Invention Convention

K-8 EDUCATOR GUIDE
Welcome to Invention Convention Week!

Each of the following pages highlights three examples of student activities by grade level, along with the related South Carolina curriculum standards that were included in the CReATE Kits for Invention Convention Week.

CReATE Kits were modeled after Engaging Creative Mind’s (ECM) national award-winning Summer STEAM Institute®, which was cancelled this year due to COVID-19, and the themed kits were distributed in July 2020 in partnership with local school districts. Students received all the materials, literature and instructions for five days of rigorous standards-based, interdisciplinary Arts Integration instruction.

CReATE Kits were funded with donations from ECM’s Academic Response Team (A.R.T.), which began in response to the COVID-19 pandemic. We are so grateful to our community, board members, and local businesses who donated and became a part of A.R.T. this summer. The investment provided over 350 students with STEAM (Science, Technology, Engineering, Arts and Math) activities they can do at home to combat spring and summer learning loss and prepare them for the new school year.

Sincerely,

Robin Berlinsky
Executive Director
Engaging Creative Minds

@EngagingCreativeMinds  @ECMCharleston
INVENTION CONVENTION SAMPLE ACTIVITIES:

• **SCIENCE & VISUAL ARTS** | Students put on their “Magical Inventor” glasses and use colored pencils to **design an invention** that would make the world a better place.

• **SOCIAL STUDIES & THEATRE** | Students read *Last Stop on Market Street* by Matt de la Peña, and then **create dramatic movements** representing all the things students want and need.

• **MATH & DANCE** | Students use Duplo® blocks to **build a community**, and then use movement to **show how people interact within their own communities**.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

• **SCIENCE** | Physical Science: Exploring Properties of Objects and Materials  
  o Conduct structured investigations to answer questions about which materials have the properties that are best suited to solve a problem or need

• **VISUAL ARTS** | Artistic Processes: Creating  
  o Identify structural challenges in the sculpture and make adjustments

• **SOCIAL STUDIES** | Economics  
  o Identify and compare wants and needs  
  o Explain how wants and needs change over time

• **THEATRE** | Artistic Processes: Performing  
  o Identify the function of performance and audience spaces

• **MATH** | Algebraic Thinking & Operations  
  o Model situations that involve addition and subtraction using objects, fingers, mental images, drawings, acting out situations, verbal explanations, expressions, and equations

• **DANCE** | Artistic Processes: Performing  
  o Demonstrate still and moving body shapes that show changes in levels and size
INVENTION CONVENTION SAMPLE ACTIVITIES:

- **SCIENCE & THEATRE** | Students wear their sunglasses and explain how they feel when outside in sunlight. Students explain how the sun feels on their skin and describe how the shadows change throughout the day, and then use dramatic movement to demonstrate being hot, cold...

- **SOCIAL STUDIES & VISUAL ARTS** | Students read *Last Stop on Market Street* by Matt de la Peña, and draw or write a list of goods and services in their own community. Then they write how these may differ from other communities (i.e. coastal vs. rural communities).

- **SOCIAL STUDIES & DANCE** | Students retell or read aloud the book *Last Stop on Market Street* by Matt de la Peña to their new puppet, and then create a map of Market Street in Charleston, SC, including a key/legend.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **SCIENCE** | Physical Science: Exploring the Sun and Moon
  - Conduct structured investigations to answer questions about the effect of sunlight on Earth’s surface
- **THEATRE** | Artistic Processes: Performing
  - Identify the function of performance and audience spaces
- **SOCIAL STUDIES** | Economics
  - Research and describe how goods and services differ in rural, suburban, and urban areas in South Carolina
- **VISUAL ARTS** | Artistic Processes: Connecting
  - Recognize and describe that visual arts exists in all arts disciplines and other content areas
- **SOCIAL STUDIES** | Geography
  - Utilize the college and career skills of a geographer to apply map skills and draw conclusions about the United States
- **VISUAL ARTS** | Artistic Processes: Presenting
  - Describe the difference between a landscape, cityscape, or seascape
INVENTION CONVENTION SAMPLE ACTIVITIES:

- **LITERACY & DESIGN** | Students read *WHOOSH! Lonnie Johnson’s Super-Soaking Stream of Inventions* by Chris Barnes, and then design and draw an invention to make life easier. Students create a prototype of that invention using found objects. Then they write about something they use every day that was someone else’s invention, and explain what life would be like without it.

