Grade Level	Content Area	Course Title *(9-12 Samples Only)*	Unit Title
2nd Grade	**Reading**	**N/A**	**Born with a Bang! *(Author Study)***
Length of Unit	**Time of Year Taught**	**Expected Prior Knowledge**	
Session One (45 minutes), Session Two (45 minutes)	**September-October**	"Pre-hands" presentations/experiences (science curriculum) Impressionistic "Great Lesson"—Story of the Universe (history curriculum)	

Unit Description

Reading is the primary tool with which students access our rich Montessori cultural curriculum. Just as the standards establish "a *staircase* of increasing complexity in what students must be able to read so that all students are ready for the demands of college- and career-level reading no later than the end of high school", the Montessori approach incorporates the *use of concrete reading and writing structures* (e.g., the 3-part card material mentioned in the writing samples) from the earliest grade levels to ensure students continue to develop and strengthen their language skills in these areas. As also illustrated in the standards, the Montessori methods used to teach reading are focused on "a progressive development of reading comprehension" with more advanced levels of textual structures introduced and practiced, so that "each student advances through higher levels of learning and gains the most from what they read". Through effective reading skills students are expected to build their knowledge, gain insights, explore possibilities, and broaden their perspective. The rich Montessori cultural curriculum (*"Cosmic Education"—see A.3 Program of Instruction*) serves as a great motivator and platform for students to practice and gain mastery in all language areas, especially the core content area of reading.

Author studies provide a wonderful platform for connecting literary genres, styles, and texts to our rich curriculum. The author study chosen for this curricular sample is a perfect connection to the first of our "Great Lessons", The Story of the Universe. Jennifer Morgan, the selected author, was inspired by the work of Thomas Berry, Brian Swimme, Maria Montessori, Miriam MacGillis and numerous others. She studied cosmology, evolutionary biology and anthropology, and worked with numerous scientists in order to write her *Universe Story Trilogy* for children. Each book has a story section targeted for the elementary (and middle school) levels and a science concept section in the back for teachers and parents.

The first book, *Born with a Bang*, tells the story of our Universe as our "cosmic story". Cosmology is for everyone, this is a story of the universe from the Big Bang (one of several 'theories' presented) to the formation of the Earth, in the form of a letter written by the thirteen-billion-year-old universe itself to an Earthling. Students are able to analyze Morgan's story-telling writing style and the vivid illustrations that accompany the text.

The other 2 books in the trilogy, and are included in this year-long author/illustrator study, are:

- ✓ *From Lava to Life: The Universe Tells Our Earth Story* (Book 2)--The Universe continues with the story of Earth from the beginning of life up to the extinction of the dinosaur.
- ✓ *Mammals Who Morph: The Universe Tells Our Evolution Story* (Book 3)--Covers the story of mammals from 65 million years ago to today, including the human story.

The overall focus of this unit is the universe, and using Morgan's books allows students to easily identify and build upon the information and descriptions so concretely provided in her texts. Other unit objectives related to students practicing and mastering the required reading standard in this curricular sample are:

- ✓ Appreciation of the author's craft & structure
- ✓ Practice & master using various reading strategies (KWL charts, prediction, sequencing, etc.) to enhance comprehension and understanding.
- ✓ Identifying the author's purpose for writing text
- ✓ Awaken enthusiasm for learning about the topic—our universe
- ✓ Connect reading activities to learning about the unit topic

The framework of this author study also supports and leads to student learning and mastery of objectives in other curricular areas:

- ✓ Astronomy & space—origin of universe & solar system
- ✓ Mathematical applications—time lines
- ✓ Nature and process of technology—telescopes, WMAP
- ✓ Life Sciences—formation of elements critical to life
- ✓ Physical Sciences/Chemistry—elements formed in the Big Bang & inside stars (nucleosynthesis)
- ✓ Physical Science/Physics—gravity
- ✓ Earth Science—birth of the Earth
- ✓ Environmental Studies—system of interdependent components

