Early Geometry Concepts

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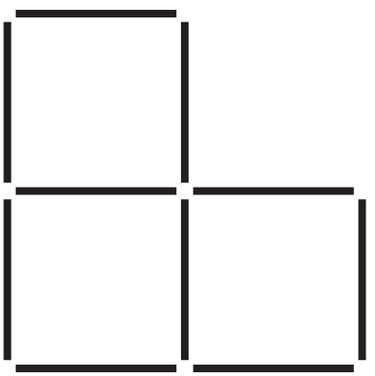
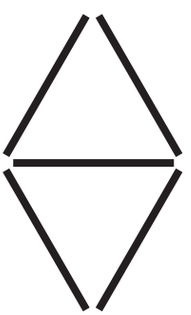
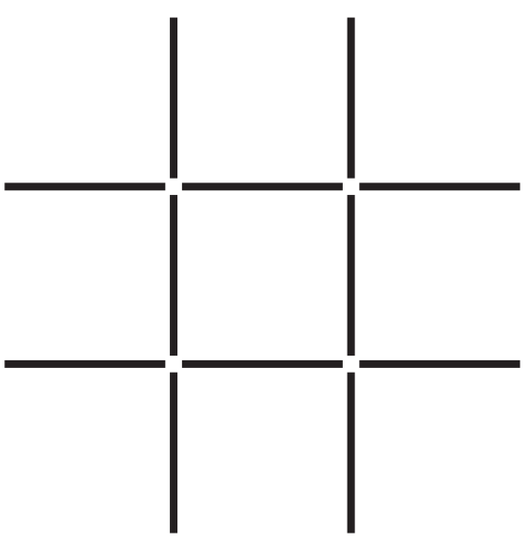
geo toothpick puzzles



Take away 2 toothpicks to make 2 squares that are exactly the same size.



Add 4 toothpicks to make 5 triangles.



Move 3 toothpicks to make exactly 3 squares.

Exploring direction words

In this activity, children listen to and use directional language.

Step 1 Preparing the activity

Each child will need:

- 1 medium-sized toy animal

Step 2 Starting the activity

- Take the children to an open area outside. Demonstrate the movements *forward*, *backward*, *sideways*, and *turn around*. As you move in each direction, prompt the children to copy your moves.
- Say, We are going to play Simon Says. Demonstrate how to play the game. Say, Simon says take two steps forward. Simon says slide sideways. Look up. Simon didn't say! Encourage the children to play the game and take turns at being the caller. During the activity, encourage them to use words such as *forward*, *backward*, *sideways*, and *turn around*.

Step 3 Teaching the activity

Distribute the toys and prompt the children to sit in a circle with their toy animal. Say, In the game Simon Says, we practiced words such as forward, backward, turn around, and sideways. These are called direction words. Has anyone heard the word direction? Why would we call forward a direction word? Encourage the children to talk with another child about the new words and their meaning. Say, We are going to make our toy animals dance. Each time I give you a direction, I would like you to move your toy animals in the direction I say. Ready? Move your animal two hops forward. Observe the children's movements. Continue to give multiple prompts for the words forward, backward, sideways, and turn around.

Activity in action

Step 4 Reflecting on the work

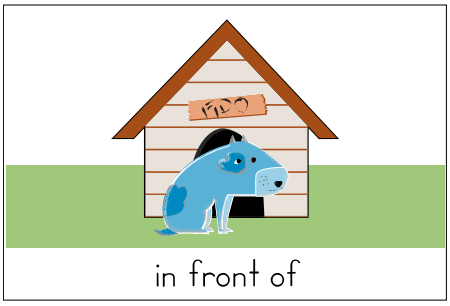
Say, Today we acted out direction words. Prompt the children to sit in a circle for Reflection Time. Encourage them to share their reflections with the group. Provide an example if necessary.

Bears in place

Preparation

Each pair of students will need:

- 7 small boxes
- 7 bear counters
- 1 set of cards from Support 50



Activity

Organize students into pairs and distribute the resources. Students select position signs, read them together, and position a bear and box to match each sign. They continue until all signs have a match.

50 Position signs

inside

outside

under

over

in front of

behind

next to

Puppet walk

In this activity, children move a puppet to act out directional language. The children can make their puppet prior to the activity in the Craft Center.

