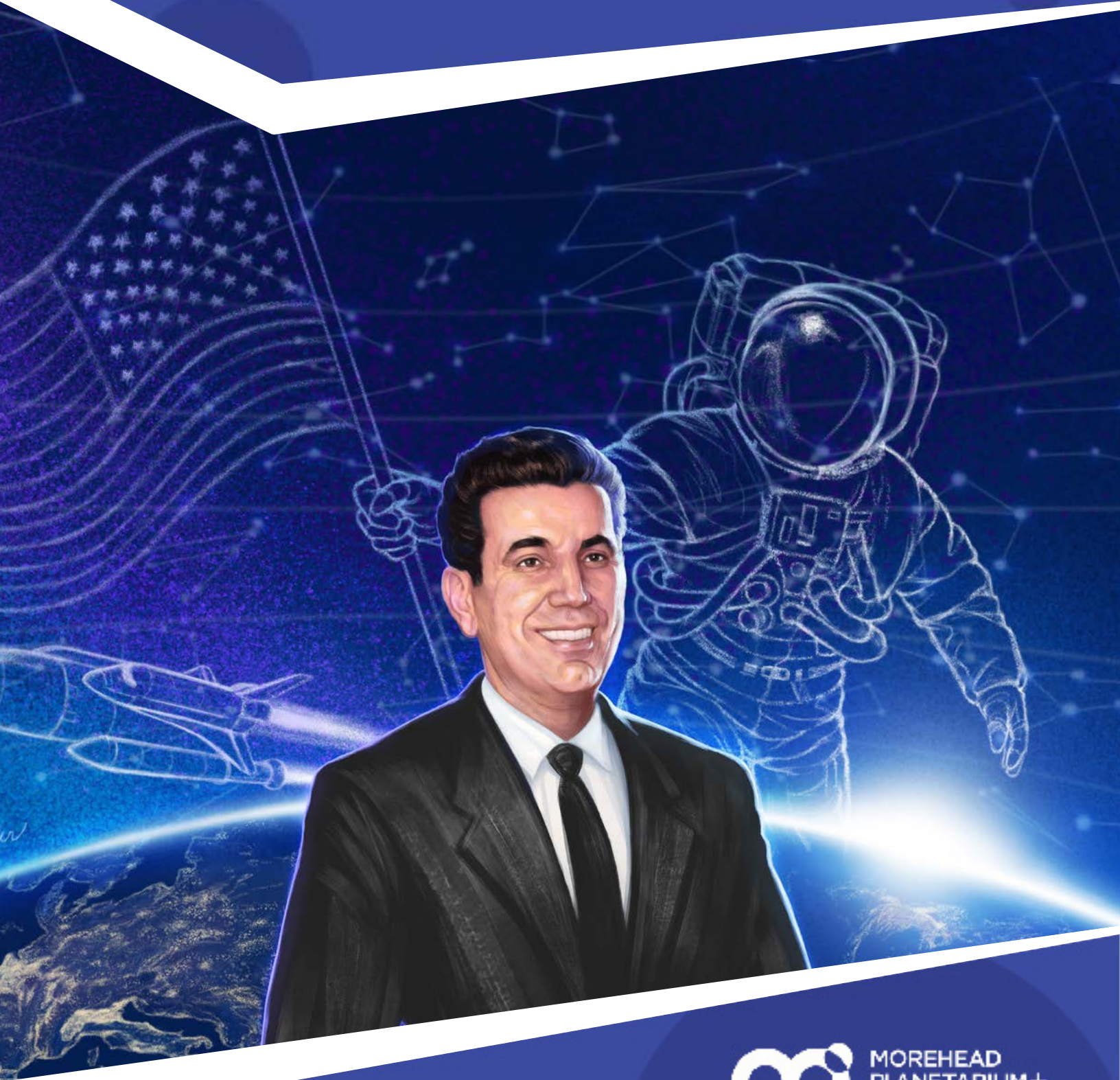


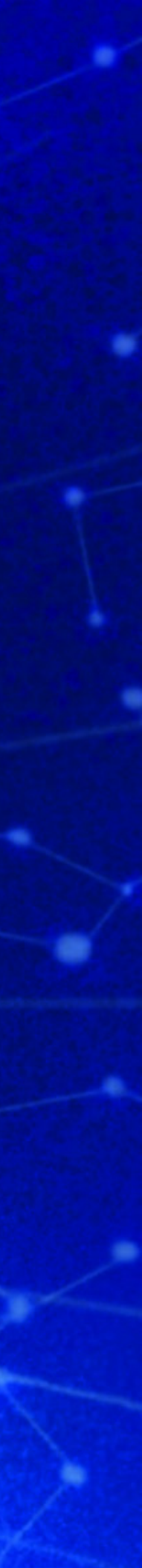
# Tony Jenzano, Astronaut Trainer

The Man Who Made the Stars Shine

## Educator's Guide



MOREHEAD  
PLANETARIUM +  
SCIENCE CENTER



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# EDUCATOR'S GUIDE

*TONY JENZANO, ASTRONAUT TRAINER:  
THE MAN WHO MADE THE STARS SHINE*

BY MICHAEL G. NEECE, MAT

ILLUSTRATIONS BY BENLIN ALEXANDER



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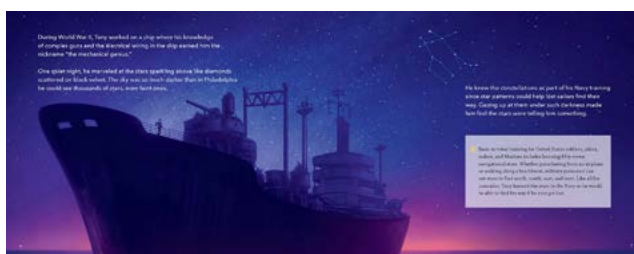
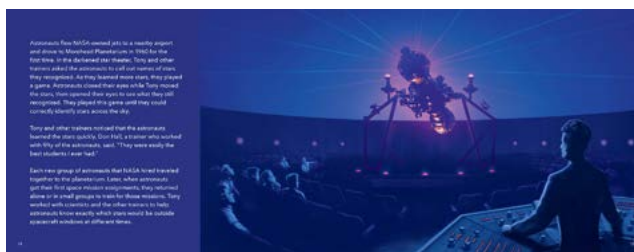
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# INTRODUCTION

**T**ony Jenzano, *Astronaut Trainer: The Man Who Made the Stars Shine*, the first children's picture book published by Morehead Planetarium and Science Center, follows starry-eyed Tony Jenzano as he becomes an essential but hidden part of the United States space program. Illustrated in a warm, realistic style by Benlin Alexander, this little-known story begins with the young Tony, born the son of Italian immigrants in Philadelphia, and follows his adventures in the Navy and then to North Carolina, where he led Morehead Planetarium and taught astronauts about stars and constellations that helped them navigate in space.

The book lends itself well to a wide variety of educational opportunities, both in the classroom and at home. Activities and projects in this guide address curriculum standards for grades 2–5 across English language arts, STEM, social studies, and visual arts. The book also provides a compelling story that allows children to see possibilities for making a difference in the world, no matter their origins.

The ideas provided in this guide are meant to give you a taste of the options available to you. I encourage you, as a front-line educator, to ask me questions, give feedback, and suggest other activities at [Morehead\\_Publications@unc.edu](mailto:Morehead_Publications@unc.edu).



## CLASSROOM ACTIVITIES & PROJECTS

# ENGLISH LANGUAGE ARTS

### WRITE THE BOOK YOU WANT TO READ

Challenge your students to write a book they want to read. Use information in the “Advice for Writers of All Ages” and “How I Wrote *Tony Jenzano, Astronaut Trainer*” sections below to frame this assignment.

***Iterative writing process.*** Involve students in the iterative book-writing process by having them start writing their book at the beginning of the school year. After a short period of research, a reasonable story can be created. Students get feedback from you and from a small handful of classmates, then more research combined with examination of feedback can lead to a first revision. A second round of feedback and research can lead to a second revision. I recommend that students spend no more than two quarters (one semester) of a school year working on this project, since this can be time-consuming and student focus can wane over the course of projects that take multiple weeks.