Standards:	**Strand:** Reading Standards for Informational Text **Cluster:** Craft and Structure ***Standard #6:*** Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
Summative Assessment	**Student progress data and observation notes input into MRX system (student progress report)** Through the course of the unit, the student will complete <u>a minimum of 3 Non-fiction Book Reviews</u>. Each Book Review will be assessed according to the following criteria: ✓ Student includes the title of the book ✓ Student includes the author of the book ✓ Student includes the illustrator(s) of the book, if applicable ✓ Student summarizes the main idea or topic of the book ✓ Student gives an example of something the author *explained* in the book ✓ Student gives an example of something the author *described* in the book ✓ Student gives an example of a question the author *answered* for them in the book

Scoring for Summative Assessment

There is 1 point possible for each of the above listed criteria. ***Criteria for mastery of the required reading standard = 5/6 points per Book Report, and a minimum of 3 samples at, or above mastery.***

Sample Book Report form:

Non-fiction Book Report

Name:	**Date:**
Book Title:	
Author(s):	
Illustrator(s):	
Summarize the main idea or topic of the book	
Give an example of something the author *explains* in the book	
Give an example of something the author *describes* in the book	
Give an example of a question the author *answered* for you in the book. Be sure to include details.	

	1	2	3
I rate this book... (circle a 1, 2, or 3)	Was not interesting or did not help me with the topic I am researching	The book was helpful and I learned some new information about my topic	This book is a MUST READ!! It is full of amazing details and information about the topic I am researching.

Materials/ Resources Needed

- ✓ *Born With a Bang: The Universe Tells Our Cosmic Story* (Book 1 in Trilogy)
- ✓ Thunder tube, bell, or some other noise maker
- ✓ Bone, preferably a skull
- ✓ Storytelling robe if you have one
- ✓ Universe time line. If you don't have one, you can use the time line in *Born With a Bang* and write it on the board.

Teacher Preparation

- ✓ Read the story and study back material before reading story to the class. Figure out the level of detail you'd like to cover in your reading to the students. For younger children, read just the bold type; for older children, read all the text on the page; or do some combination. You'll know what's right for your

	✓ Large picture of galaxies. ✓ Black construction paper (11 x 17) and crayons. ✓ "Sequence of Events in the Formation of the Solar System" handout.	class. ✓ Place your props on a table nearby within easy reach. ✓ Your enthusiasm is the most important ingredient to the success of the lesson. Give yourself a moment to remember *your* excitement when you first heard the story and make it present for this telling.

