

njpac
arts
education

**schooltime
performance
series**



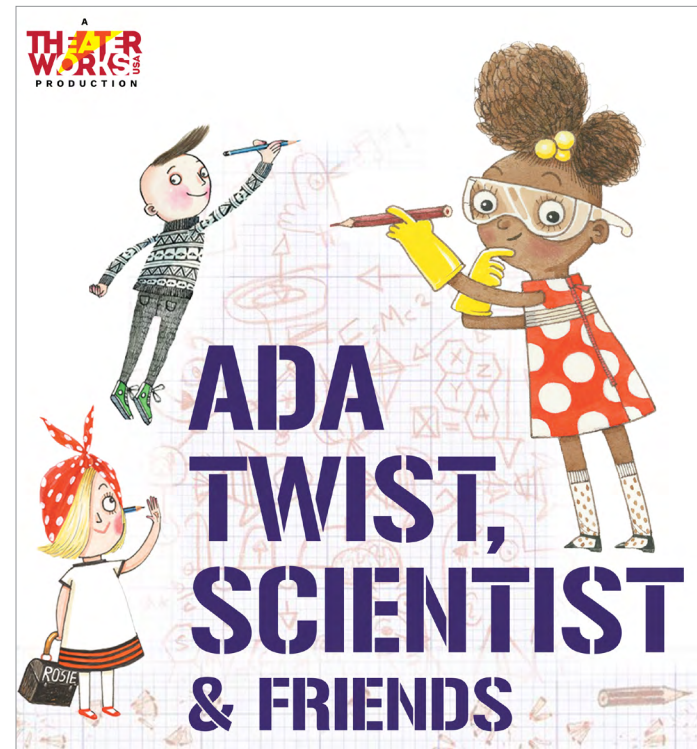
**ada twist,
scientist & friends**

teacher resource guide

about the performance

TheaterWorks USA brings an electrifying production of *Ada Twist, Scientist and Friends* to NJPAC. Students and pals Ada, Iggy and Rosie each possess a hearty passion and zest for architecture, lab science and engineering. Bold, persistent and investigative, the trio's passions are often misunderstood by both their classmates and their teacher, Ms. Greer. Ms. Greer's class sets out on a not so ordinary field trip which tests the trio's creativity, problem solving and team building skills. The friends find themselves as the heroes of this tale, tasked to valiantly save the day!

TheaterWorks USA was established as a nonprofit youth theater in New York City in 1961 by founders Charles Hull and Jay Harnick. The company since its incarnation has been committed to the development of original adaptations of beloved children's classics such as *Junie B. Jones* and *The Lion, the Witch and the Wardrobe*. TheaterWorks USA utilizes a resident acting company to tour their works across the 50 states (within schools and community spaces). The company contains a specific commitment to breaking down financial barriers for theatergoers, offering both low cost and complimentary ticket initiatives for both youth and their families.



cultural connections

TheaterWorks USA's production of *Ada Twist, Scientist in Friends* derives from three STEM-inspired children's books: *Rosie Revere, Engineer*; *Iggy Peck, Architect* and *Ada Twist, Scientist* by author Andrea Beaty. Beaty is a Southern Illinois University graduate with degrees in computer science and biology.

Ada Twist, Scientists and Friends is timely and imperative due to a push nationwide across American K – 12 classrooms to center STEM (Science, Technology, Mathematics) curriculum beginning in elementary school.

Ada, Rosie, and Iggy love to ask questions, build things, and try new ideas. Although they are a scientist, an engineer and an architect, they all do something very similar. They learn by trying, testing and creating. When scientists like Ada want to learn something, they follow steps. First, they ask a question like, "Why does this happen?" Then, they try something out (an experiment), see what happens and try again if it doesn't work the first time.

Artists do this too! When actors, dancers or musicians create something, they also:

Ask questions: What story do we want to tell?

Try things out: See what works and what doesn't

Make changes: That didn't work, let's try again!