***Group activity variation.*** Subset your class into groups or get the whole class to commit to creating a single book together. Some students

can focus on research and writing, others on illustrating, and others on book design (exploring handmade books or desktop publishing). These categories lend themselves to collaborations among science, language arts, visual arts and technology teachers.

## BIOGRAPHICAL REPORTS & PROJECTS

**BOOK REPORT OR PRESENTATION.** Ask students to summarize the book's depiction of Tony Jenzano, making connections to the era of the Space Race in American history. They can write a traditional book report or use PowerPoint, video, and posters to create a multi-media presentation about the book.

**READ ABOUT MORE PEOPLE IN THE SPACE RACE.** Tony is just one of the people who worked behind the scenes to make the Moon landings a success. For a long time, many of their stories were not widely known. Now, their stories are increasingly coming to light. Invite your students to learn about these people, too, in biographies and autobiographies like these:

- *Hidden Figures: The True Story of Four Black Women and the Space Race*, written by Margot Lee Shetterly and illustrated by Laura Freeman (Preschool–Grade 3)
- *Margaret and the Moon: How Margaret Hamilton Saved the First Moon Landing*, written by Dean Robbins and illustrated by Lucy Knisley (Preschool–Grade 3)
- *When Sparks Fly: The True Story of Robert Goddard, the Father of US Rocketry*, written by Kristen Fulton and illustrated by Diego Funck (Preschool–Grade 3).
- *Hidden Figures Young Readers' Edition*, written by Margot Lee Shetterly (Grades 3–7)
- *Reaching for the Moon: The Autobiography of NASA Mathematician Katherine Johnson* (Grades 5 and up)



## BACKGROUND INFORMATION

**ADVICE FOR WRITERS OF ALL AGES.** I've learned four vitally important things about writing a book.

**1** You have to care a lot about what you decide to write about. Without that curiosity and interest, it can be hard to keep going when things get hard. If you love your subject, though, you can take breaks and get right back into it.

**2** If you are writing a story about real events and people, ask everyone for help. Most people want to help, and if they know they can give you answers, they will. People who knew Tony or who knew how to study history in depth pointed me to good stories, newspaper articles ... you name it!

**3** Get your thoughts out on paper to start with. They won't be perfect, they won't be what you keep, but wrong words on a page are better than no words on a page. At least if they are the wrong ones, you'll figure that out later as you look back at your work a few more times.