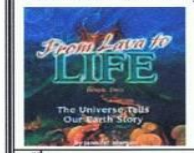
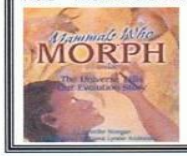
	Lesson 1	**Lesson 2**	**Lesson 3**	**Lesson 4**
	***SOURCE: Lesson Plan for Grades 2 - 4*: FORMATION of THE SOLAR SYSTEM with storytelling, discussion, and art.** © Jennifer Morgan, author of the Universe Story Trilogy, including the titles: *Born With a Bang, From Lava to Life, and Mammals Who Morph.* More more cosmic education books and programs go to www.UniverseStories.com.			
Instruction and Timeline	**Instruction--45 minutes** **Make the connection between humans living today and the origin of the universe and formation of our solar system.** Show students a bone (a skull is great if you have one). Engage them in a conversation about the bone. (What kind of animal it is? What kind of food did it eat? Talk about the teeth, etc.) Then, ask everyone to listen as you knock the bone with your knuckles, or another hard object. Ask them what makes this bone so hard? Eventually, someone will say the correct answer – calcium. (Sometimes it helps to lead them by saying, "Your mom or dad might tell you to drink your milk because it has lots of _____?) Once they have identified calcium in milk, tell them that calcium makes all bones hard, ours too. [The following part is really fun and is best done very quickly.] Ask them, where did the milk get the calcium? They'll say the "cow". Where did the cow get it? They'll say the "grass". Where did the grass get it? They'll say the "ground". Where did the ground get it? The "Earth". If they don't know the final answer they'll get stopped here and if they do, you can say that calcium can't be made on earth because earth is not hot enough – calcium had to be made inside something really really hot. Then they'll say "the sun." Then you say, "Yes it was made in a star, but it had to be made in a star that was much bigger and hotter	**Instruction--45 minutes** **Review Sequence of Events in Formation of Solar System.** Using the "Sequence of Events in the Formation of the Solar System" sheet available at www.UniverseStories.com, create a time line on the blackboard. Using the time line as reference, talk through with your students the most important steps in the sequence for them to remember: This review is an enjoyable way for them to deepen their understanding and ask more questions. Again, you don't have to know all the answers. Feel comfortable with not knowing. Create an atmosphere that invites open ended questions without answers, reminding them that to ask questions is at the heart of scientific inquiry. **Artwork** ✓ Hand out large construction paper (11 x 17) to each student. Show them how to fold the paper so they make eight boxes as show below. Then have them outline the boxes.	**Meet the Illustrator** **Instruction--45 minutes** **Aims:** ✓ Students will be able to identify the interview structure ✓ Art appreciation & experience Begin by sharing the book again. Sharing favorite illustrations and what they evoke in us. Share other work by Andersen and discuss different elements of her style and medium. After 5-10 minutes of appreciation, share a little of her biography and the interview done with her. **About the Illustrator** Dana Lynne Andersen is known for her breathtaking cosmic, visionary paintings that have appeared on	**Meet the Author** Instruction—20-30 minutes **Sample Short Bio** *An award-winning author, storyteller, educator and environmental advocate, Jennifer Morgan gives programs for adults and children centered on her Universe Story Trilogy. Her books are used in classrooms around the world, particularly in Montessori schools as part of the Cosmic Education Curriculum for the elementary level, and have received numerous awards and endorsements from renowned scientists, educators and*

	than our sun. The star that made the calcium on earth no longer lives. It died a long time ago." Then someone will ask, "How did the calcium get into earth?" You say, "Ahh, so glad you asked, because I'm going to tell you a story about the ancient star that made our calcium, how it died in a big explosion, and how it's dust formed into our solar system. But to tell that story we have to go way back to the beginning of the universe. Because, where did *that* star come from?" **Science concepts before starting story** Before starting the story explain two science concepts. ***That the universe started out small.*** You can explain that Edwin Hubble saw through his telescope that galaxies were moving farther and farther away. He showed this to Albert Einstein. They figured out that the universe is expanding. Looking backward in time, they figured out that the universe must have started out very very small. [Be sure to inject your own amazement about the universe being small and how hard it is to imagine because the universe is so different today. Don't feel like you have to know it all. You can always say that you don't understand it either. Kids love these mind bending ideas even if they don't understand them.] ***Age of the universe.*** Explain that now we know that the universe is 13.7 billion years old. (*Born with a Bang* says 13 billion year old because it was published before the WMAP probe revealed the age to be 13.7 billion years old.) Point to the time line and give them a sense of how much time elapsed before humans evolved. **Prepare students to hear the story** Make sure that students are seated comfortably. Put your robe on (if you have one) and explain that you're going to make a sound with the thunder tube (or bell or whatever) and then you'll tell the story in universe voice because the narrator of the story is the universe. [The noise	<table><tr><td>1.</td><td>2.</td><td>3.</td><td>4.</td></tr><tr><td>5.</td><td>6.</td><td>7.</td><td>8.</td></tr></table> ✓ On the bottom of each box, have them write the numbers as shown above. ✓ Give them the handout titled "Sequence of Events in the Formation of the Solar System." There are eight events, one for each box. ✓ Instruct them to draw a picture for each event in the appropriate box.	book covers, cd's and magazines. Dana is not only a painter but also an illustrator, writer, playwright, philosopher and teacher. Dana teaches art & creativity classes at the Ananda Institute of Alternative Living. For her undergrad, Dana went to Colorado College majoring in philosophy followed by a masters degree in art and consciousness studies received from the John F Kennedy University. Dana is a resident of Ananda Village, a Yoga Community in the Sierra Nevada of California. She is currently artist in resident at the Institute of Noetic Sciences. (IONS) Some of the questions covered: ✓ How did you get into painting? ✓ How much has your education helped you with your art? How hard was it to make the transition form being a painter to working as an illustrator? ✓ Can you briefly outline your creative process when starting on a new piece? ✓ Most of your paintings are very large. Why do you prefer to work in such a format? ✓ You are also teaching workshops on creativity. How does one learn to be creative?	*thinkers. Select "endorsements" from the menu to read endorsements for each book. Select "programs" for more information about programs she can offer for your school or organization.*

