

# Problem Solvers Activity 15: Hide And Seek Shapes

## CHILDREN ARE LEARNING TO...<sup>1</sup>

- Identify simple two-dimensional shapes, such as a circle and square.
- Combine individual shapes to represent different elements of a picture or design.

## MATERIALS NEEDED:

Optional: Attribute blocks created in Activity 14

1 large piece of white paper per each child

Shape cut-outs for crafting (at least 20-30 per child; look for collections that include circle, square and triangle)

4 small plastic bowls or baskets

Glue sticks, one per child

Drawing or construction paper, 1-2 sheets per child

### Handout 1: House

### Handout 2: Shape Combinations

### Handout 3: Hidden Pictures

## PREPARATION:

- From **Handout 1**, cut out the house and glue to a manila folder. Cut out the window, door and doorknob separately. If you wish, glue these to index cards to make them a bit sturdier.
- From **Handout 2**, cut out the combined shape, and the two separate shapes. Glue each to posterboard or manila folder to make them sturdier.
- Make color copies of **Handout 3** and glue each to manila folder to make it sturdier.
- Keep the attribute blocks (if using, from Activity 14) handy for children to reference as needed.
- If shape cut-outs are unavailable, skip the second part of the partner activity (creating shape pictures).
- If shape cut-outs are available, place a large handful in each of four bowls. Have additional shapes nearby if children need more.
- Prepare copies of the parent handout for distribution.
- If you plan on implementing the optional book activity, refer to the preparation instructions in that section.

<sup>1</sup> California Department of Education (2008). Preschool Learning Foundations. Retrieved from <https://www.cde.ca.gov/sp/cd/re/documents/preschoollf.pdf>

## ACTIVITY INSTRUCTIONS

### ENGAGE

Gather a group of 4 children.

**SAY:** Problem Solvers, today we are going to start by looking at a picture.

Show children **Handout 1**. (Keep the door, window and doorknob separate for now.)

**ASK:** What do you see in this picture? What do you think this is?

Encourage children to share their ideas—most will guess “house.”

**ASK:** What parts of a house do you see?

Trace the roof of the house with your finger. Trace the walls of the house with your finger.

**ASK:** Do you think anything is missing from this house? What do you think this house needs?

If children don’t suggest door or window, you might ask: How would you get in this house? How could you see outside from this house? What would you need? (Door, window)

Take out these additional pieces (the two-square shape for the door, the circle for the doorknob, and the square for the window). Ask for volunteers to place them on the house.

**SAY:** Problem Solvers, I think there are some shapes hiding in our house. Who sees a shape?

Pause and let children examine the house.

If children do not name/point out a shape, take out the square attribute block and place it on the table where children can see. Ask: Do you see a shape with 4 corners and 4 sides in our house picture?

**Continue** finding shapes together until children find 4 squares (the house, the window, and the 2 squares in door), 1 triangle (the roof), and 1 circle (the doorknob).

Note that some children may point out that the windowpanes are four squares—if they do, validate this great observation and agree that when you combine 4 small squares, it makes one big square. If children don’t mention it, ask them: “What do you notice about the shapes *in* the window? Do you see any shapes hiding?”

**SAY:** Our house was built with different shapes. We can combine shapes to create *new* shapes. Then we can take shapes away and use them to make something new.

## EXPAND

**ASK:** Problem Solvers, I have some more shapes that are playing hide-and-seek with me today.

**Take out** the square formed by two triangles (from **Handout 2**.)

**SAY:** What can you tell me about this shape? Would someone like to trace it and tell us how many sides it has? Would someone like to touch the points and tell us how many points?

**SAY:** Yes, it has 4 sides and 4 points. (Show with your finger.) This shape is a...(pause to see if children fill in)...square! There are two shapes hiding in our square. Do you see them?

**Pause** to see if children point out the triangles.

**SAY:** I spy two other shapes right here (point to the triangles). Can any Problem Solvers help me figure out what these hiding shapes are? Let's run our fingers around the edges to see how many sides they have. (3) Let's count the corners. (3)

**ASK:** Hmmm. Our hiding shapes each have 3 sides and 3 corners. Does anyone know what the name of these shapes might be? Yes: they are triangles!