**4** The magic of writing happens during revising. Wrong words lead to better words. Better words eventually lead to good words. And good words finally lead to the right words. People who read your book only see the final words you chose, and those are the ones you can be proudest of, even while you remember how hard it was to get there.

When your students write, remind them that imperfections, mistakes, and moments of frustration are all conquered in the end as long as they don't give up.

**HOW I WROTE MY BOOK.** I worked at Morehead Planetarium as a college student. From 1991 to 1998, I presented simple shows and eventually gave the fully improvised constellation programs, then called "Sky Rambles." I learned to care for many of the pieces of equipment in the star theater, climbing under the flooring to lay electric wiring and climbing the steel frame of the outside of the planetarium dome to help dust it and get it ready for painting. With all these special projects, I found myself all over



the building, noticing pictures of astronauts lying around in the basement.

My supervisor during most of that period, James Horn, mentioned Tony Jenzano a few times as we discussed the star machine, special effects machines, slide projectors, and computer that I was being trained to support. One or two stories involved astronauts.

After I graduated from UNC, I went on to work in two other planetariums and started other kinds of work as well, teaching and working in the pharmaceutical industry. When I returned to Chapel Hill in 2007, I became a part-time show presenter at Morehead, now called Morehead Planetarium and Science Center, giving the constellation show, now called “Carolina Skies.” Becoming more curious about Tony Jenzano and the astronauts, I searched for “the book that will tell me everything about it!” and found nothing.

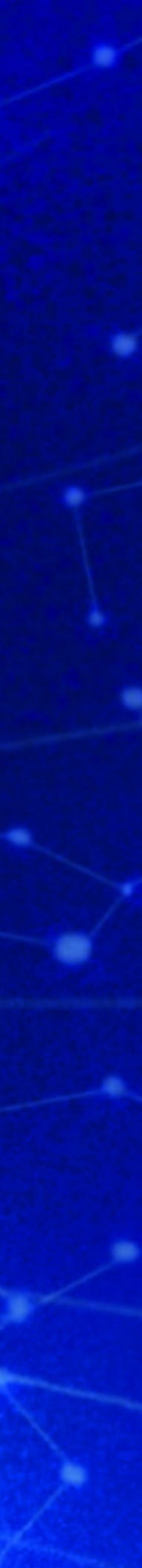
There were tantalizing news articles in the Chapel Hill newspapers and in UNC’s newspaper, *The Daily Tar Heel*. I heard more stories through James Horn, now retired, and Richard McColman, a mentor from my early days who still worked at Morehead.

I realized in 2016, having never written a history book before, I would nevertheless have to do exactly that. I decided to write the book I really wanted to read.

***Asking for help.*** I talked to the current director of Morehead Planetarium and Science Center, Todd Boyette, and got immediate support. He said, “Whatever support I can provide, I’m happy to do. You’ll be doing the institution a favor to help us understand our past better and tell our own stories.”

I found out all I could from newspapers, family members of Tony and other trainers, and even a trainer from the old days, Donald S. Hall. I spoke with astronauts Fred Haise (Apollo 13), James Lovell (Apollo 8 and Apollo 13), Charlie Duke (Apollo 16 moonwalker), Vance Brand (three-time Space Shuttle commander), and Story Musgrave (six-time Space Shuttle mission specialist).

One of my favorite people to talk to was Carol Jenzano, Tony’s daughter. She shared her personal archives of her dad’s letters, photographs, and files—plus a great many stories told over a meal, a coffee, or



just over the phone.

The Chapel Hill Historical Society and the Morehead Planetarium and Science Center archives both turned up many documents useful to writing a book.

***Writing & revising.*** In early 2018, I realized a children's book would be the more appropriate book to write first. While a history book was the original goal, I recognized that thousands of children attended planetarium shows during field trips and many families would come for shows on weekends and holidays. Bringing a hopeful story, one specifically focused on Tony, to children suddenly seemed vital.

In January 2018, I wrote a draft of the book. I attended workshops provided by Susie Wilde on how to write children's books. I consulted with other authors I knew, and spoke with my most trusted friends at the planetarium. While getting so much good advice on how to make the story better, I revised the book an additional six times. The final time was after showing the book to Carol and getting her input.

## CLASSROOM ACTIVITIES & PROJECTS

# SOCIAL STUDIES

### HISTORY OF SPACE EXPLORATION

Students are likely to know the names and stories of some explorers—those making discoveries in space, on the Moon, and on Earth. Several twists and turns can be added to standard biography projects by using *Tony Jenzano, Astronaut Trainer* as a springboard to learning about space and the history of space exploration: Here are some of the topics that students can research and report on:

- Upcoming and proposed human missions to the International Space Station, the Moon, Mars, Europa, Alpha Centauri, and more.
- Minorities and women who were excluded from the astronaut ranks in the early days.
- Astronauts who come from their state, whether currently training or working as astronauts or formerly in the astronaut program.
- Stories of NASA flight controllers, engineers, and mathematicians working behind the scenes at NASA.
- Stories of less well-known astronauts from Tony Jenzano's training era, using the list of astronauts at the back of the book as a starting point.