Practice and share their work

Rosie builds inventions that don't always work the first time. Iggy creates buildings using his imagination. Ada asks "why" again and again, even when things get messy. Just like them, students can explore, create and discover in their own ways.



vocabulary

Architect

A person who designs an original building

Architecture

The "design" of a building completed by an architect

Atoms

The smallest building blocks of matter

Blueprint

An original design plan

Chemistry

A branch of science which explores what substances are found in matter such as air particles

Engineer

A designer/creator of tangible objects such as cars

Gravity

A force which any object with mass or energy is attracted to

Investigate

Chasing knowledge which starts off with a leading question

Laboratory

The work space for scientists where experiments are tested

Matter

Anything on Earth which takes up space and has mass

Physics

The branch of science which looks at elements such as space

Prop

An object used onstage by a performer

Tension

A pulling force which can travel through objects like string

Velocity

The speed at which an object or creatures moves at

Volcano

An opening in the Earth like a mountain which lava can flow out of

inspired learning for the classroom

	Teacher Focus	Student Activity	NJ Student Learning Standards
P	<p>Prepare</p> <p>Discover what your students already know about this art form, topic or type of performance. Then explain more fully what they will see at the theater and why it's important. This can be accomplished by sharing images, vocabulary, videos or context that might help them appreciate the performance more fully.</p>	<p>Ask students to discuss a time they built or created something from scratch. Next, introduce the vocabulary terms props, architect, architecture, chemistry and physics.</p> <p>Play the trailer for <i>Ada Twist, Scientist & Friends</i>.</p> <p>Allow students to pair up for a brief discussion using the questions below:</p> <ol style="list-style-type: none"> 1. What props are the actors using? 2. What task are the actors working on? <p>Next, have students respond to the following questions:</p> <ol style="list-style-type: none"> 1. Why does an architect need a team? 2. What are the building blocks of matter? 3. What's an everyday object that physicists test in their lab? 	<p>English Language Arts RL.CR.3.1., SL.PE.3.1.</p>
E	<p>Experience</p> <p>For some students, this may be their first time in a theater. Review audience etiquette and go over expectations for arrival and departure from the theater. Before watching the show, provide a discussion question for them to consider during the performance.</p> <p>Optional: At school, let students share a one-word answer to a prompt about how they feel (eg. which TV character do you feel like today? If you were a texture, what texture would you be?). After the field trip, ask students the same question and let them explain why they feel the same or why they feel differently.</p>	<p>With your students, kick-off with a class discussion, allowing students to respond from desks or in a circle. For responses, utilize chart paper if available for students to revisit their responses later.</p> <ol style="list-style-type: none"> 1. How is watching a live performance different from watching TV or film? 2. How can we show focus and a listening body to the onstage performers? 3. What character traits make someone a team-player? 4. Why may it be difficult and/or easy for someone to ask for help on a project? 	<p>English Language Arts RL.PP.3.5., SL.PE.3.1.</p>
R	<p>Reflect</p> <p>Give students a moment to think about their answer to the discussion question you introduced in the experience section. Then allow them to share their response out loud with the class. Next, have students reflect on the skillset of the performers they saw in the show. Go around the class and have each student fill in the following statement: "I can already _____ like the performers did, but I can't _____ yet!" After everyone is done, remind them that with enough time and practice, they can accomplish anything they set their minds to.</p>	<p>Allow the students to revisit their initial "Experience" responses before breaking the students off into break out groups of two or three to respond to the following. After their peer share, have a group representative report back to the full group.</p> <ol style="list-style-type: none"> 1. How do Rosie, Iggy and Ada offer a hand to each when struggling? 2. What is a lesson one member of the trio learned from another? 3. What strategies does the trio use to brainstorm an original idea? 4. If you could design your own architecture blueprint, what would you build? 5. What kind of materials would be needed for your construction? 	<p>English Language Arts RL.CR.3.1., RL.IT.3.3.</p> <p>Visual and Performing Arts Anchor Standard 7</p>
F	<p>Focus</p> <p>Use this time to review the vocabulary section and complete the <i>SchoolTime Activity Sheets</i>.</p>	<p>Now that your students have talked through values such as persistence, determination, courage, and creativity, have them review the vocabulary. Use <i>Activity Sheet 1</i> for students to select/advocate why their landmark is in need of repair. Use <i>Activity Sheet 2</i> for students to sketch and plan the key steps and needed materials for their landmark's redesign.</p>	<p>Science Standards 3-5-ETS1-1, 3-5-ETS1-2</p> <p>Visual and Performing Arts Anchor Standard 1</p>
O	<p>Originate</p> <p>After reviewing vocabulary, write a class poem about the performance, where each student adds a line. Once the poem is complete, read the poem as a class three times with each student saying the line they wrote. Before each repetition, give them a prompt to inform how they deliver their line (eg. say it like you're excited, scared, angry, etc.).</p> <p>Optional: To reinforce learning from the focus section, encourage students to incorporate all the vocabulary words.</p>		<p>Social Emotional Learning Self-Awareness, Social Awareness, Relationship Skills, Responsible Decision-Making</p> <p>Visual and Performing Arts Anchor Standard 1, 2, 5, 6, 7, 10</p>
R	<p>Rehearse</p> <p>Have each student draw their own picture inspired by the show and their class poem. As they are working, use this time to walk around and ask them each about what they are drawing, the materials they are using and what inspired them.</p>		<p>Social Emotional Learning Self-Awareness, Social Awareness, Relationship Skills, Responsible Decision-Making</p> <p>Visual and Performing Arts Anchor Standard 1, 2, 7, 8, 10</p>
M	<p>Mix it all together!</p> <p>Allow each student to present their artwork and discuss why they drew what they did, giving them an opportunity to express themselves visually and verbally.</p> <p>Between presentations, allow two or three students to describe their reactions to the artwork that was presented. Encourage them to use phrases like "It reminded me of _____" or "It made me feel _____" rather than describing the art as good or bad.</p> <p>Once everyone is done presenting, put the artwork up on the wall with the class poem to complete your students' poem gallery.</p>		<p>Social Emotional Learning Self-Awareness, Social Awareness, Relationship Skills, Responsible Decision-Making</p> <p>Visual and Performing Arts Anchor Standard 5, 6, 7, 8, 10</p>

