



STEM & Literacy Pathways

Destination Imagination has developed a unique approach to support educational readiness in STEM and literacy concepts. While these areas of education are not historically associated with education at the pre-k and kindergarten grade levels, a philosophical shift in the US is leading states to begin including STEM content in early childhood learning standards. In light of this shift, DI created STEM and Literacy Pathways for Early Learners to provide teachers with resources to meaningfully engage students in creative learning while building STEM and literacy skills.

Pathways is aligned with the Common Core Standards. The activities, Transitions and Feedback Loop Questions can be linked to fulfillment of all key Common Core domains.

- All of the materials promote a strong level of engagement, creativity and curiosity among early learners.
- In the physical development and health domain, the activities engage early learners in spatial recognition and teach them about health through food preparation and consumption.
- Through the activities that require self-awareness, as well as teamwork, students foster their own social and emotional development.
- With the suggested reading accompanying each theme, early learners will work on language comprehension and vocabulary acquisition as well as develop a greater understanding of the world around them.
- Mathematics, counting and number recognition are embedded throughout the activities.



Engaging Early Learners

Destination Imagination Early Learning programs engage early learners in the following experiences:

- Being intellectually engaged, absorbed and challenged
- Engaging in extended interactions (e.g., conversations, discussions, exchanges of views, arguments, participation in planning of work)
- Conducting sustained investigations of aspects of their own environment and experiences worthy of their interest, knowledge and understanding
- Taking initiative in a range of activities and accepting responsibility for what is accomplished
- Experiencing the satisfaction that can come from overcoming obstacles and setbacks and solving problems
- Having confidence in their own intellectual powers and their own questions
- Helping others to discover things and to understand them better
- Making suggestions to others and expressing appreciation of others' efforts and accomplishments
- Applying their developing basic oral language, literacy, mathematical, scientific, technology and engineering skills in purposeful ways
- Feeling that they belong to a group of their peers

DI's early education pedagogical methods support the basic dispositions that all children are innately curious and eager to explore their environment and learn about a wide variety of causes and effects. These programs provide a wide range of contexts for young children to learn and grow.



What's Included

STEM and Literacy Pathways for Early Learners is a resource for teachers to help guide students to understanding essential STEM and literacy concepts as well as develop key social and emotional skills integral to the development of early learners. The resource contains:

- 90 activities arranged in 16 curriculum-friendly themes
- Instant Challenges for team building and skill development
- Take-home activities to increase parent involvement
- A set of Transition activities for each theme to continue the learning process throughout the day
- Feedback Loop Questions to help teachers and students develop deeper understanding of the skills and concepts

The following pages contain samples from one theme in Pathways, "Shapes All Around Me," including the theme activities, Transitions, Feedback Loop Questions, Instant Challenge and take-home activity.

Theme Sample

Theme: Shapes All Around Me

Suggested Reading: *The Shape of Me and Other Stuff: Dr. Seuss's Surprising Word Book* by Tish Rabe

The Theme: Shapes All Around Me teaches the children about basic geometric shapes, both two and three-dimensional. Don't be afraid to use the mathematical names for the geometric shapes. If they can say Tyrannosaurus Rex, they can say cylinder! STEM concepts of technology, engineering, and mathematics are incorporated in this theme. By the conclusion, the children will be able to point out different geometric shapes wherever they go!



TECHNICAL

Activity 1: The Shape of Things

Instructions: The teacher holds up a basic geometric shape. The children find an object in the room with a similar shape and they point to it.

Teacher Guide: "The Shape of Things" teaches the children to identify geometric shapes and discover objects in the classroom that match the identified shape. Help the children realize there is more than one correct answer in this activity.

Materials: Shape cutouts from the Resource section



MATH

Activity 2: Sorting Shapes

Instructions: The teacher provides pairs of children with a set of basic geometric shape cutouts. The teacher talks to the children about the attributes of the shapes: color, shape, size, and number of corners. The partners decide how to sort their shapes. The partners tell which attribute they used to sort. Repeat the sorting at least two more times.

Teacher Guide: The children will learn more about comparing attributes in "Sorting Shapes." Use the geometric shape cutouts from the Resource section (or classroom blocks of basic shapes). Each pair of children should have a set of shapes to use. Let the partners decide how to sort the shapes into two piles according to what they notice about the shapes. Call on a few partners to tell which attribute they used to sort.

Materials: Set of 6 geometric shape cutouts from Resource section



MOVEMENT & MUSIC

Activity 3: Form the Shape

Instructions: The children walk in a circle. The teacher asks them to form a square. The children are encouraged to be creative, such as lying on the floor or using each other to form a shape. The children should act out 3-5 different two-dimensional geometric shapes using teamwork. There are no materials for this activity.