### WAX MUSEUM

In a wax museum, historical and famous people are represented by sculptures made of wax. Because wax is incredibly easy to shape and reshape as needed and holds form quite well if kept cool enough, these figures can look amazingly lifelike. Because wax museums held such mystique in the public mind decades ago, people still know of them, even though they are quite rare in the modern world.

Each student selects a famous or historical figure to represent, then learns enough about that person to pretend to be that “wax figure” at a museum for visitors on the day of the presentation. Students can also be tasked with writing informational signs and labels for their museum.

## IMMIGRATION & IMMIGRANTS

Tony Jenzano was one of ten children born to Italian immigrants living in Philadelphia, Pennsylvania. Students can:

- research and report on Italian immigrants in the early 1900s.
- research and report on famous people, including scientists and astronauts, who were immigrants or children of immigrants and compare their experiences to Tony’s experience.
- Learn about patterns of and reasons for migration in the United States or in the students’ own state or region.





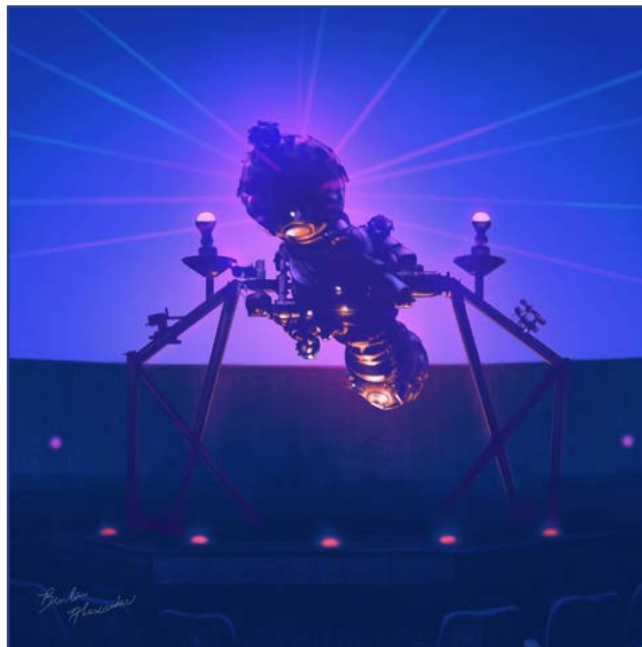
## CLASSROOM ACTIVITIES & PROJECTS

# SCIENCE, TECHNOLOGY, ENGINEERING, & MATH

### PAPER CUP PLANETARIUM

The Zeiss II planetarium star projector that Tony Jenzano cared for was an amazing device. Students can research modern star projection systems used in today's museums and planetariums as one part of this activity, but for a hands-on component, try the following—

A modern star projection system planetarium device costs as much as a car (or a house!), but your students can create a much cheaper “Paper Cup Planetarium.” This involves a small paper cup, printouts of constellations you hope to teach on paper discs the size of the mouth of the cup, a pushpin to poke holes in those discs, and an LED light powered by a small battery. For detailed instructions and patterns, use the California Academy of Sciences’ activity guide here: <https://www.calacademy.org/educators/lesson-plans/paper-cup-planetarium>.



### SKYWATCHING

In all skywatching activities, relate the importance of first-hand observations in scientific discovery, and have students keep a journal. They can note weather conditions and cloud percentage. They can make

sketches of anything they see with the naked eye or through binoculars or a telescope. Some ways to watch the sky:

- Bring your students to a planetarium and request a live constellation program.
- Look for notices of local astronomy club skywatching sessions in your area. Either bring your students on a field trip to one of those skywatching sessions or give the information to their parents and recommend they take students.
- Introduce sky chart printouts and skywatching apps to your students in class, then assign the task of locating:
  - Sunset, giving a rough idea of where west is.
  - Sunrise, giving a rough idea of where east is.
  - The North Star, Polaris, possibly using a compass and star map as aids.
  - Constellations of your choosing. (Pick prominent ones like Orion and Ursa Major first!).
  - The Moon, noting its phase a few nights in a row or each night for a month.

## KINESTHETIC ASTRONOMY

By moving around their own classroom or other open space, students can learn about Earth's rotation and how this makes the Sun appear to rise, travel across the sky, and set. Check out this great activity, "Kinesthetic Astronomy: Earth's Rotation," detailed by our friends at California Academy of Sciences: <https://www.calacademy.org/educators/lesson-plans/kinesthetic-astronomy-earths-rotation>.

## SPACE MATH

Our planet and the night sky above are filled with math. Here are some ideas for using astronomy to teach math concepts.

**SCALE & PROPORTION.** Our universe provides numerous fascinating celestial objects for students to compare in terms of scale and proportion:

- Use models or pictures of Earth, the Moon, and other Solar System bodies (such as our Sun, Mercury, Jupiter, and other planets) to teach students about scale factors, proportions, and other concepts related to geometric shapes.
- NASA provides information and worksheets for the activities for Grades 3-5: “The Relative Sizes of Planets and other Objects,” “Comparing Planets Orbiting other Stars,” and “Big Moons and Small Planets” (<https://spacemath.gsfc.nasa.gov/grade35.html>).

