

Baldwin Hills Classroom SCIENCE EDUCATION PROJECTS

The following collection of activities is designed to take what we learn about the Baldwin Hills into the world of scientific investigation. These activities focus on those aspects of the ecology and the environment most relevant to the ongoing activities in the Baldwin Hills: ecology, habitats and habitat restoration, and soil science. We have anticipated some of more likely questions you as a teacher or student may have.

Who are These Activities Designed For?

The following projects were written in a way that would be appropriate for the classroom teacher looking to extend the experiences of a fieldtrip to the Baldwin Hills into the classroom. However, the activities do not require a trip to the Baldwin Hills to make them viable as classroom exercises. A virtual visit to the Baldwin Hills Scenic Overlook via the website will suffice. These science activities may also serve as the basis for science fair projects.

The target grades for the projects are Grades 6 - 8, in accordance with the Science Framework for California Public Schools (Revised 2004). However, they can be easily adapted to both younger and older grades.

Are the Materials Difficult to Get?

The activities were designed for teachers and students with very limited budgets. Certainly, all the materials required for all activities would cost less than \$50. We did not want to assume that everyone had access to expensive equipment such as microscopes or centrifuges, so we kept things simple without sacrificing the educational potential of the activities. If you are fortunate to have access to more complex laboratory equipment, these activities could easily be adapted to make use of them.

If you are a teacher or a student with a passion for science, it's important to build and maintain your collection of scientific 'stuff'. These materials will be your toolbox to take on any project. Part of the charm of doing science, as in art, is the opportunity to repurpose objects and materials. You never know when you are going to need that coil of wire, that bag of cotton balls, or those old mayonnaise jars.

How Should the Activities be Presented?

We recommend that these activities be incorporated into the framework of the *Scientific Method*, the philosophical basis of all of modern science. Consider the following procedures:

Step 1: Students are introduced to the general concept (e.g., habitats and habitat restoration).

Step 2: General question(s) is (are) posed to the students (e.g., what are some of the things that alter natural habitats and what would be the challenges in putting the habitat back together again?).

Step 3: Specific questions can be asked (e.g., what about the problem of non-native invaders such as weeds? Why do some kinds of plants, like weeds, spread so easily?).

Step 4: Hypothesis building (e.g., many plants possess effective ways of spreading seeds, such as the use of wind to carry seeds. Those seeds that stay aloft longest in the air have the greatest potential to spread).

Step 5: Designing and conducting experiments (i.e., design and construct, and test various seed dispersal 'parachutes').

Step 6: Examine results to see if they support the hypothesis (i.e., did the seeds with slowest rate of descent travel the farthest in the wind?).

Step 7: Modify your hypothesis, as necessary (i.e., the relationship between rate of descent and distance traveled as applied to the cotton ball parachutes).

The *Scientific Method* may seem rigid and prescriptive. And it generally is supposed to be, because it is the basis of all modern science. However, in the classroom, doing science can simply be posing interesting questions, making guesses as to what is going to happen, and testing your guesses with models and/or experiments. This simple view was enough to land probes on Mars, so it should be sufficient for the classroom. The real key to science in the classroom is a combination of really cool stories about the natural world and providing students the hands-on opportunity to do scientific experiments - the only way science is really done.