

Pre-trip preparation for The Unseen World – Grades 3-5

In this Discovery lab students will learn that there is a whole unseen nano world and that when you get down to that very, very, VERY small nanoscale world things can act in very surprising ways! Students will explore size, and scale through a team challenge. They will then move through hands on station that allow them to learn more about nanoscience and nanoscience technology. These interesting and interactive activities help students build a framework for understanding that stuff is made of particles too small to be seen.

Nevada Academic Content Standards in Science (NGSS): 5-PS1-1

Develop a model to describe that matter is made of particles too small to be seen.

Common Core: SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

During Your Discovery Class students will be expected to:

- Sit in groups of 4 students per table.
- Students should be prepared to give their full attention to the Lab instructors when given the quiet signal.
- Work cooperatively with one another at the table.
- Follow the hands-on procedures just as the Lab teacher or assistant explains them.
- Handle materials and equipment carefully.

It is important that teachers and chaperones:

- Help focus the students' attention.
- Assist students with lab activities through questioning allowing the student to do the actual building and decision making. For example a parent might ask, "I see your base is shaky, what could you do to strengthen it?"
- Engage students at a higher level by asking open-ended questions throughout the class.
For example: why did you choose __ ?
- Turn off cell phones and other electronic devices during the class.

Literary connection:

To get students excited about the upcoming Discovery lesson we suggest reading experts from the following book with your students: *Alice In NanoLand* by Leigha Horton and Stephanie Long. *Alice in NanoLand* aims to explain the basics of nanoscale science by using examples accessible to early elementary students. Available at www.nisenet.org/catalog/media/alice_nanoland