**TIME ZONES.** Involve students in activities that explore the concept of time as it relates to their own position on our planet (or on other planets and the Moon):

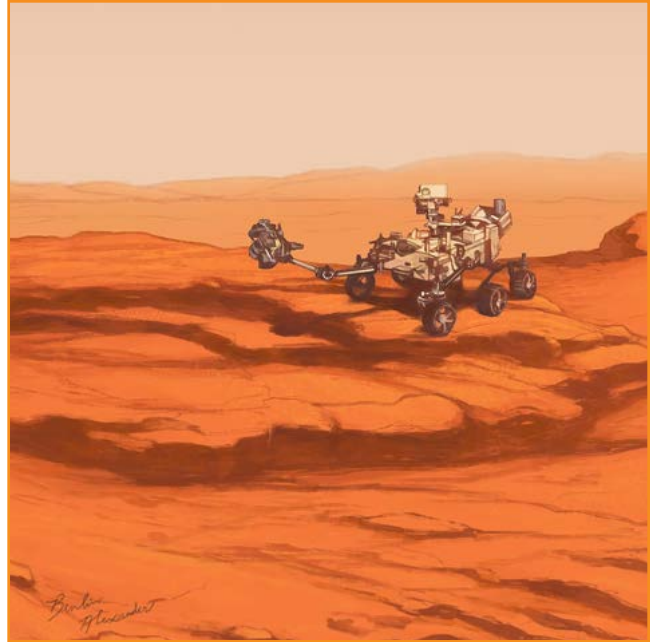
- Discuss how, when, and why time zones were invented and adopted. Relate this topic to Social Studies.
- Help students identify which time zone they live in and ask them to figure out the time in different parts of the United States and the world. NASA provides information about time zones and Universal Time here: <https://eclipse.gsfc.nasa.gov/SEhelp/TimeZone.html>.
- Ask older students to consider whether time is the same on other planets as it is on Earth. What time is it on the Moon? Consult <http://lunar-clock.org/> to learn about the Lunar Calendar and Lunar Standard Time.
- Try some of NASA’s time zone math activities for grades 3-5: <https://spacemath.gsfc.nasa.gov/Grade35/5Page3.pdf> and <https://spacemath.gsfc.nasa.gov/Grade35/WeekAL.pdf>.

**DEGREES & DIRECTIONS.** Help students learn about degrees and directions by connecting these concepts to the students’ own position on Earth with these activities:

- Invite students to determine directions by using sunset, sunrise, or the North Star.
- Teach students to use a compass and observe the difference in de-

degrees as they face one direction, then another.

- Extend this lesson by drawing with chalk on pavement or using colorful tape to mark the classroom floor. Have one student stand with the compass and mark their position at their feet. Other students can draw a large circle, perhaps 10 feet in diameter, around that student. As the student points at various stars, planets, and the moon, markings along that circle can be made and degree measurements can be made for various objects marked along that circle.
- The “Kinesthetic Astronomy” activity mentioned above can help students learn about degree measurements related to Earth’s rotation. Connect this to the number of hours required for one rotation (24 hours), thus a rotational speed of degrees per hour.





## CLASSROOM ACTIVITIES & PROJECTS

# VISUAL ARTS

### USING PHOTOGRAPHS AS ART REFERENCES

One way to produce realistic art—like the illustrations created by Benlin Alexander for *Tony Jenzano, Astronaut Trainer*—is to refer to photographs. Using a photograph allows an artist to refer to an image that doesn't change. You can probably think of examples of real-live images that change as artists attempt to capture them on canvas or paper—someone sitting for a portrait shifts position and eventually leaves the artist's studio, shadows lengthen and clouds drift across a landscape, pedestrians and traffic in a cityscape hurry along. Another advantage of photographs is that they persist. Thus, an artist can refer to an image that was captured by a photographer yesterday or 100 years ago. Photography, like written words, will last a long time and allow us to experience the past.

The following three activities will involve your students in considering photographs as art references.

**PHOTOGRAPHS OF SOLAR SYSTEM OBJECTS.** NASA's Jet Propulsion Laboratory provides resources for teaching young artists how to create art based on images of objects in our Solar System. Earth's Moon and the moons of other planets are among the large collection of images provided for reference. Students match geological shapes to artistic elements like line, texture, color, and value. Tips for differentiating the activity according to grade level are also included. You can find the "Art and the Cosmic Connection" activity here: <https://www.jpl.nasa.gov/edu/teach/activity/art-the-cosmic-connection/>

**SELFIES & FAMILY ALBUMS.** Invite students to create an artwork based on one or more photographs from their family album or from digital photographs they have taken of themselves, an occasion, or a setting

that is interesting or meaningful to them. A class discussion of Benlin Alexander's artistic choices in *Tony Jenzano, Astronaut Trainer* (mentioned below) can help students begin to think about their own artistic choices. Which photograph or photographs will they select to use as reference. Which stylistic approach will they take—photo-realism, cartooning, impressionism, or another style? Will they supply color to a scene depicted in a black-and-white image, or will they change the colors in a color photograph? Will they crop the image? Will they add additional details?

**ARTISTIC CHOICES IN TONY JENZANO, ASTRONAUT TRAINER.** Ask students to consider how and why Benlin Alexander chose certain elements for the final illustration of astronauts in the Gemini Training Chair.

