THE Discovery
Terry Lee Wells Nevada Discovery Museum

Pre-trip preparation for

On a Roll – Secondary Grades

In this hands-on Discovery lab students will explore force and motion and create a model using experimentation data that will allow them to make predictions about how future tests will perform. They will explore what scientific modeling is an why it is so important to scientists and engineers.

Nevada Academic Content Standards in Science (NGSS)
Science and Engineering Practice · Developing and Using Models
Modeling In 6-8 builds on K-5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. Develop and use a model to describe phenomena.

Nevada Academic Content Standards in Science (NGSS) 6·8.PS2.A
Forces and motion - the role of the mass of an object must be qualitatively accounted for in any change of motion due to the application of a force.

Common Core: SL.{6·8).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: *3D Printing: The Next Technology Gold Rush - Future Factories and How to Capitalize on Distributed Manufacturing* by Christopher D. Winnan. This book contains easy to read, yet detailed explanations of all the 30 printing related technologies currently available along with practical advice on how this technology can be leveraged as a successful business in today's economy.