



# artsNOW

Integrated learning solutions

## EXPLORING LIFE SCIENCE THROUGH SHADOW PUPPETS

Grade Band: K-1

Content Focus: Visual Arts & Science



### LEARNING DESCRIPTION

In this lesson, students will learn about the properties of light by creating shadow puppets. Students will observe how light interacts differently with translucent, transparent, and opaque materials. They will use the design process to plan, experiment, and refine their shadow puppet designs, culminating in a shadow puppet performance that demonstrates a life science concept they are learning.

### LEARNING TARGETS

Essential Questions	"I Can" Statements
How can shadow puppetry be used to demonstrate concepts in life science?	I can demonstrate a life science concept I am learning about through puppetry.
How does light interact with different materials?	I can create a shadow puppet using the materials and design I planned.



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	I can explain how light interacts with different materials to create shadows.
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## GEORGIA STANDARDS

Curriculum Standards	Arts Standards
<p><b>Kindergarten</b> SKL2. Obtain, evaluate, and communicate information to compare the similarities and differences in groups of organisms.</p> <p><b>Grade 1</b> S1P1. Obtain, evaluate, and communicate information to investigate light and sound. a. Use observations to construct an explanation of how light is required to make objects visible. b. Ask questions to identify and compare sources of light. c. Plan and carry out an investigation of shadows by placing objects at various points from a source of light.</p> <p>S1L1. Obtain, evaluate, and communicate information about the basic needs of plants and animals.</p>	<p><b>Kindergarten</b> VAK.CR.1 Engage in the creative process to generate and visualize ideas by using subject matter and symbols to communicate meaning.</p> <p>VAK.CR.3 Understand and apply media, techniques, processes, and concepts of two dimensional art.</p> <p><b>Grade 1</b> VA1.CR.1 Engage in the creative process to generate and visualize ideas by using subject matter and symbols to communicate meaning.</p> <p>VA1.CR.3 Understand and apply media, techniques, processes, and concepts of two dimensional art.</p>

## SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
<p><b>Kindergarten</b> K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p>K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.</p> <p><b>Grade 1</b> 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p>	<p><b>Anchor Standard 1:</b> I can use the elements and principles of art to create artwork.</p> <p><b>Anchor Standard 2:</b> I can use different materials, techniques, and processes to make art.</p> <p><b>Anchor Standard 7:</b> I can relate visual arts ideas to other arts disciplines, content areas, and careers.</p>



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1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

1-LS1-2. Obtain information from multiple sources to determine patterns in parent and offspring behavior that help offspring survive.

## KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"><li>● <u>Shadow</u> - A dark area that forms when an object blocks light</li><li>● <u>Light</u> - A form of energy that travels in waves and can be seen by our eyes</li><li>● <u>Design process</u> - A process of revising work</li><li>● <u>Organism</u> - Any individual living entity that can carry out life processes independently</li></ul>	<ul style="list-style-type: none"><li>● <u>Shadow puppet</u> - A shadow puppet is a form of storytelling where cut-out figures are manipulated behind a screen to create shadowy images visible to the audience</li><li>● <u>Shape</u> - One of the seven Elements of Art; a two-dimensional figure</li><li>● <u>Silhouette</u> - The outline or shape of an object or person that appears dark against a lighter background</li><li>● <u>Contrast</u> - One of the Principles of Design; the difference between two visual elements put side by side</li></ul>

## MATERIALS

- Overhead projector or flashlight
- White sheets or large sheet of white paper
- Cardstock or stiff paper
- Scissors
- Tape or glue
- Variety of translucent, transparent, and opaque materials (e.g., tissue paper, cellophane, cardboard, plastic sheets)
- Brads
- Hole punch or awl
- Bamboo skewers/popsicle sticks
- Masking tape

## INSTRUCTIONAL DESIGN



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## Opening/Activating Strategy

- Introduce the concept of shadow puppetry and its history by watching a short video or demonstration of shadow puppet storytelling (Video: [Introduction to Shadow Puppetry](#); Video: [The Three Little Pigs](#)).
- Ask students to make observations on how the puppets looked and how that differs from other puppets they may have seen.
  - Discuss silhouettes and contrast.