When Benlin was asked to use photographs as references for producing illustrations for the book, he asked the natural question: “Are the photographs available for that kind of use?” When proper permissions were obtained, he was able to use the photographs in several ways to create his own illustrations.

One can imagine the process of creating an illustration that nearly duplicates the original photograph. Benlin, however, enjoyed the challenge of pulling elements from several photographs into one illustration. As an example, see the two photographs in the hand-out “Picturing Astronaut Training,” which show different pairs of astronauts sitting in the Gemini training chair in the planetarium theater, then compare them to the illustration in the book.



## BACKGROUND INFORMATION

**USING OTHER PEOPLE'S PHOTOGRAPHS.** Important questions of fairness and respect for other artists will arise when using other people's photographs as references. How will the photographer, an artist who cap-

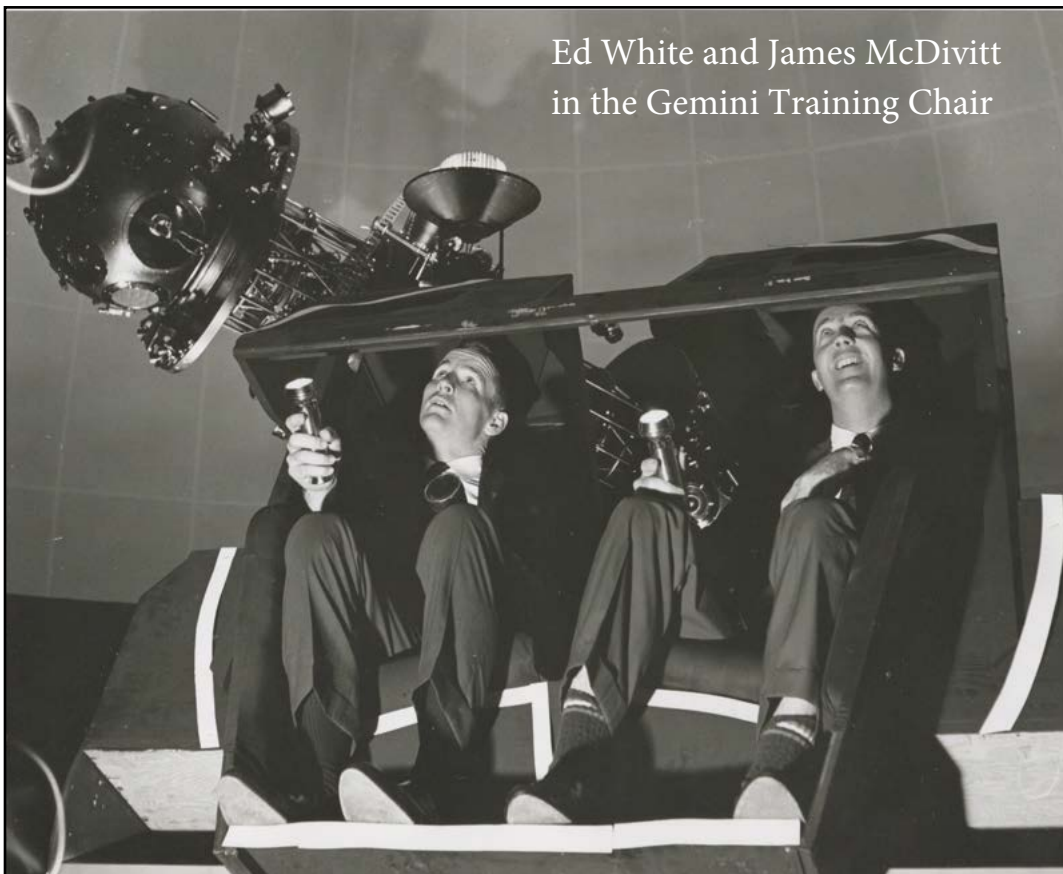
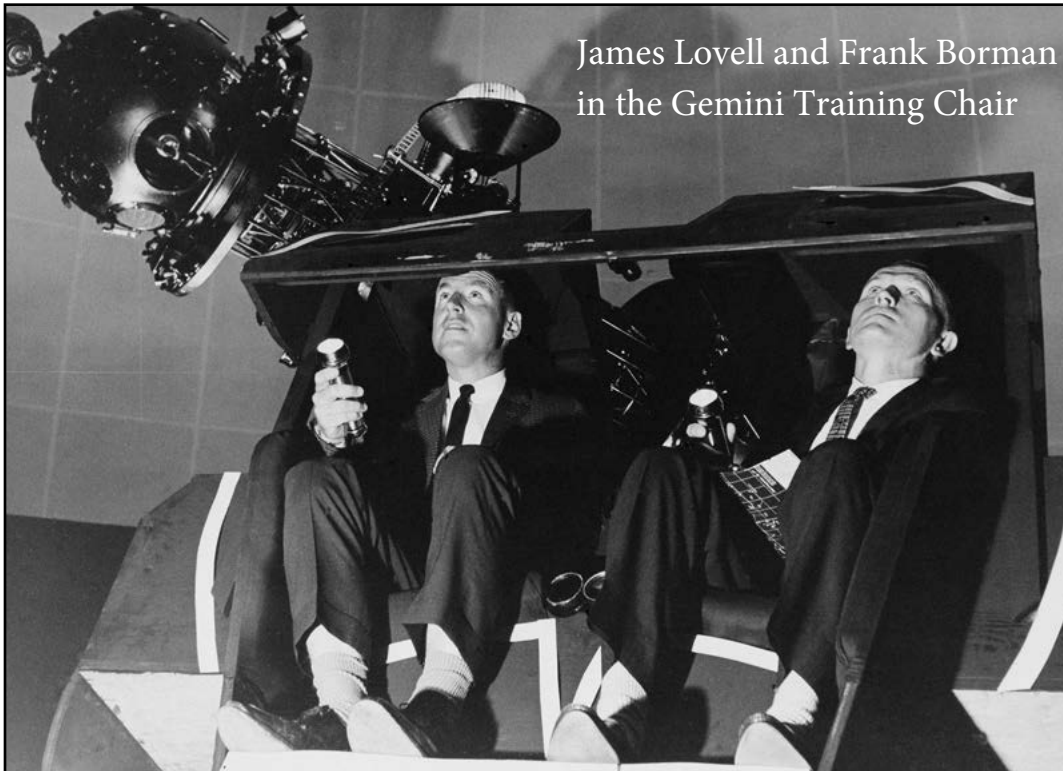
tured images with a camera, be compensated or at least consulted about this use of the photograph? What if the photographer doesn't want the photo used in this way?

