Introduction

The LightAide is being developed to provide young blind and visually impaired learners with a unique assistive tool for learning standards-based English Language Arts and mathematics content and for mastering skills that are components of the Expanded Core Curriculum (ECC). To maximize effectiveness, the activities incorporated into the device apply the Universal Design for Learning (UDL) framework to offer: 1) multiple means of expression of information; 2) multiple means of expression of knowledge; 3) multiple means of engagement. Findings from testing of a proof-of-concept version indicate that the LightAide is also appropriate for older learners. Additionally, it may offer therapists and clinicians new ways to assess vision capabilities and to motivate members of the intended audience to utilize the vision that they have and participate in therapies.

This Beta version includes recommendations that resulted from testing of a prototype and improvements in the underlying technology. It incorporates ten starter activities. Each activity aligns with the Mathematics or English Language Arts standards or with skills included in the Expanded Core Curriculum. The activities are listed below according to their primary content area or skill focus. An abbreviated version of the title appears in parentheses next to the name of the activity. The attached packet provides additional information about how the activities might be used. Information about the activities with a vision assessment or therapy focus will be included as they become available. To access an activity, go to the Control Panel attached to the side of the LightAide and click on the abbreviated title. This will allow you to preview the activity. You can also use the buttons on the Control Panel to change such things as the brightness and color of the display. The Set-Up Guide provides more information about the location and use of the Control Panel.

Mathematics
Identify the Shape (IdentifyShapes)

English Language Arts
Track the Spot Left to Right (TrackASpot) • Identify the Letter (IdentifyLetters)

Expanded Core Curriculum
Take Turns (TakeTurns) • Identify the Color (IdentifyColors)
Name the Moving Color (NameMovingColors)

Vision Assessment or Therapy
Track the Column Left to Right (TracktheColumn) • Watch the Color Change (WatchtheColor)
Watch the Colors Change (WatchtheColors) • Track the Row Top to Bottom (TracktheRow)

---


Goal:
To describe a shape and identify it by name.

Alignment with Common Core State Standards for Mathematics: Geometry
1. Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
2. Correctly name shapes regardless of their orientations or overall size.
3. Analyze, compare, create, and compose shapes.
4. Identify shapes as three dimensional.

Lens Set-up
• Flat black lens

Leader’s Role
• Use the Leader switch to find the first shape.
• Ask the learner to describe the shape.
• Ask the learner to name the shape.
• Provide support using the learner’s language of communication.
• Change the color of the shape and repeat the questions.

Learner’s Role
• Use the Learner switch to click to the next shape.

Extensions:
• Add a friend
• Use objects to explore shapes in three dimensions.
• Identify shapes as two-dimensional (lying in a plane, “flat”) or three dimensional (“solid”).
• Have a learner be the leader and find the shapes for other learners to identify.
Goals:

• To practice tracking light from left to right and from top to bottom.

• To simulate following words from left to right and from top to bottom.

Alignment with Common Core State Standards for English Language Arts & Literacy

1. Demonstrate understanding of the organization and basic features of print.

2. Follow words from left to right, top to bottom.

Lens Set-up

• Flat black lens or high-resolution lens

Leader’s Role

• Use the Leader switch to move the light from left to right and from top to bottom.

• Ask the learner to track the light as it moves.

• Ask the learner to use the Learner switch to move the light.

• Ask the learner to point to the light as it moves.

• Ask the learner to anticipate where the light will be next.

Learner’s Role

• Track the light as it moves.

• Use the Learner switch to move the light, and track it as it moves.
Goals:
- To identify and name the letters of the alphabet from A to Z.
- To learn the order of the alphabet.

Alignment with Common Core State Standards for English Language Arts & Literacy
1. Demonstrate understanding of the organization and basic features of print.
2. Recognize and name all uppercase letters of the alphabet.

Lens Set-up
- Flat black lens

Leader’s Role
- Use the Leader switch to find the first letter.
- Ask the learner to identify the letter.
- Ask the learner to identify the next letter in alphabetical order.
- Provide support using the learner’s language of communication.
- Change the color of the letter and repeat the questioning process.

Learner’s Role
- Use the Learner switch to click to the next letter.

Extensions:
- Have learners use their language of communication to name the letters as the leader or learner clicks through them in alphabetical order.
- Have a learner be the leader and find a letter for other learners to identify. Learners might also name the letter of the alphabet that will appear when the switch is clicked.
- Have learners find an object, picture of an object, or word that begins with a particular letter displayed.
- Have learners provide the sound of a letter.
Goals:

- To take turns activating a rectangular pattern of lights.
- To know when it is “your turn”.
- Wait until it is “your turn”.

Alignment with the Expanded Core Curriculum

Social Interaction Skills

1. Take turns at games.
2. Take turns when playing with other children.

Lens Set-up

- Flat black lens or high-resolution lens

Leader’s Role

- Use the Leader switch to take turns with the learner to alternatively activate the pattern.
- Use the learner’s language of communication to facilitate activation of the pattern at the appropriate time.

Learner’s Role

- Use the Learner switch to activate the pattern at the appropriate time.

Extensions:

- Include additional learners and have them take turns with you and/or with each other.
- Encourage use of language to facilitate taking a turn at the appropriate time.

Target Audience

Vision acuity to be added
Goal:
- To introduce the colors red, orange, yellow, green, blue, indigo, and violet.

Alignment with the Expanded Core Curriculum
Orientation and Mobility
- Being able to identify colors will enable the student to eventually use colors to discriminate visual landmarks, clues, and environmental information.

Lens Set-up
- Flat black lens or high-resolution lens

Leader’s Role
- Use the learner’s language of communication to name each color as it appears.
- Ask the learner to pause and look closely at each color and repeat its name several times before moving to the next color.

Learner’s Role
- Use the Learner switch to click from one color to the next.

Extensions:
- Ask the learner to find a particular color.
- Have the learner go through the sequence of colors and name each color as it appears.
- Have the learner find or name objects of a particular color.
Goal:
• To reinforce perception of the colors red, orange, yellow, green, blue, indigo, and violet.

Alignment with the Expanded Core Curriculum
Orientation and Mobility
• Being able to identify colors will enable the student to eventually use colors to discriminate visual landmarks, clues, and environmental information.

Lens Set-up
• Flat black lens or high-resolution lens

Leader’s Role
• Use the learner’s language of communication to name each color as it moves from left to right.

Learner’s Role
• Use the Learner switch to click from one color to the next.

Extensions:
• Ask the learner to find a particular color.
• Have the learner go through the sequence of colors and name each color as it appears.
• Have the learner find or name objects of a particular color.
• Ask learners to name the next color that will appear in the sequence.