- **SCIENCE & VISUAL ARTS** | Students shoot water with the Super Soaker® and then answer these questions: 1) What would need to happen to make it shoot further? 2) Shorter? 3) How else could you improve the product? 4) What shapes and patterns can you draw with water?

- **MATH & DANCE** | Students calculate the distance water travels from the Super Soaker® using various measuring devices, then explain and write how the measurements compare/contrast. Afterwards, they create movement that shows how water flows.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **LITERACY** | Literary Text
  - Read with sufficient accuracy and fluency to support comprehension
  - Read grade-level texts with purpose and understanding
  - Read grade-level texts orally with accuracy, appropriate rate, expression, intonation, and phrasing on successive readings

- **DESIGN** | Artistic Processes: Creating
  - Use principles of design to convey intended meaning in the artwork

- **SCIENCE** | Science & Engineering Practices
  - Develop and use models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others

- **VISUAL ARTS** | Artistic Processes: Presenting
  - Describe color, line, shapes, and patterns in artwork

- **MATH** | Measurement and Data Analysis
  - Select and use appropriate tools (e.g., rulers, yardsticks, meter sticks, measuring tapes) to measure the length of an object
  - Measure the same object or distance using a standard unit of one length and then a standard unit of a different length and explain verbally and in writing how and why the measurements differ

- **DANCE** | Artistic Processes: Presenting
  - Perform and respond to changes in space, time, relationships, and energy/force movement qualities
INVENTION CONVENTION SAMPLE ACTIVITIES:

- **SCIENCE & VISUAL ARTS** | Students build and decorate a model boat and test its buoyancy for any necessary design revisions.

- **MATH & DANCE** | Students measure and record the perimeter of their new beach towel and compare it to other objects in their home. Each time a measurement is recorded, the students create the geometric shape with their body.

- **LITERACY & VISUAL ARTS** | Students use yarn, pipe cleaners, glue and googly eyes to design and name a new yarn animal, and then read self-selected books to it.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **SCIENCE** | Science and Engineering Practices
  - Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others

- **VISUAL ARTS** | Artistic Processes: Creating
  - Use principles of design to convey intended meaning in the artwork

- **MATH** | Measurement and Data Analysis
  - Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters

- **DANCE** | Artistic Processes: Presenting
  - Perform transitions between shapes on different levels and in different directions

- **LITERACY** | Reading Literary Texts
  - Range and Complexity
    - Read independently for sustained periods of time to build stamina

- **VISUAL ARTS** | Artistic Processes: Creating
  - Use three-dimensional art materials and techniques to make art
INVENTION CONVENTION SAMPLE ACTIVITIES:

- **SCIENCE & VISUAL ARTS** | Students build and decorate a model boat and test its buoyancy to make any necessary design revisions.

- **SCIENCE & DANCE** | The Slinky was invented in 1943 by a mechanical engineer. Students explore how a Slinky moves and then relate that to new vocabulary; Vibrations, Sound, Transverse Waves, Longitudinal Waves. Using their body, students show all the ways a Slinky moves.

- **MATH & DANCE** | Students calculate the distance water travels from the Super Soaker using various measuring devices. Students explain how these measurements compare/contrast, and create movement that shows how water flows.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **SCIENCE** | Science and Engineering Practices
  - Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others

- **VISUAL ARTS** | Artistic Processes: Creating
  - Use principles of design to convey intended meaning in the artwork

- **SCIENCE** | Physical Science: Forms of Energy – Light and Sound
  - Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume)
  - Analyze and interpret data from observations and measurements to describe how changes in vibration affects the pitch and volume of sound

- **DANCE** | Artistic Processes: Performing
  - Perform in and through space with intentional choices

- **MATH** | Measurement and Data Analysis
  - Convert measurements within a single system of measurement, customary or metric

- **DANCE** | Artistic Processes: Presenting
  - Perform and respond to changes in space, time, relationships, and energy/force movement qualities
INVENTION CONVENTION SAMPLE ACTIVITIES:

• **MATH & MUSIC** | Students make a video while creating Constructo Straw® freestanding towers. Once the building process is complete, students use appropriate music to convey suspense, fear, excitement and joy as the tower stands tall or falls.