**Take out the triangles** (from Handout 2) and ask for volunteers to place them on the square.

**SAY:** There they are! We see you, triangles! Now let's try a different shape.

**Take out** the circle (from **Handout 2**.)

**SAY:** What can you tell me about this shape? Would someone like to trace it and tell us how many sides it has? Would someone like to touch the points and tell us how many points?

**SAY:** It has one long, curved side and no points or corners. This shape is called a circle, but there are two shapes hiding inside. Do you see them?

**Pause** to see if children point out the semi-circle.

**SAY:** Yes, this is a new shape for us. It is called a semi-circle. Can you say that word: Semi-circle. It means "half a circle." It has a long curved side and one straight side.

**ASK:** Can some Problem Solvers help me figure out how many semi-circles are hiding in our picture? Yes! There are two semi-circles hiding in our circle. (Point to each.)

**Take out the semi-circles** (from Handout 2) and place them on the table. Give each child a chance to trace it with their finger.

**SAY:** Would anyone like to put the semi-circles on our circle? (After the children place them:) We can combine 2 semi-circles to make a circle! We can combine shapes to create new shapes. We see you, semi-circles!

## AN UPSIDE DOWN TRIANGLE?

You may find that children become familiar with shapes in typical orientations or placements on the page. For example, triangles are often presented with a straight edge at the base of the triangle. When children see a triangle oriented with a point at the base, you may hear them label this as an "upside down triangle." In fact, triangles remain triangles no matter how they are placed or oriented on the page.

**This is why it's important to show children shapes in various orientations**—so they can learn that the important things about shapes are their attributes, not their positions.



## EXPLORE

**Introduce the hidden picture activity:**

**ASK:** Problem Solvers, there are some more shapes playing hide and seek! I am going to give each of you a picture. You will see that there are some silly shapes hiding in your pictures! Let's see if we can find them.

**Place** a hidden picture in front of each pair of children.

**ASK:** Who sees a shape in their picture? Can you show me?

**Invite each child to show you a shape they have found in their hidden picture.**

**SAY:** Take a few minutes to look at your pictures and see if you can find the hidden shapes. As you find the shapes, trace them with your finger. If you know the name, you can tell your partner the name of the shape you found.

**If children need assistance:** Have the basket of attribute blocks at the table for children to use as a reference. Encourage the child to notice a shape in their picture. Ask them to trace the sides. Explore how many points/corners it has and how many sides. Suggest they look in the basket for a shape like that and then find the place where it fits on the picture.

Adjust your level of support based on each child's needs. Talk with children about their hidden picture, what they see, and what they are discovering. Encourage them to show/tell you the different shapes they find.

**Conclude the activity:** Give the pairs a chance to show their peers their picture and share one of the hidden shapes they found.

**Introduce the Partner Pictures activity (if you have shape cut-outs available):**

**SAY:** I'm going to give you each a piece of paper and basket of shapes to share. You can place the shapes on your paper however you'd like. Maybe you'd like to make a line of shapes, a pattern with shapes, or even a picture with the shapes. You can use your imagination to combine shapes to make whatever you'd like.

**Give children time to place their shapes on the page.** When they appear to be done, you can offer them glue sticks to stick the shapes to the paper. If a child is done much before the others, you can encourage them to add more shapes, tell you about their picture, or offer crayons or markers for them to embellish their pictures.

**SAY:** Now I'd like you to share your picture with your partner. Tell your partner how you made it. Partners, your job is to see if you can find any shapes hiding in the picture.

**Give partners time** to discuss the pictures and find some of the shapes "hidden" there.

**Conclude the activity** by asking each child to name a shape they found hiding in their partner's picture.

## REFLECT

To close the activity, bring the children back together. Use reflective questions - like those below - to prompt children's thinking about these activities. Listen for how children describe the shapes they used as they respond to these discussion questions.

- What was a shape that you found hiding today?
- What were some shapes you used in your picture?
- Tell me about your hidden picture. What discoveries did you make? What shapes did you find hiding there?
- Was it tricky to find shapes in your hidden picture? What did you do to find them?
- What did you like about making pictures with the shapes? What *didn't* you like about using the shapes to make a picture?
- Did you combine any shapes in your picture today? Tell me about what you did.