curriculum standards

NJ English Language Arts

RL.CR.3.1.

Ask and answer questions and make relevant connections to demonstrate understanding of a literary text, referring explicitly to textual evidence as the basis for the answers.

SL.PE.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.

RI.PP.3.5.

Distinguish their own point of view from that of the author of a text.

SL.PE.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.

RL.CR.3.1.

Ask and answer questions and make relevant connections to demonstrate understanding of a literary text, referring explicitly to textual evidence as the basis for the answers.

RL.IT.3.3.

Describe the development of individual character's traits, motivations, or feelings and explain how their actions contribute to the plot within a text.

Science Standards

3-5-ETS1-1

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem

Visual and Performing Arts

Anchor Standard 1

Conceptualizing and generating ideas

Anchor Standard 2

Organizing and developing ideas

Anchor Standard 5

Develop and refine artistic techniques and work for presentation

Anchor Standard 6

Convey meaning through presentation of artistic work

Anchor Standard 7

Perceiving and analyzing products

Anchor Standard 8

Applying criteria to evaluate products

Anchor Standard 10

Synthesizing and relating knowledge and personal experiences to create products.

Social Emotional Learning

Responsible Decision Making

Recognizing how critical thinking skills are useful both inside and outside of school; Identifying solutions for personal and social problems; Learning how to make a reasoned judgment after analyzing information, data, and facts; Demonstrating curiosity and open-mindedness

Relationship Skills

Communicating effectively; Practicing teamwork and collaborative problem-solving

Self Awareness

Integrating personal & social identities; Identifying ones' emotions; Linking feelings, values and thoughts

Social Awareness

Taking others' perspectives; Showing concern for the feelings of others; demonstrating empathy and compassion

additional resources

NJPAC

About NJPAC

njpac.org/about

NJPAC's Arts Education programs

njpac.org/arts-education

NJPAC's David G. Berger Master Class Series

njpac.org/berger

Ada Twist, Scientist & Friends Activity Sheets

njpac.org/wp-content/uploads/2026/05/adatwist_activitysheets.pdf

Websites

Elementary School Science Experiments

sciencebuddies.org/science-experiments/elementary-school

12+ Engineering Challenges for Elementary School

sciencebuddies.org/blog/engineering-challenges-elementary-school

20 Elementary STEM Science Projects

teachbesideme.com/elementary-stem-science

50+ STEM Activities for Any Primary Classroom

stem.org.uk/system/files/elibrary-resources/2020/09/50%2B%20STEM%20activities%20for%20any%20classroom%20-%20Primary.pdf