Teacher Guide: "Form the Shape" will get the children up and moving! They will be forming two-dimensional geometric shapes with their bodies. The children can form a huge shape (circle, square, triangle, etc.) as an entire class or in small groups. Ask the children for the next shape to form.

Transitions Sample

Transitions: Shapes All Around Me

Comprised of a series of simple activities, Transitions are meant to continue the learning of the week in every situation. Transitions are great pick-me-ups and can be facilitated while walking, cleaning, moving, etc. Try your own!



Movement

Instructions: The children move from their seats to the group area and sit in a circle.

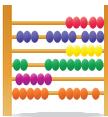
Teacher Guide: Call the children to sit in the large group area forming a basic geometric shape as they are seated. Start with a circle and change it to a square or triangle at another time the whole group gathers.



Problem Solving

Instructions: The teacher asks the children what geometric shapes they can make with their fingers/hands.

Teacher Guide: Before beginning this Transition, demonstrate how to make a few of the basic geometric shapes with your fingers. Then ask the children to use their fingers or hands to make the shapes as you name them.



Math (similarities and differences)

Instructions: The teacher instructs the children to count all the circles they see as they move from one location in the building to another. The shape changes with each trip.

Teacher Guide: The children identify all the circles they can find as they go to another location in the building. You can help the children keep track by counting and having the children repeat the number back. Change the desired shape on the return trip.



Communication

Instructions: The teacher instructs the children to form their mouths in the shape of a circle and then talk to a partner. The teacher should then ask the children to decide whether they sound the same or different.

Teacher Guide: This is a fun and quick Transition. For additional reinforcement, as the children make a circle with their mouths ask them to name their favorite shape. Did they pick the same shape as their partner or was it different?



Teamwork

Instructions: Each child places a piece of paper on the floor so that together, all the pieces create a geometric shape.

Teacher Guide: Start with a very large two-dimensional geometric shape made out of butcher paper and cut into several pieces with curvy edges (this makes it easier to fit back together). A variation is to use only square pieces of paper and ask the children to form a big rectangle and then form a big square.

Feedback Questions Sample

Feedback Loop Questions

Here are some examples of open-ended questions that will help the children internalize each week's concepts. Remember that it is your job as the facilitator to allow the children to connect the learning dots themselves. Please supplement the provided questions with your own.

How is a circle different from a square?

**What is the shape of a car tire?
What would happen if a tire was square?**

Which shapes fit together?

What shape would you like to be? Why?

What is your favorite shape?

If you could make up a new shape, what would it look like?

Name two things that have the same shape.

Name the shape of your favorite food.

How would you change a square into a circle?

Can you make a circle out of pretzel sticks? Try it.

Instant Challenge Sample

Tall Tower Task Based

CHALLENGE (Read aloud to young learners):

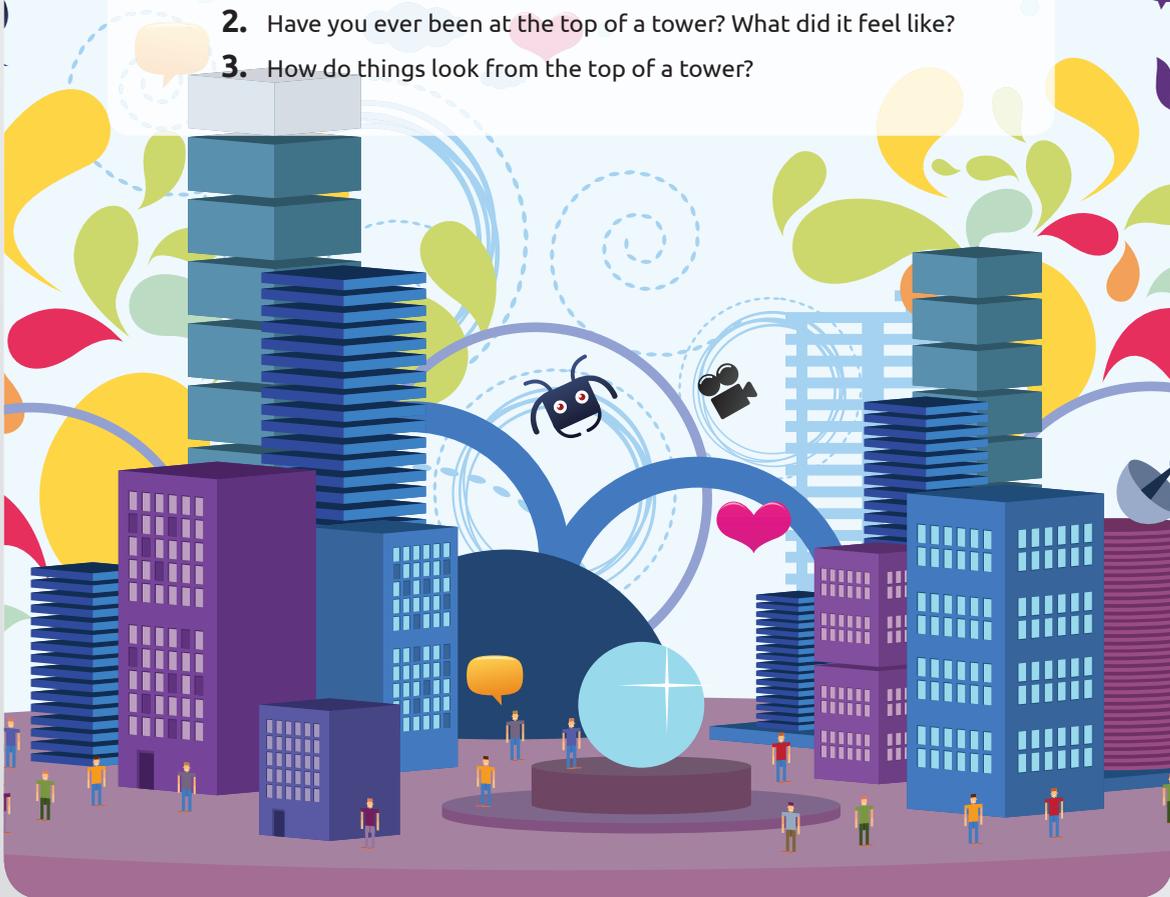
Working together, make a tower as tall as you can, using the cups on the table.