Copying a photographic image by recreating it as a sketch, painting, or sculpture may not appear to be a question for ethicists. However, imagine that a second photographer took the first photographer's image and just snapped a photo of it. What if that second photographer scanned the photo and edited it with software to make only minor changes, then sold copies of that edited photograph without consulting the first photographer? Clearly, this would be a form of plagiarism.

More information about using photographs as references for making art can be found in "Artists and Copyright: Painting From Reference Photos " here: <https://www.thesprucecrafts.com/paintings-from-photos-in-books-or-field-guides-2573675>.

# PICTURING ASTRONAUT TRAINING

*at Morehead Planetarium in North Carolina*



Photographs courtesy of UNC Wilson Library, The North Carolina Collection (top), and NASA (bottom)



# CONNECTIONS TO YOUR LOCATION

**E**ducators in various locations have opportunities to relate *Tony Jenzano, Astronaut Trainer* to their students' local environments and resources. Here are some ideas to consider.

## **EDUCATORS IN NORTH CAROLINA** can:

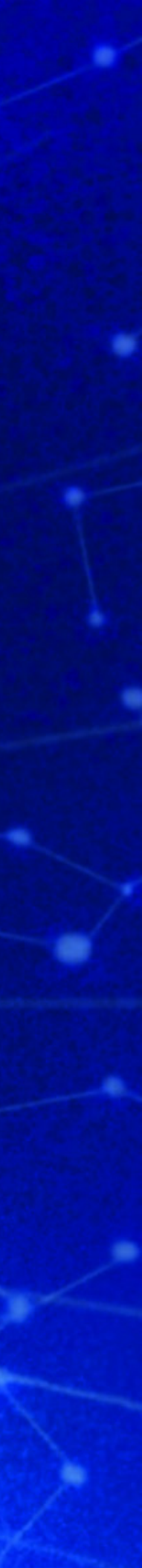
- invite students to research and write about North Carolinians involved in space exploration (e.g., Charlie Duke, Ronald McNair, Christina Koch, and other astronauts; NASA director James E. Webb, for whom the James Webb Space Telescope is named).
- discuss John Motley Morehead III (a chemist who made a fortune in business) and his gift of Morehead Planetarium to North Carolina, and consider what charitable deeds they would like to do for their own community if they had a great fortune. Would they build a planetarium or do something else?
- take a field trip to Morehead Planetarium and Science Center, request a school visit by Morehead's mobile planetarium, or visit a more local planetarium.

**EDUCATORS IN PENNSYLVANIA** can involve students in exploring how Tony's early story is tied to Philadelphia and his earliest planetarium work at Franklin Institute's Fels Planetarium.

**EDUCATORS IN HOUSTON & LOS ANGELES** can direct students to the list of astronaut training planetariums at the back of the book and research their local planetarium's astronaut training history.

## **EDUCATORS IN THE UNITED STATES** can invite students to:

- find out more about NASA's early space program or about NASA's



current missions.

- learn about astronauts (from the list of sixty-two at the back of the book) who have local connections.
- visit a local planetarium or science museum.

**EDUCATORS OUTSIDE THE U.S.** can invite students to:

- research and write about their national space program and astronauts from their country who have worked on the International Space Station.
- learn about the constellations and celestial events visible in their part of the world during the year.
- visit a local planetarium or science museum.

# NORTH CAROLINA ESSENTIAL STANDARDS

## SECOND GRADE

### ENGLISH LANGUAGE ARTS

RL.2.1—Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

RL.2.3—Describe how characters in a story respond to major events and challenges.

RL.2.7—Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.

RI.2.10—By the end of grade 2, read and understand informational texts within the 2–3 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text.

W.2.5—Participate in shared research and writing projects.

SL.2.2—Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

### SOCIAL STUDIES

2.H.1—Understand how various sources provide information about the past.

2.H.1.1—Use timelines to show sequencing of events.

2.H.1—Understand how various sources provide information about the past.

2.H.1.2—Identify contributions of historical figures (community, state, nation and world) through various genres.