## Individualizing the Activity

### MAKE IT MORE CHALLENGING:

- Give each child a copy of **Handout 2** and their own shape cut-outs so they can recreate the two rectangles and circle on their own.

### MAKE IT LESS CHALLENGING:

- Use the penguin image from **Handout 3** for all children. Work on the hidden picture as a group, taking turns to ask a child to find shapes in the penguin. Invite all children to trace the shapes with their fingers and have attribute blocks handy for children to see and touch.

### MAKING CONNECTIONS ACROSS THE DAY:

- Offer Tangrams, shape puzzles, shape cards and/or pattern blocks as Center choices to give children the opportunity to continue exploring shape concepts and combinations.
- Notice how shapes are combined in the children's environment. Point them out and name them. For example, six small rectangular window panes may form one large rectangle.
- Talk about the attributes of shapes across the day. For example, on pizza day, a child may point out that a slice looks like a triangle. Recognize that their observation is a good one: The slice has three sides and three points or vertices. But are all the sides straight? Or is one curved to fit in the pizza pan? A slice of pizza is *almost* a triangle. Children learn a lot from thinking about why it *is* a triangle, and why it *isn't* a triangle.<sup>2</sup>

<sup>2</sup> Erikson Institute's Early Math Collaborative. *Big Ideas of Early Mathematics: What Teachers of Young Children Need to Know* (2014), Pearson Education.

## Song: *Finding Shapes*

The lyrics to the song are below. There are suggestions for props to hold up or show as you listen the first time through. As you listen a second time, choose children to show you the different shapes that are mentioned.

Shapes are hiding everywhere.	(Pretend to look around)
Here's a circle, there's a square	(Point to a circle and a square)
We can find them, if we dare!	(Nod head)
Shapes are hiding everywhere.	(Pretend to look around)
Circle, circle, nice and round	(Show a circle cut-out)
On my cup it can be found	(Show the rim of a cup)
Bowls and plates have circles, too	(Show a bowl and plate)
We see circles, yes we do!	
Look, my house it is a square	(Show the house picture from the activity)
Four equal sides up in the air	
Windows can be squares, too	(Point to the window on the house)
We see squares, oh, yes we do!	
Triangles with corners three	(Show a triangle cut-out)
On my doggie's ears, I see	(Hold two triangle cut-outs on top of your head like ears)
Or the tip of kitty's nose	(Hold a triangle cut-out over your nose)
There a little triangle goes.	
Shapes are hiding everywhere.	(Pretend to look around)
Here's a circle, there's a square	(Point to a circle and a square)
We can find them, if we dare!	(Nod head)
Shapes are hiding everywhere.	(Pretend to look around)

## Making Literacy Connections

Share the following book with children as an opportunity to deepen their understanding of shapes. The literacy extension activity below suggests another play-based experience to build awareness of shapes.

**Suggested Book:** *Mouse Shapes* by Ellen Stoll Walsh

### AS YOU READ:

This book has a simple plot, but much to discover as the mice combine a variety of shapes to make a house and more. As you read:

- Consider pre-teaching the names and attributes of the new shape introduced in the book, but not in this unit: the **oval**. An oval is a stretched-out circle.<sup>3</sup> You may want to draw one so children can see it.
- Pause on the first two-page spread and ask children if they can find any shapes on the page. As you move through the book, ask children to find the shapes that are hiding in the different things the mice are making (the house, the tree, the sun, the wagon, the book, and more).
- When the mice make a cat out of the shapes, ask children to help you figure out how many teeth (triangles) there are.
- When you get to the page where the cat “pounced,” define this new word for children. To *pounce* is to jump very quickly in order to catch something you want to eat (prey). Invite children to stand up and practice pouncing like a cat.
- When you get to the page where the mouse says, “I have an idea,” ask the children what they think might happen next.
- Ask the children what made the cat run away. Did the mouse’s idea work?