Preparation

Each child will need:

- 1 paper bag
- markers
- crayons
- paper (for cutting and pasting to the bag)
- scissors and glue

Activity

- Say, You are going to use your puppet to describe and act out direction words. Organize the children into pairs, then say, Go on a learning walk around the room and use your puppet to say how you are walking. You can move around the room walking forward, backward, sideways, and even going through things. Talk in your pairs about what your puppet is doing. Demonstrate the activity, saying, for example, My puppet is walking backward. As the children are doing the activity, walk around and listen to their conversations.
- Say, You are going to work in pairs to create a puppet show. Your puppet show can be about visiting a circus, going to the park, eating dinner, or something else that you like doing. Your puppet show needs to use direction words such as *forward*, *backward*, *sideways*, and *through*. Encourage the children to engage in the activity. Then invite pairs of children to perform their show for the group.

Shape creatures

In this activity, children use their knowledge of three-dimensional objects to construct a creature. A couple of weeks prior to this activity, start collecting an assortment of 3D objects the children can use in this center.

Preparation

Each group of children will need:

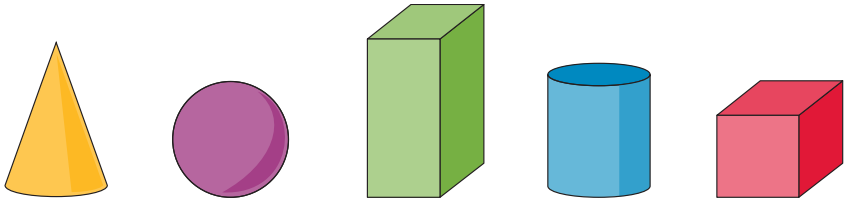
- collection of real-world 3D objects such as:
  - cone (party hats, cone paper cups)
  - cylinder (toilet paper rolls, paper towel rolls)
  - sphere (ping-pong balls, golf balls, Styrofoam balls)
  - cube (tissue box, food boxes, perfume boxes)
  - rectangular-based prism (tissue boxes, food boxes, toothpaste boxes)
- craft materials

Activity

In the Craft Center, ask the children to create various three-dimensional creatures using the materials provided in the center. Children may create a creature using one 3D object or several 3D objects. Afterward, encourage the children to present their 3D creature to the class, and describe the 3D objects they used. Display the 3D creatures around the classroom for the children to see.

Activity exemplars

Making 3D objects



Preparation

You will need:

- class set of 3D objects (cone, sphere, cube, rectangular-based prism, and a cylinder)
- modeling clay in a container

Activity

Each student uses the 3D objects as models to help them make at least three 3D objects from the modeling clay. Ask them to show their work to another student, and name the objects before flattening the clay and returning it to the container. (*Note:* The students do not need to know the word *prism* at this stage.)

Extra practice

Preparation

Each pair of students will need:

- 1 set of cards from Extra Practice 11.6 (2 pages)
- pattern blocks

Activity

Organize students into pairs and distribute the resources. Students place pattern blocks on top of each shape to match the outline. Some cards have more than one solution.

Extra challenge

Preparation

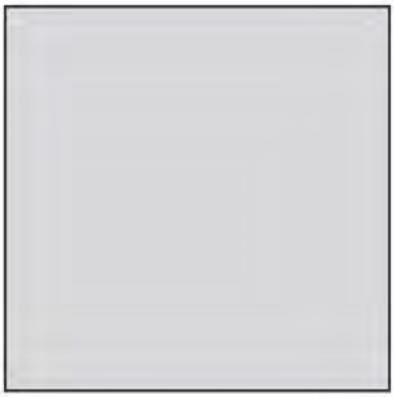
Each student will need:

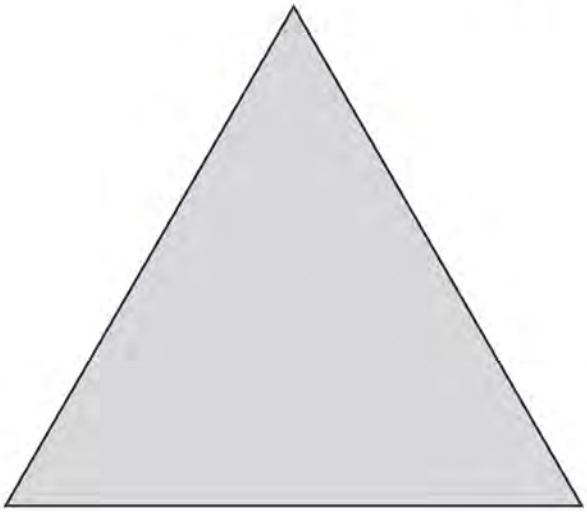
- pattern blocks
- 1 sheet of paper

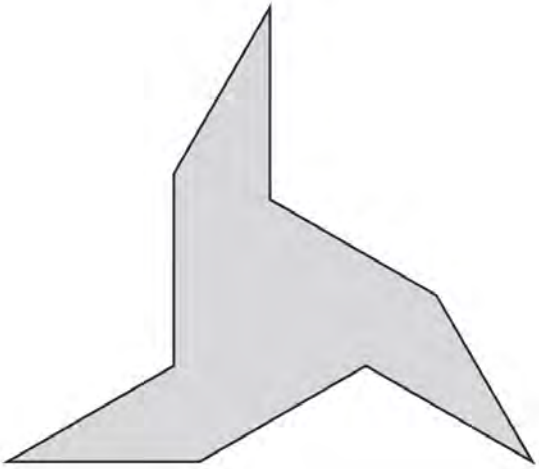
Activity

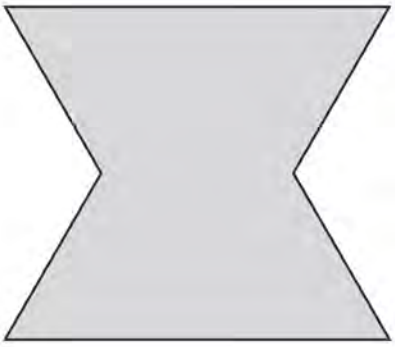
Distribute the resources. Students make pattern block puzzles like those used in the Extra Practice activity. Each student chooses three to five pattern blocks to join together and trace around the overall outline. Have the students write their name on the puzzle outline. Students then exchange puzzles and use pattern blocks to find the solution.

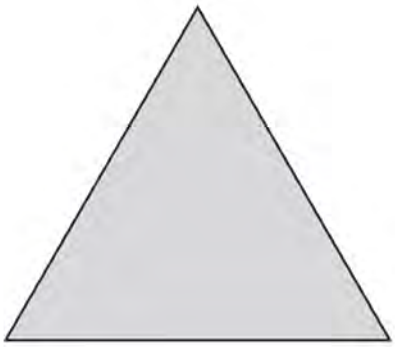
11.6 Making 2D shapes











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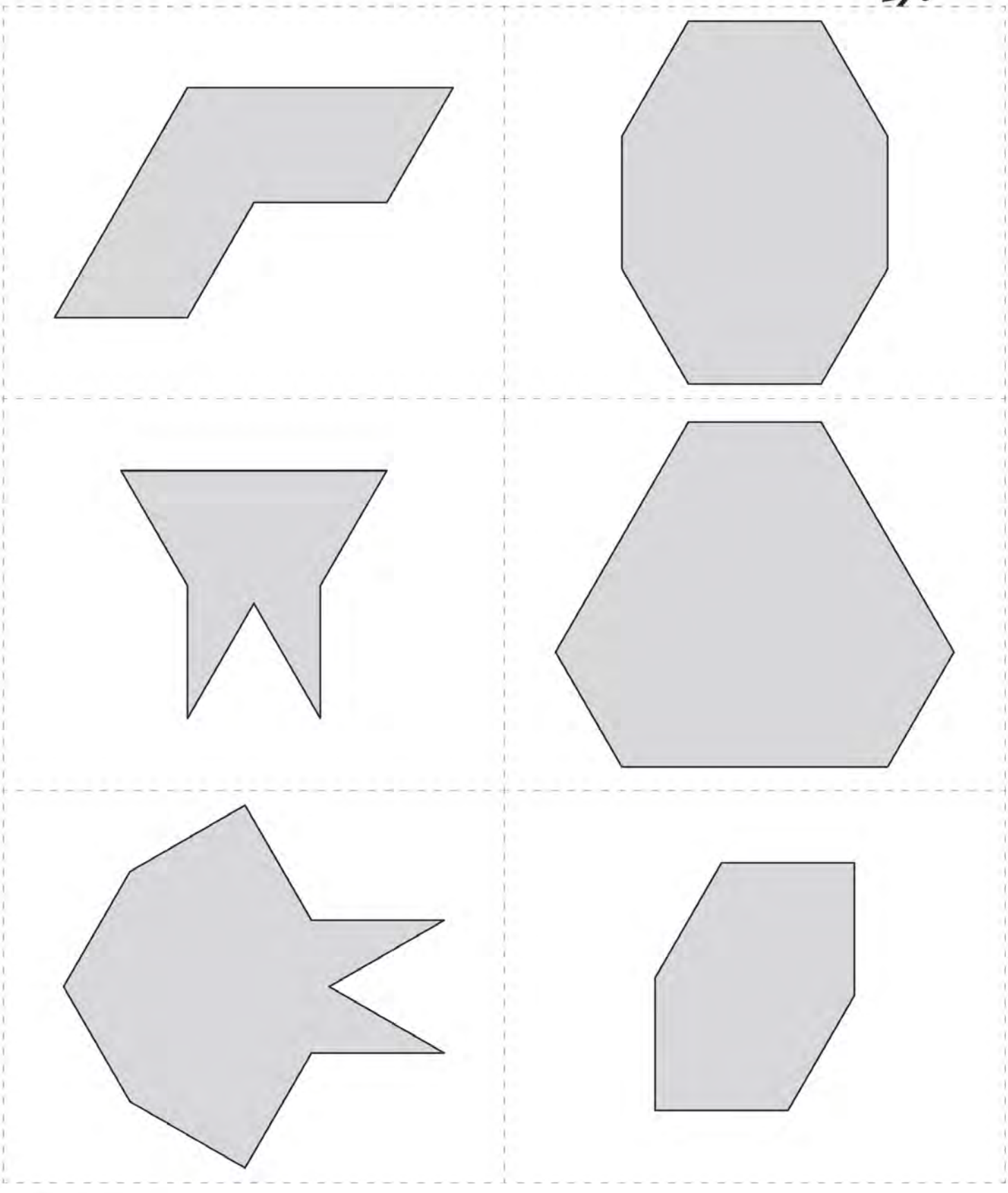