2.C&G.2—Understand the roles and responsibilities of citizens.

2.C&G.2.1—Exemplify characteristics of good citizenship through historical figures and everyday citizens.

- 2.C&G.2—Understand the roles and responsibilities of citizens.
- 2.C&G.2.2—Explain why it is important for citizens to participate in their community.
- 2.C.1—Understand how various cultures influence communities.
- 2.C.1.3—Exemplify respect and appropriate social skills needed for working with diverse groups.

## **VISUAL ARTS**

- 2.V.1—Use the language of visual arts to communicate effectively.
- 2.V.1.3—Understand the “story” in works of art.
- 2.CX.2—Understand the interdisciplinary connections and life applications of the visual arts.
- 2.CX.2.2—Understand relationships between art and concepts from other disciplines, such as math, science, language arts, social studies, and other arts.

## **THIRD GRADE**

### **ENGLISH LANGUAGE ARTS**

- RL.3.1—Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RL.3.3—Describe characters in a story and explain how their actions contribute to the sequence of events.
- RL.3.4—Determine the meaning of words and phrases as they are used in a text, identifying words that impact the meaning in a text.
- RL.3.7—Explain how specific aspects of a text’s illustrations contribute to what is conveyed by the words in a story.
- RL.3.10—By the end of grade 3, read and understand literature at the high end of the 2-3 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text.
- RF.3.4—Know and apply grade-level phonics and word analysis skills in decoding words.
- W.3.5—Conduct short research projects that build knowledge about a topic.
- SL.3.1—Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing



their own clearly.

SL.3.2—Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

SL.3.3—Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

SL.3.4—Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly in complete sentences at an understandable pace.

## **SCIENCE**

3.E.1—Recognize the major components and patterns observed in the earth/moon/sun system.

3.E.1.2—Recognize that changes in the length and direction of an object's shadow indicate the apparent changing position of the Sun during the day although the patterns of the stars in the sky, to include the Sun, stay the same.

## **VISUAL ARTS**

3.V.2—Apply creative and critical thinking skills to artistic expression.

3.V.2.3—Create art from realistic sources of inspiration.

3.CX.1—Understand the global, historical, societal, and cultural contexts of the visual arts.

3.CX.1.2—Understand how art documents the history of the local community.

3.CX.2—Understand the interdisciplinary connections and life applications of the visual arts.

3.CX.2.2—Understand how to use information learned in other disciplines, such as math, science, language arts, social studies, and other arts in visual arts.

# **FOURTH GRADE**

## **ENGLISH LANGUAGE ARTS**

RL.4.4—Determine the meaning of words and phrases as they are used in a text, including words that affect meaning and tone.

RI.4.1—Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

RI.4.2—Determine the main idea of a text and explain how it is supported by key details; summarize the text.

RI.4.3—Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

RI.4.5—Describe the overall structure of events, ideas, concepts, or information in a text or part of a text.

RI.4.7—Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.

RI.4.8—Explain how an author uses reasons and evidence to support particular points in a text.

W.4.5—Conduct short research projects that build knowledge through investigation of different aspects of a topic.

SL.4.1—Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.2—Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

SL.4.4—Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; adjust speech as appropriate to formal and informal discourse.

## **VISUAL ARTS**

4.V.2—Apply creative and critical thinking skills to artistic expression.

4.V.2.2—Use ideas and imagery from North Carolina as sources for creating art.

4.CX.1—Understand the global, historical, societal, and cultural contexts of the visual arts.

4.CX.1.1—Understand how the visual arts have affected, and are reflected in, the culture, traditions, and history of North Carolina.

4.CX.1.3—Classify NC artists in terms of styles, genre, and/or movements.

4.CX.1.5—Analyze the effect of the geographic location and physical environment on the media and subject matter of NC art and artists.

4.CX.2—Understand the interdisciplinary connections and life applications of the visual arts.

4.CX.2.2—Apply skills and concepts learned in other disciplines, such as math, science, language arts, social studies, and other arts, in the visual arts.

4.CX.2.4—Explain the effect of technology on the way products look and how they are created.

## FIFTH GRADE

### ENGLISH LANGUAGE ARTS

RL.5.1—Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

RL.5.2—Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

RL.5.4—Determine the meaning of words and phrases as they are used in a text, recognizing specific word choices that contribute to meaning and tone.

RL.5.5—Explain how chapters, scenes, or stanzas provide the overall structure of a particular story, drama, or poem.

RL.5.7—Analyze how visual and multimedia elements contribute to the meaning, tone, or aesthetics of a text.

RI.5.1—Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

RI.5.2—Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

RI.5.3—Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.4—Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

RI.5.5—Compare and contrast the overall structure of events, ideas, concepts, or information in two or more texts.

RI.5.7—Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question or to

solve a problem efficiently.

RI.5.8—Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

RI.5.9—Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

## **SCIENCE**

5.P.1—Understand force, motion and the relationship between them.

5.P.1.4—Predict the effect of a given force or a change in mass on the motion of an object.

## **VISUAL ARTS**

5.V.1—Use the language of visual arts to communicate effectively.

5.V.1.3—Classify works of art in terms of whether they are realistic, abstract, or non-objective.

5.V.2—Apply creative and critical thinking skills to artistic expression.

5.V.2.1—Evaluate solutions to artistic problems, including their effectiveness.