### Grade 1:

- Discuss the properties of light and the difference between translucent, transparent, and opaque materials.
- Explore light and materials with students.
  - Divide the students into small groups.
  - Provide students with different materials such as translucent paper, transparent plastic, opaque cardstock and a light source such as a flashlight.
  - Tell students to experiment with the materials to see how they affect the transmission of light and shadows by shining a light on them.
  - Discuss the findings as a class.
  - Have students sort materials into transparent, translucent, and opaque.

## Work Session

- Tell students that they will be using transparent, translucent, and opaque materials to create shadow puppets that demonstrate one of the life science concepts they are learning about, such as the relationship between the needs of different plants or animals and the places they live.
- Introduce the design process by showing students the image below.
  - Explain to students that artists use this process to revise and improve their artwork; students will use this process in planning, designing and creating their puppets.



- Divide students into small groups. Assign each group a life science concept.
- Remind students that in a shadow puppet performance, there are characters that tell a story. Ask students to identify who the “characters” will be in their life science concept.
- Allow students time to brainstorm and sketch out their plans for their shadow puppet characters. Circulate and assist students with their designs.
- Introduce the materials students will use to create shadow puppets (cardstock, scissors, tape, brads, colored theater gels, bamboo skewers) and demonstrate how to use them safely to create their shadow puppets. *Teacher tip: Pre-cut shapes out of cardstock so that students can simply assemble pieces together to create their shadow puppets.*

- *Optional: Show students a video of how to make shadow puppets (Video: [How to Make Shadow Puppets | Full-Time Kid | PBS](#)).*
- As students begin creating their puppets, remind them of the design process. They may need to revise their designs as they translate their sketch to their puppet.
- After creating their shadow puppets, students will collaborate with their groups to plan their performances.
  - Remind students that in a shadow puppet performance, there will be a beginning, middle, and an end. Ask students to consider what the beginning, middle, and end should be in their life science concept.
- Provide time for groups to practice and refine their performances before presenting to the class.

### Closing/Reflection

- Groups will present their shadow puppets to the class. Model how to celebrate students' creativity and teamwork in presenting.
- Facilitate a discussion that focuses on how students demonstrated the life science concept through their shadow puppet performance.
- At the end of the lesson, have students complete a 3-2-1 ticket out the door—three things they learned, two things they found interesting, and one question that they have. Provide time for students to share with a partner, small group, or the class.

## ASSESSMENTS

### Formative

Teacher will assess student learning by:

- Observing students' engagement and participation in the activator.
- Grade 1: Observing students' engagement and participation during the exploration and experimentation phase.
- Checking students' understanding of life science concepts through questioning and discussions.
- Providing feedback on students' initial puppet designs to guide them in the revision process.
- Reviewing students' 3-2-1 tickets out the door.

### Summative

#### CHECKLIST:

- Students can demonstrate a concept in life science through a shadow puppet performance.
- Students can use creativity to design and create shadow puppets that demonstrate a concept in life science.
- Grade 1: Students can explain the properties of light and shadow.

## DIFFERENTIATION



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**Accelerated:**

- Students can create a backdrop for their shadow puppet show to enhance their storytelling.
- Students can write a sequence of events to explain/narrate their performances.

**Remedial:**

- Provide students with pre-made shadow puppets and translucent, transparent and opaque materials. Encourage students to experiment with the materials and use them to demonstrate a life science concept.
- Pair students together to create one shadow puppet to demonstrate their concept.
- Provide a sequencing guide or graphic organizer for students to plan their performances.

**ADDITIONAL RESOURCES**

- Video: [Introduction to Shadow Puppetry](#)
- Video: [How to Make Shadow Puppets | Full-Time Kid | PBS](#)
- Video: [How to Make Shadow Puppets](#)
- Video: [How To Make Shadow Puppets Using the Cricut Maker](#)
- Video: [How to Create Puppets with the Glowforge](#)
- Video: [The Legend of the Chinese Zodiac](#)
- Video: [The Three Little Pigs](#)

*\*This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*

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