	maker is a very important cue for them, helping them to transition to deep time and space.] Tell them that at the end of the story you'll make the same sound again and then you be back to being yourself. Tell them to hold their questions until the story is over. **Tell the Story** As part of your preparation, you figured out what level of detail you would include in your telling. Reading the bold type only is an option for younger children; reading all the text on a page is approprate for older children. If you have read the story and internalized it, you can tell the story in your own words while using the pictures. The better you know the story, the more fun the telling will be. You can play with telling it in different ways. **Discussion** After the story, students will be bursting with questions and comments so be sure to give them plenty of time to talk right after the story while it's still fresh. Children can ask incredible questions, trying to plumb the mysteries of the universe, and one of your most important jobs is to give them space to ask questions, even if you don't know the answer. Answering the question is not so much the point as allowing them to think of the question. Explain to them that this is what scientists do: they think about what they learn and ask questions.			

Student Activities and Timeline	**Sample Group Activity specific to the required reading standard for duration of the Unit** Group generated *Author Study Chart*—displayed and added to throughout the unit. By generating a group K-W-L model/chart students are able to practice identifying the author's purpose for writing text (i.e., to inform, explain, describe) while at the same time learning other objectives related to the cultural theme and topics—the study of the Universe. For the purpose of this curricular sample and required reading standard, students will be assessed by their *Book Response*s and/or *Book Reports*. Group lessons and activities lead up to and provide an opportunity to assess student progress and mastery not only for the specified standard, but for all of the standards listed in the required reading strand & cluster.

Sample Chart Lay-out

Visiting Author—*Jennifer Morgan* **Visiting Illustrator**—*Dana Lynne Andersen*	"The Big Bang" *(Sample title based on topic & details from the book)*		
Author's Purpose *(Topic)* *To inform…* *To explain…* *To describe…*	K *What we think we Know* *(pre-reading/"brainstorming")*	W *What we Want to know* *(pre-reading/during reading)*	L *What we have Learned* *(includes information, explanations & descriptions taken from the text)*
1st CHART Title-- *Born with a Bang* 	*(Student contributions pasted/recorded here)*	*(Student contributions pasted/recorded here)*	*(Student contributions pasted/recorded here)*
2nd CHART Title--*From Lava to Life* 			
3rd CHART Title—*Mammals Who Morph* 			

	After Lesson 1, and throughout unit	**After Lesson 2,** and throughout unit	**After Lesson 3**
	Individual: Add questions, things learned, etc. to KWL chart.	**Individual:** Repeat the activity from Lesson 2 and add pictures to the group KWL chart. **Individual:** Research a related topic of interest. Select a book and complete a Non-fiction Book Report for a book about your topic.	**Individual:** Copy the Artist (Have set up in the artist area of the classroom) Students can study & imitate Andersen's medium and style & create an "original" illustration for the book *Born with a Bang!* **Individual/Partner:** Pretend you are a reporter and you will be interviewing the author or illustrator about topics and information covered in the book. Once you

			have created a few questions, ask a friend/classmate to be the author and answer the questions. Let them use the book to confirm answers, if necessary.