Twinkle Twinkle Little Star STEAM

Objective(s):

- Students will explore the concepts of stars, space, and creativity through the popular nursery rhyme "Twinkle Twinkle Little Star".
- Students will create a piece of artwork or a model that represents the night sky, incorporating elements of STEAM.

Activity that involves problem-solving and strategic thinking:

- Students will create a 3D model to represent the Nursery rhyme Twinkle Twinkle Little Star using a variety of new or recycled materials.
- Students will collaborate with a partner/group to design and create their 3D model.

Standards/Objectives addressed:

- RL.K.2 - With prompting and support, retell familiar stories, including key details.
- RF.K.2 - Demonstrate understanding of spoken words, syllables, and sounds (phonological awareness) by recognizing and producing rhyming words.
- SL.K.5 - Add drawings or other visual displays to descriptions as desired to provide additional detail.
- CCSS.ELA-Literacy.RL.1.7 - Use illustrations and details in a story to describe its characters, setting, or events.
- CCSS.ELA-Literacy.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.

- K.G.A.2 - Correctly name shapes regardless of their orientations or overall size.
- K.MD.A.2 - Directly compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute.
- 1.G.A.1- Reason with shapes and their attributes. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- 2.G.A.1 - Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

- K-PS2-1 - Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

- K-ESS3-1 - Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.
- 1-ESS1-1-Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- 2-ESS1-1 - Use observations of the sun, moon, and stars to describe patterns that can be predicted.

- SS.K.G.1 - Identify the purpose of rules and the role of authority figures in the home, school, and community.
- SS.K.G.2 - Recognize and respect similarities and differences among people.

Background knowledge needed:

- Familiarity with the Nursery Rhyme
- Basic Understanding of Shapes
- Curiosity about Stars and Space
- Experience with Hands-On Exploration
- Collaboration and Communication Skills
- Familiarity Exploration and Inquiry
- Basic Math and Science Concepts

Materials:Construction paper, cardstock, and colored paper

- Glue, tape
- Scissors
- Markers, crayons, colored pencils
- Glitter, sequins, stickers
- Paint, brushes, watercolor paper
- Play Doh or modeling clay
- Craft sticks, pipe cleaners, pom poms
- Flashlights or LED lights
- Building blocks or LEGO DUPLO
- Simple circuit materials (battery packs, LED lights, copper tape)

Prompts – Questions or statements to elicit engagement:

- What do you think makes a star twinkle in the night sky?
- Can you imagine what it would be like to travel to a star?
- What materials could we use to make stars shine bright like in the rhyme?
- What do you think stars are made of?
- What shapes do you see when you look up at the night sky?
- Why do you think stars are important to us?
- Imagine you're a star shining brightly in the darkness. What would you see?.

- Imagine the stories the stars could tell us if we could listen closely.

Vocabulary;

- Star, constellation, night sky, galaxy, arrange, shapes, patterns, bright, dim, reflect, transparent, opaque, illuminate, imagination, design, construct

Reflection prompts:

- What was the most interesting thing you learned during this project?
- How did working with your group help you in completing the tasks?
- In what ways did your understanding of stars and space change throughout the project?
- What was the most exciting thing you discovered about stars and the night sky during this project?
- How did working with your group help you in creating your starry creations?
- Can you share a moment when you felt proud of your work or achievements in this project?
- What was the most challenging part of the project for you, and how did you overcome it?
- How did you feel when you presented your project to the class or during the mini-exhibition?
- If you could explore one aspect of stars or space further, what would you want to learn more about?
- What new skills did you develop during this project, and how could you use them in other projects or activities?
- Imagine you are a star in the night sky. What would you want people to know about you based on what you learned in this project?
- How did your perspective on the night sky change after learning more about stars, constellations, and light?
- What advice would you give to a friend who is about to start a project like this in the future?

Extensions:

- Create a Stellar Storybook: Have students write and illustrate their own stories about a star's journey through the night sky, incorporating elements of science, creativity, and imagination.
- Stargazing Night: Organize a stargazing event where students and their families can observe the night sky, identify constellations, and share stories inspired by the stars.
- DIY Starry Night Light: Challenge students to design and create their own starry night light using simple materials like LED lights, cardboard, and reflective materials.
- Star Science Experiments: Conduct hands-on science experiments related to stars, such as creating a mini solar system model or exploring the concept of gravity in space.

- Constellation Art Gallery: Invite students to research different constellations, create their own constellation artworks, and curate an art gallery showcasing their creations.
- Space Exploration Sensory Bins: Set up sensory bins with materials like black beans (representing space), shiny stars, and small planets for students to explore the textures and concepts related to space.
- Build a Star Viewer: Guide students in constructing their own simple star viewers or telescopes using cardboard tubes and magnifying lenses to observe the night sky.