ADULTS:

Provide 60-100 paper or plastic cups (8-10 oz. size works best) on a flat surface and give the students 10 minutes to build a tower as tall as possible. Be sure to let the children knock down the towers when done!

PROCESSING QUESTIONS (Read aloud):

1. Why would you want to build a tower?
2. Have you ever been at the top of a tower? What did it feel like?
3. How do things look from the top of a tower?



Take Home Sample

Teachers: Please photocopy and cut out enough notes for all of the children in your classroom to take home.



**DESTINATION
IMAGINATION®**

EARLY LEARNING

Take-Home Component

Theme: Shapes All Around Me *Shapes in My Neighborhood*

Take a walk in your neighborhood. Help your child find and identify different shapes in your neighborhood, such as squares, rectangles, circles, triangles.



**DESTINATION
IMAGINATION®**

EARLY LEARNING

Take-Home Component

Theme: Shapes All Around Me *Shapes in My Neighborhood*

Take a walk in your neighborhood. Help your child find and identify different shapes in your neighborhood, such as squares, rectangles, circles, triangles.



**DESTINATION
IMAGINATION®**

EARLY LEARNING

Take-Home Component

Theme: Shapes All Around Me *Shapes in My Neighborhood*

Take a walk in your neighborhood. Help your child find and identify different shapes in your neighborhood, such as squares, rectangles, circles, triangles.



**DESTINATION
IMAGINATION®**

EARLY LEARNING

Take-Home Component

Theme: Shapes All Around Me *Shapes in My Neighborhood*

Take a walk in your neighborhood. Help your child find and identify different shapes in your neighborhood, such as squares, rectangles, circles, triangles.

	CREATURE FEATURE	ALL ABOUT ME	OUR NEIGHBORHOOD	LET'S PRETEND	MEET OUR PETS	WATER, WATER EVERYWHERE	HOW WE GET AROUND	SHAPES ALL AROUND ME	OCEAN CREATURES	MUSIC IN MY LIFE	HELPING OUR ENVIRONMENT	DINOSAURS	CRAWLING & SLITHERING	SPACE EXPLORER	THE PLACES WE CAN GO	SUPER ME
MATHEMATICAL	Make sense of problems and persevere in solving them	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Reason abstractly and quantitatively	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Construct viable arguments and critique the reasoning of others	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Model with mathematics		X	X	X	X	X	X	X		X		X		X	
	Use appropriate tools strategically	X	X	X	X		X	X	X	X		X	X	X	X	X
	Attend to precision	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Look for and make use of structure	X	X	X	X		X	X	X	X	X	X	X	X	X	X
	Look for and express regularity in repeated reasoning	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Know number names and the count sequence		X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Count to tell the number of objects	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Compare numbers		X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Work with numbers 11-19 to gain foundations for place value		X	X			X	X	X	X	X	X	X	X	X	
	Describe and compare measurable attributes	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Classify objects and count the number of objects in each category	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Analyze, compare, create, and compose shapes and patterns	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WRITING	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened			X	X		X	X		X			X		X	X
	With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including collaboration with peers	X	X	X	X		X	X		X		X	X	X	X	X
	Participate in shared research and writing projects (e.g., express opinions about the project)	X		X	X	X	X		X	X	X	X	X	X	X	X
	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question															
READING	Demonstrate increasing understanding of the organization of basic features of print	X	X	X	X		X		X		X	X	X	X		X
	Demonstrate increasing understanding of spoken words, syllables, and sounds (phonemes)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

