30 p.m.
- Students will be able to arrive to the Research Project Showcase by 1:00 p.m. in order to set up
- The scientific method was used to conduct the experiment
- Multiple germination practices were tested
- Germination rates were compared
- Students explained how environmental factors affect the germination and growth of the species in its native habitat
- Students are ready to discuss their experiment and the results reached