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Measurement Language for Early Childhood

Measurement Attribute Language Stages	**Length**	**Capacity/ Volume**	**Mass**	**Area**
Child's Language	long, short tall, short small, big, little wide, narrow skinny, fat thick, thin, deep, shallow, zigzag **Distance**- a long way, far, close, near, over there, away	empty, full, not full, fill, level, refill, overflows, holds, as much as, less than, more than, holds most, too much, not enough, spill, drip, sprinkle	heavy, light too much, too little, enough, not enough, the same, different, weight, a lot, big, almost, more, less feels heavy, feels light, heft	size, big, small, shape, space, large, cover
Material Language **(Emphasis on counting units)**	How many? Count to find out. ribbons- long and short, clothes pins, shoelaces, body length, arm spans, rulers, stacked blocks, as long as **Distance**- paces, foot lengths **Perimeter**- boundaries, edges	How many to fill? Count the number. cupfuls, mugs, spoonfuls, scoopful, bucket, egg-cupful, jugs, containers small and large, sieve, funnel, pour cubes, blocks, sand, water	How many cubes balance the toy on the scales? balance, scales, heavy, light, level, doesn't balance, weight, cubes, blocks, fewer, playdough balls, junk objects, pan balance	How many hand prints cover the tabletop? fits, covers, inside the boundary, outside, more, less area, squares
Mathematical Language	feet, inch yard, mile meter centimeter decimeter millimeter kilometers ruler	cup pint quart gallon fluid ounce liter milliliter cubic centimetre	Pound, ounce, kilogram, gram, balance, mass, weight, half kilogram	surface, sides, circle, square, rectangle, triangle, completely covers, length by width
Symbol Language	**ft, in.** **yd, mi** **m, cm** **dm, mm** **km**	**pt** **qt** **gal** **L** **mL** **cm^3**	**lb** **oz** **kg** **g**	**l** x **w or l • w** **m^2** **km^2** **cm^2** **½ (l X w)**

Measurement Attribute Language Stages	**Time**	**Angle-** *Geometry Strand*	**Money-** *Number Strand*
Child's Language	order of events in personal and school day, how long to ..., time, days, weeks, clock, one ... twelve o'clock, yesterday, today, tomorrow, long time, short time, morning, afternoon, nighttime, age, before, after, next, old, young, slow, fast, early, late,	turn, twist, go around, spin, roll, circle around, twirl, left, right, straight and curved lines, forward, backward, reverse	buy, coins, dollars, sell, pocket money, money, cents, spend, bank, change, use credit card, hundred dollars, shop, fare, rich, poor, save
Material Language **(Emphasis on counting units)**	How many hops can you make in one minute? How long does it take to eat an ice cream cone? Count minutes. types of clocks, egg timers, stop watches, pendulums, hands of the clock, calendar	Count the steps around one-fourth of the circle. move the arms apart, turn around, move the geostrips apart, find some angles that match the right angle, amount of turn	Count the money? Match the price (2 dollars) and the money. Add two prices. coins, dollars, cents, price tag, cost, change, buy, sell, costs less, costs more, credit card
Mathematical Language	minutes, hours, 15 minutes long, 30 minutes long, half an hour long	angle, right angle, less than a right angle, more than a right angle, rotate, revolve, degrees, protractor, compass, square corner	dollars, cents, cost, price tag, money left, change, worth it, value, sell, buy, price, paid, costs, more, same price, cost per __, cheaper, dearer, expensive, pay, notes, amount, total, charge, credit card, equal amount of money
Symbol Language	**am/pm** **___:___**	**___°**	**$** **c**

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