Earth Science and The Solar System A (Exploration Stations) **– LESSON SUMMARY**

The Tech has partnered with NASA and NOAA to create this unique fieldtrip experience. Students explore the solar system and earths place among the planets using NOAA's Science on a Sphere. Then students will go behind the scenes and explore the geology that makes up our own planet.

Grade Levels: 2-8 Grades

*Open to Grades 2 and 3 with a limit on the number of students to 20 per class

Educational Outcomes:

1) Students will learn about the Planets in the Solar System.
2) Students will learn Earth's place in the solar system
3) Students will learn about the geology of Earth and how rocks are formed.
4) Students will learn about the rock cycle.
5) Students will be introduced to rock collections.

Estimated Time: 60 minutes

- VfS Tour: 15 minutes
- Solar Demonstration: 5 minutes
- Introductory Transition Discussion (Geology): 10 minutes
- Activity Station Rotations: 20 minutes
- Summary: 5 minutes
- Take-home Science Ideas 5 minutes

California Science Content Standards Connections:

- **Grade 2**: 3a, 3b, 3c, 3d, 3e, 4c
- **Grade 3**: 4c, 4d, 4e
- **Grade 4**: 4, 4a, 4b, 5a, 5c, 6, 6b
- **Grade 7:** 4, 4b, 4d, 4e, 4f, 4g
- **Grade 8:** 2f, 2g, 4a, 4b, 4c, 4d, 4e
- **All grades** - Investigation and Experimentation: Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.

Pre-Visit Vocabulary

These are words and concepts that we feel will help your visit to the Tech Museu's Earth Science Lab. Your students' experience will be enhanced if they are familiar with these terms prior to your visit.

- Solar System: the Sun with the group of celestial bodies that revolve around it.
- Planet: any of the eight large celestial bodies in the solar system that revolve around the sun and shine by reflected light; any celestial body (other than comets or satellites) that revolves around a star
- Moon: the natural satellite of the Earth
- Satellite: an object in space that circles around another object
- Geology: a science that deals with the history of the earth as recorded in rocks
- Mineral: any naturally occurring inorganic material that has a (more or less) definite chemical composition and characteristic physical properties; Any inorganic material (as distinguished from animal or vegetable)
- Igneous Rocks: igneous rocks are new rocks, formed when hot magma rises up from inside the Earth and solidifies.
- Sedimentary Rock: Rock formed by layers of material that has accumulated and hardened over time.

- Metamorphic Rock: Rocks altered considerably from the original structure and composition by pressure and heat.

Tech Museum Gallery Connections:

- View From Space-
- Exploration Gallery –Eye on the Environment stations
- Exploration Gallery – NASA Science Pod- Explore the
- IMAX Theatre – Blue Planet, the Forces of Nature,

Teacher Resources

- **USGS-** Rocks and Minerals web link is a tutorial of how rocks are formed their basic structures and mineral compounds http://geomaps.wr.usgs.gov/parks/rxmin/index.html
- Museum of Science and Industry, Chicago: Online exhibit archived by MSI, "Man, Inventor, Genius". Exploring Leonardo's work and connecting it to modern day thinkers and engineers for grade 6-12 – http://www.msichicago.org/scrapbook/scrapbook_exhibits/leonardo/index.html

Post activities/handouts:

- Start a collection
- Toilet Paper activity