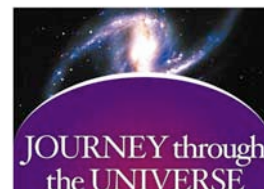


## Introduction to the *Journey through the Universe* Program, the *Voyage* Program, and the *Voyage* Grade K-2 Lessons

### 1. The Programs

*Journey through the Universe* (<http://journeythroughtheuniverse.org>) is a national science education initiative that engages *entire* communities—students, teachers, families, and the public—using education programs in space exploration and the space sciences to inspire and captivate. The initiative embraces the notion that—*it takes a community to educate a child*.



*Journey through the Universe* programming is tailored to a community's strategic needs in science, technology, engineering, and mathematics (STEM) education, and is a framework for partnership between school districts, museums and science centers, colleges and universities, civic and business organizations, and the public. The cornerstone philosophy for all programming is—*inspire... then educate*.

*Voyage: a Journey Through Our Solar System* (<http://voyagesolarsystem.org>) is a one to ten billion scale model of the Solar System exhibition that was permanently installed on the National Mall in Washington, DC, in October 2001. The greater *Voyage* Program includes the exhibition on the National Mall; replicas of the exhibition available for permanent installation in communities worldwide—designated *Voyage Communities*; and programming in Solar System science and exploration for thousands of students, educators, and families available to each of the *Voyage Communities*. The programming is provided through *Journey through the Universe*, and supported by a grade K-12 compendium of lessons—the *Voyage Education Module*.



### 2. The Grade K-12 *Voyage* Education Module

The *Voyage* Education Module includes an **Education Unit** at four grade levels: lower elementary (K-2); upper elementary (3-4); middle (5-8); and high school (9-12). Each Unit contains lessons comprised of content overviews, inquiry-based hands-on activities, assessment rubrics, resource listings, student worksheet masters, and answer keys.

The lessons were developed from the ground up from national science education standards and benchmarks, and are comprehensive enough to be adopted by school districts as the space science curriculum. Lessons target core standards and benchmarks through inquiry-based, hands-on activities whose objective is deep conceptual understanding of both content and process. The lessons are also meant to work in concert with a trip to a *Voyage* exhibition, serving as pre- and post-visit activities.

### 3. The *Voyage* Grade K-2 Lessons

This document provides a description of each lesson and the embedded inquiry-based activities for the *Voyage* **lower elementary school (grade K-2)** Education Unit. Also provided are connections to National Science Education Standards for grades K-4, and AAAS Benchmarks for Science Literacy for grades K-2.

**VOYAGE FOR EDUCATION: THE K-2 UNIT PROGRESSION**

Lesson Title	The K-2 Story	Activities
Lesson 1: Making Models to Understand Our Home	Through inquiry and our senses, we discover that our home planet Earth is the largest object we have ever touched. But we occupy such a small part of it that we must make models to see how and where we fit in. Through an “I-Spy” activity, students can learn to recognize common classroom models to explore the value of using models to represent objects that are difficult to handle otherwise. Making simple, two-dimensional models of our own homes, and eventually our neighborhood, helps us begin to understand our world.	<p><i>Activity 1: I Spy;</i> Students will identify and search for models in I-Spy activity.</p> <p><i>Activity 2: Build a Model;</i> Students make 2-D models (crayon or pencil drawings) of ‘my home from the front door’.</p>
Lesson 2: A View of Home from the Front Door & from Space	The world is full of objects large and small, near and far. Models are built as powerful tools to help study large things such as buildings, towns, countries, and even the Earth and the Moon. With models, things beyond our physical reach can be easily explored. To begin to distinguish “home” from “home planet,” students can build a model of their home and neighborhood as it appears from the front door of the house, from a tall building, from an airplane, and from outer space.	<p><i>Activity: A Model of My Home;</i> Students construct hanging models of four drawings to model the students’ homes: seen from the front door, from a tall building, from an airplane, and from space.</p>
Lesson 3: Taking a Voyage Away From Home	From common observations of the sky, students understand that the Sun is a star that is close to Earth, and it appears to go through a daily motion in our sky. By building a dynamic model of the Earth and Sun—an orrery—students realize that cycles of night and day are caused by a rotating Earth. A puzzle version of <i>Voyage</i> , a scale model of the Solar System, is then constructed to explore the locations of the Sun, Earth and other planets, and to get a sense of the relative sizes of these objects. By combining the two activities the Solar System is put in motion, reflecting both the objects within the Solar System and their motions.	<p><i>Activity 1: The Earth and Sun – A Play in Two Acts;</i> The class creates an Earth-Sun orrery.</p> <p><i>Activity 2: Solar System Puzzle;</i> Students construct the <i>Voyage</i> scale model puzzle to sequence the Sun and planets.</p>

## CONNECTION TO STANDARDS

This Education Unit has been mapped to the National Science Education Standards (National Research Council, National Academy Press, Washington, DC, 1996) and to the Benchmarks for Science Literacy, (American Association for the Advancement of Science, Project 2061, Oxford University Press, New York, 1993). A complete explanation of the Standards can be found at: <http://www.nap.edu/html/nse/html/>. A complete explanation of the Benchmarks can be found at: <http://www.project2061.org/tools/benchol/bolintro.htm>. Core standards for each lesson are indicated by a “√”; related standards are indicated by an “x.”

EDUCATION STANDARDS IN VOYAGE: A JOURNEY THROUGH OUR SOLAR SYSTEM: K-2 EDUCATION UNIT								
	National Science Education Standards, K-4			AAAS Benchmarks for Science Literacy, K-2				
	Standard B: Physical Science	Standard D: Earth and Space Science		Benchmark 6: The Human Organism	Benchmark 8: The Designed World	Benchmark 9: The Mathematical World	Benchmark 11: Common Themes	Benchmark 12: Habits of Mind
	B1: Properties of objects and materials	D2: Objects in the sky	D3: Changes in earth and sky	6D: Learning	8B: Materials and Manufacturing	9A: Numbers	11B: Models	12A: Values and Attitudes
Making Models to Understand Our Home	√			x			√	x
A View of Home from the Front Door and from Space		√		x	x		√	
Taking a <i>Voyage</i> Away from Home		√	√			x	√	