• **SCIENCE & DANCE** | The Slinky was invented in 1943 by a mechanical engineer. Students explore how a Slinky moves, and relate that to the concept of energy. Using their body, they show all the ways a Slinky imitates sound and energy.

• **MATH & THEATRE** | Students calculate the distance water travels from the Super Soaker using various measuring devices. Students explain how these measurements compare/contrast, and write a script to perform the water cycle.

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• **SCIENCE** | Science and Engineering Practices
  o Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others

• **MUSIC** | Artistic Processes: Connecting
  o Identify the appropriate music for particular events

• **SCIENCE** | Physical Science: Forms of Energy – Light and Sound
  o Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume)
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  o Convert measurements within a single system of measurement, customary or metric

• **THEATRE** | Artistic Processes: Presenting
  o Perform and respond to changes in space, time, relationships, and energy/force movement qualities
INVENTION CONVENTION SAMPLE ACTIVITIES:

- **LITERACY & VISUAL ARTS** | Students read *B is for Baller: The Ultimate Basketball Alphabet* by James Littlejohn, and then create an alphabet book about their favorite sport, hobby, movie or book. Students use watercolor to create the illustrations.

- **MATH & MUSIC** | Students calculate free throw percentages with their new basketball over a period of 10 consecutive days. Students then graph their results to create a comparison analysis of their athletic performance, and share the results in a song.

- **SCIENCE & THEATRE** | Students follow directions to build a catapult or trebuchet strong enough to shoot a tennis ball. Afterwards, students act out the movement of the machine with their bodies.

RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **LITERACY** | Fundamentals of Writing
  - Use imagery, precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events

- **VISUAL ARTS** | Artistic Processes: Creating
  - Use color and line to show feelings in the artwork

- **MATH** | Ratios and Proportional Relationships
  - Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning

- **MUSIC** | Artistic Processes: Creating
  - Create an original composition independently

- **SCIENCE** | Science and Engineering Practices
  - Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others

- **THEATRE** | Artistic Processes: Presenting
  - Make choices about how to tell a story nonverbally
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RELATED SOUTH CAROLINA CURRICULUM STANDARDS:

- **LITERACY** | Fundamentals of Writing
  - Produce writing in which the development, organization, and style are appropriate to task, purpose, discipline, and audience

- **VISUAL ARTS** | Artistic Processes: Creating
  - Use color and line to show feelings in my artwork

- **MATH** | Ratios and Proportional Relationships
  - Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations
  - Determine when two quantities are in a proportional relationship

- **MUSIC** | Artistic Processes: Creating
  - Create an original composition independently

- **SCIENCE** | Science and Engineering Practices
  - Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims

- **THEATRE** | Artistic Processes: Presenting
  - Make choices about how to tell a story nonverbally
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- **VISUAL ARTS** | Artistic Processes: Creating
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- **MATH** | Ratios and Proportional Relationships
  - Investigate bivariate categorical data in two-way tables
    - Organize bivariate categorical data in a two-way table
    - Interpret data in two-way tables using relative frequencies
    - Explore patterns of possible association between the two categorical variables

- **MUSIC** | Artistic Processes: Creating
  - Create an original composition independently

- **SCIENCE** | Physical Science: Forces and Motion
  - Construct explanations for the relationship between the mass of an object and the concept of inertia (Newton’s First Law of Motion)
  - Analyze and interpret data to support claims that for every force exerted on an object there is an equal force exerted in the opposite direction (Newton’s Third Law of Motion)

- **THEATRE** | Artistic Processes: Presenting
  - Make choices about how to tell a story nonverbally
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