### BUILD ON THE BOOK

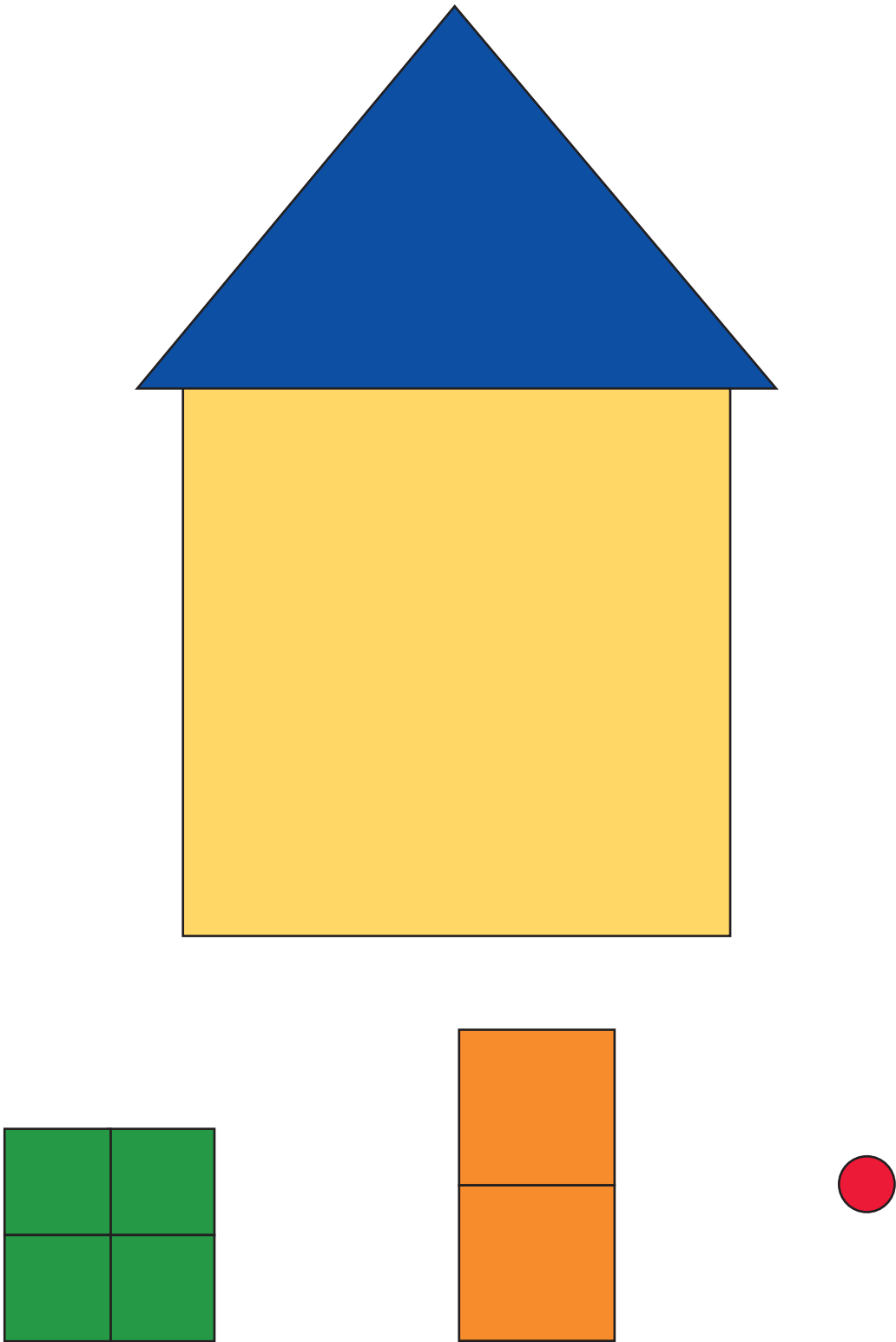
Materials: 4-5 pieces of posterboard, various colors; scissors

Cut out large versions of the shapes used in the book from the posterboard.

As you read, pause and ask for a volunteer(s) to use the large shape cut-outs to build the house, sun, wagon and more on the floor in the reading area. Offer these large shapes and a copy of the book as a choice for free play to encourage combining shapes and exploring their attributes.