14 Rocket Science Experiments That Defy Gravity

educationcorner.com/rocket-science-experiments

Engineering Activities For Elementary School

discovere.org/stem-activities/engineering-activities-for-elementary-school

Resources and Downloads for STEM

edutopia.org/article/STEM-resources-downloads

Resources for STEAM

edutopia.org/article/STEAM-resources

25 Fun & Easy STEM Projects for Kids That Boost Learning Through Play

diy.org/blogs/fun-easy-stem-projects-kids-learning

Elementary STEM Activities

littlebinsforlittlehands.com/early-elementary-stem-projects-kids

Engineering STEM Lesson Plans & Activities

tryengineering.org/explore-resources/lesson-plans

57 Free STEM Resources You'll Want to Bookmark Today

kaipodlearning.com/free-stem-resources

Engineering Projects for Kids

leftbraincraftbrain.com/engineering-projects-for-kids/?cn-reloaded=1

3-Dimensional Art Projects for STEAM Learning with Young Children

good2knownetwork.org/3-dimensional-art-projects-for-steam-learning-with-young-children

The Ultimate STEM Guide for Kids: 239 Cool Sites About Science, Technology, Engineering and Math

mastersindatascience.org/resources/the-ultimate-stem-guide-for-kids-239-cool-sites-about-science-technology-engineering-and-math

How did a WWII campaign endure to inspire today?

nationalgeographic.com/history/article/how-did-a-wwii-campaign-endure-to-inspire-today

Rosie the Riveter

history.com/articles/rosie-the-riveter

STEAM Crafts for Kids

craftprojectideas.com/now-trending/steam-crafts-for-kids

EngineerKids!

engineerkids.org

The What, Why, and How of STEM in Elementary Education

kidsparkeeducation.org/blog/what-is-stem-education-and-how-do-i-teach-it-in-elementary-school

STEAM Activity Ideas For Elementary Classrooms: Projects, Snack Recipes, Experiments, and Model Building

teachingexpertise.com/k-5/steam-activity

What is STEAM Education?

artsintegration.com/what-is-steam-education-in-k-12-schools

50 Ideas For Simple STEM Activities For Kids

teachthought.com/education-posts/simple-stem-activities-for-kids

100 STEAM Projects for Teachers

instructables.com/100-STEAM-Projects-for-Educators

bring the arts to your school

In-School Residencies

NJPAC teaching artists come right to your school to teach the performing arts to your students. Our super-flexible in-person residencies are designed to meet your needs and you'll have a dedicated program manager to help you every step of the way. It's the perfect program to keep your students creating, connecting and expressing themselves through the magic of the arts.

Professional Development

Calling all educators! Expand your teaching skills, deepen your curriculum and give yourself a creative boost in NJPAC's forward-thinking professional development workshops. Our virtual PD programs are for teachers all the way from pre-K to high school and include hip hop, dance, storytelling, theater, music and more. Not only will you learn something... you'll also have fun and be inspired.

NJPAC Arts Education Schooltime team*

Dr. Sherri-Ann Butterfield
*Senior Vice President,
Social Impact*

Rosa Hyde
*Senior Director,
Performances & Special Initiatives*

Dr. Patricio Molina
*Senior Director,
Faculty & Creative Practice*

Treasure Borde
*Senior Manager,
Performances & Special Initiatives*

April Jeffries
*Manager,
Outreach & Sales Manager*

Andrea Seigel
Teacher Resource Guide Committee

Sarah Mickle
Teacher Resource Guide Committee

Azriel Wallace
Teacher Resource Guide Committee

Rob Reddington
Teacher Resource Guide Committee

*This guide was written by
Rob Reddington and reviewed by
Dr. Patricio Molina

contact us!

For more information or to schedule an appointment, please email our team at artseducation@njpac.org. Or visit njpac.org/education

Generous support for SchoolTime provided, in part, by



M&T Bank



Turrell Fund



Made possible by funds from the New Jersey State Council on the Arts, a partner agency of the National Endowment for the Arts.

Generous support provided by The Joan and Allen Bildner Family Fund, Broadridge Financial Solutions, Inc., The Arts Education Endowment Fund in honor of Raymond C. Chambers, Jennifer A. Chalsty, Judy and Stewart Colton, Toby and Leon Cooperman, Mimi and Edwin Feliciano, The Izzo Family, Don Katz & Leslie Larson+, McCrane Foundation, Inc., care of Margrit McCrane, The MCJ Amelior Foundation, Albert+ and Katharine Merck+, NJ Advance Media, Pershing Square Philanthropies, David & Marian Rocker, The Sagner Companies/The Sagner Family Foundation and an anonymous donor.

+ deceased