

STEAM Curriculum

Title of the Activity: Perception Box (Spatial Relationship)

Materials: Scarves, empty Kleenex box, stickers, or duct tape to decorate the box

Activity Description: After decorating the box, place the scarves inside. Get the baby's attention by showing and naming the box. Then, the model pulls out a scarf and shows facial gestures to invite the baby to try. Once you get the baby's attention, encourage her to track the box and reach out to pull out the scarves. As you hold the box, change positions and encourage her to move her body to reach and pull out the scarves.

Science Content: Eye tracking, visual perception, spatial relationship, cause and effect. Inquiry to observation and investigation by responding to objects and own actions.

Mathematical Content: The child will respond to the objects observed, track objects as individual items, look for and expect more in the box, and repeat actions that have an effect.

Connections to Engineering: The child practices a sense of space. If you attach the scarves to a larger box, he can use his body to relate to the objects as he goes through the box. By repositioning the box, the child reaches out, readjusting his body to different angles. This reinforces skills needed to construct and design later on.

Questions: Where is the box? Can you find the box? Where is the scarf?

For babies, focus more on describing yourself and the baby's actions. Using self and parallel talk.

Vocabulary: Box, scarf, pull, in, soft, edge, fabric, hole, behind, look, follow, track, eyes, full, empty.



Title of the Activity: Sailboats (earth, science, physics)

Materials: recyclables such as empty plastic bottles, wine corks, popsicle sticks, Legos, fabric, pieces of wood, aluminum trays, foam, etc. Glue, several basters, straws, a sensory table, or tub with water.

Activity Description: Create a sailboat using recyclable materials or toy boats to allow children to experiment with wind power. The sails on the boat must be stiff enough to resist air. Invite children to use basters or straws to create wind to move the sailboat in different directions.

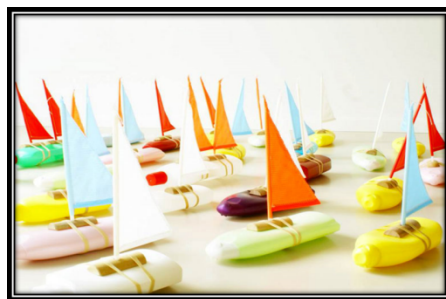
Science Content: Moving air and water create a force that can move objects. Sailboats are propelled by the wind pushing directly against the sail. The direction of movement can be manipulated. When the leading edge of the sail points into the wind, an area of low pressure is created on the side of the sail (like airplanes). This is one of the reasons that sailboats can move in directions other than just downwind.

Mathematical Content: Predicting and experimenting with different sizes of boats and sails. Measuring distances and using directional terms and vocabulary are part of geometry: near, far, toward, away, fast, slow.

Connections to Engineering: Shipbuilding is also known as naval engineering. Shipwrights are people who build ships. Boat building is one of the oldest forms of engineering.

Open-ended questions: What happens to the boat when you blow air? Can you move your boat in a different direction? Which boat is going to get to the other side first? Why? How can you make your boat move faster? Slower? Away?

Vocabulary: distance, velocity, slope, pressure, force, motion, measure, near, far, toward, away, movement.



Title of the Activity: Simple Machines-Catapults (Physics)

Materials: Rubber bands, tongue depressors, art craft sticks, plastic spoons, playdough, pompoms.

Activity Description: Make a cross with tongue depressors, leaving one end open, and connect the sticks using the rubber bands. Attach the plastic spoon to one of the cross's sides. Place an object in the spoon, hold it down with your finger, and let it go. Estimate how far the object will land and measure the distance. Make predictions, contrast, and compare the results based on the weight or size of the object.

Science Content: Experiment with materials and talk about the characteristics of the objects: rounded, pointed, soft, heavy, long, etc. Predict what would happen if you launch a light/heavy/small/big object. Document the findings.

Mathematical Content: Graph the results of the experiment. Talk about what happened during the trials. Measure how far each object landed. Compare and contrast the results.

Connections to Engineering: Constructing a catapult involves physical principles such as how weight affects distance, gravity, and the structure of the catapult. Explore a variety of materials and test their durability, resistance, efficiency, and creative design.

Open-ended questions: How can you build a catapult for small/ big objects? I wonder which material will travel the furthest. What would happen if you launch two objects at once? Tell me what you did to launch the pompom in that direction.

Vocabulary: distance, velocity, slope, pressure, force, motion, measure, how long, weight, height, longer, shorter, further, closer, direction, heavier, lighter.