<sup>3</sup> Erikson Institute’s Early Math Collaborative. *Big Ideas of Early Mathematics: What Teachers of Young Children Need to Know* (2014), Pearson Education.

Handout 1: House



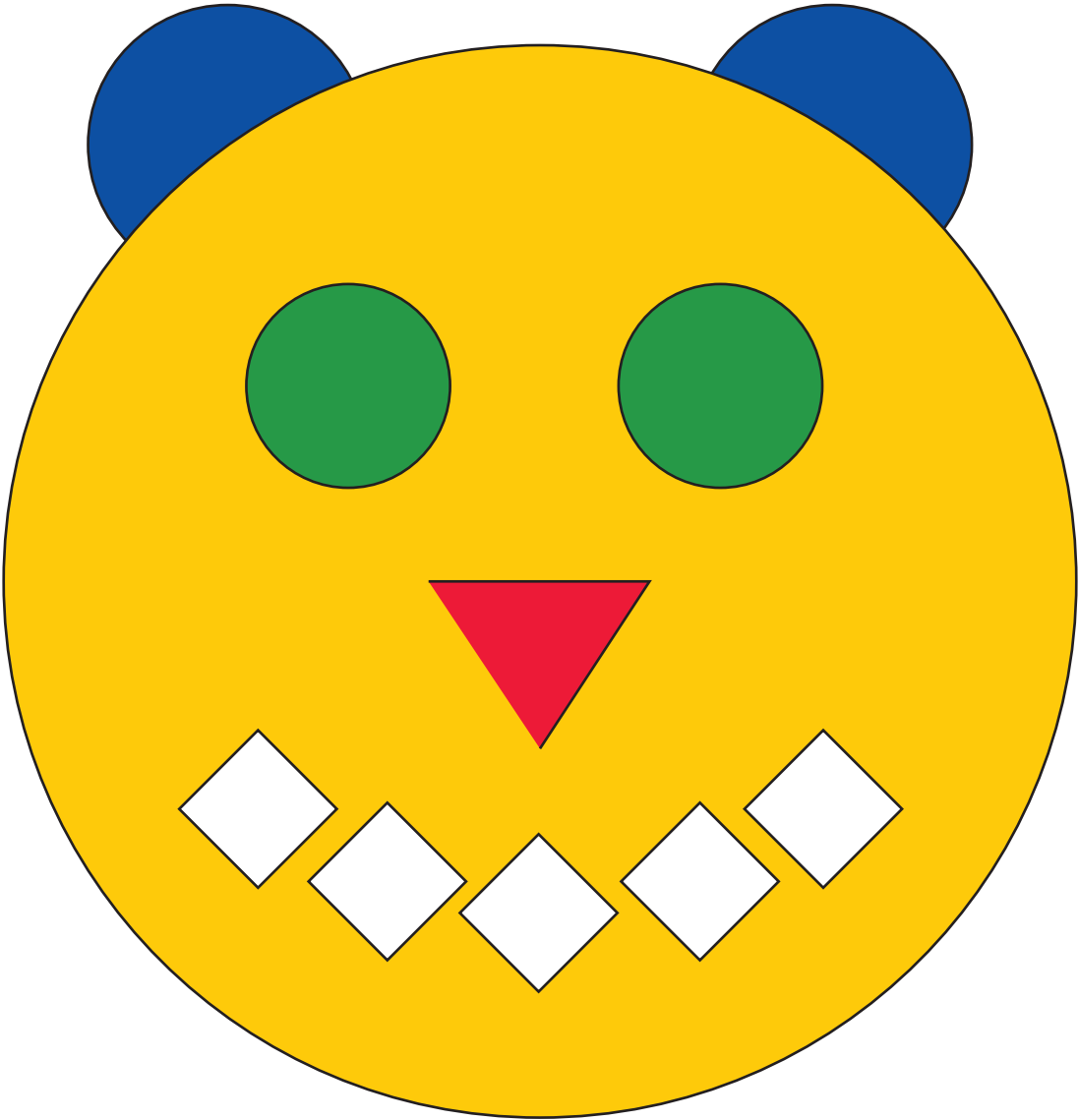


## Handout 2: Shape Combinations

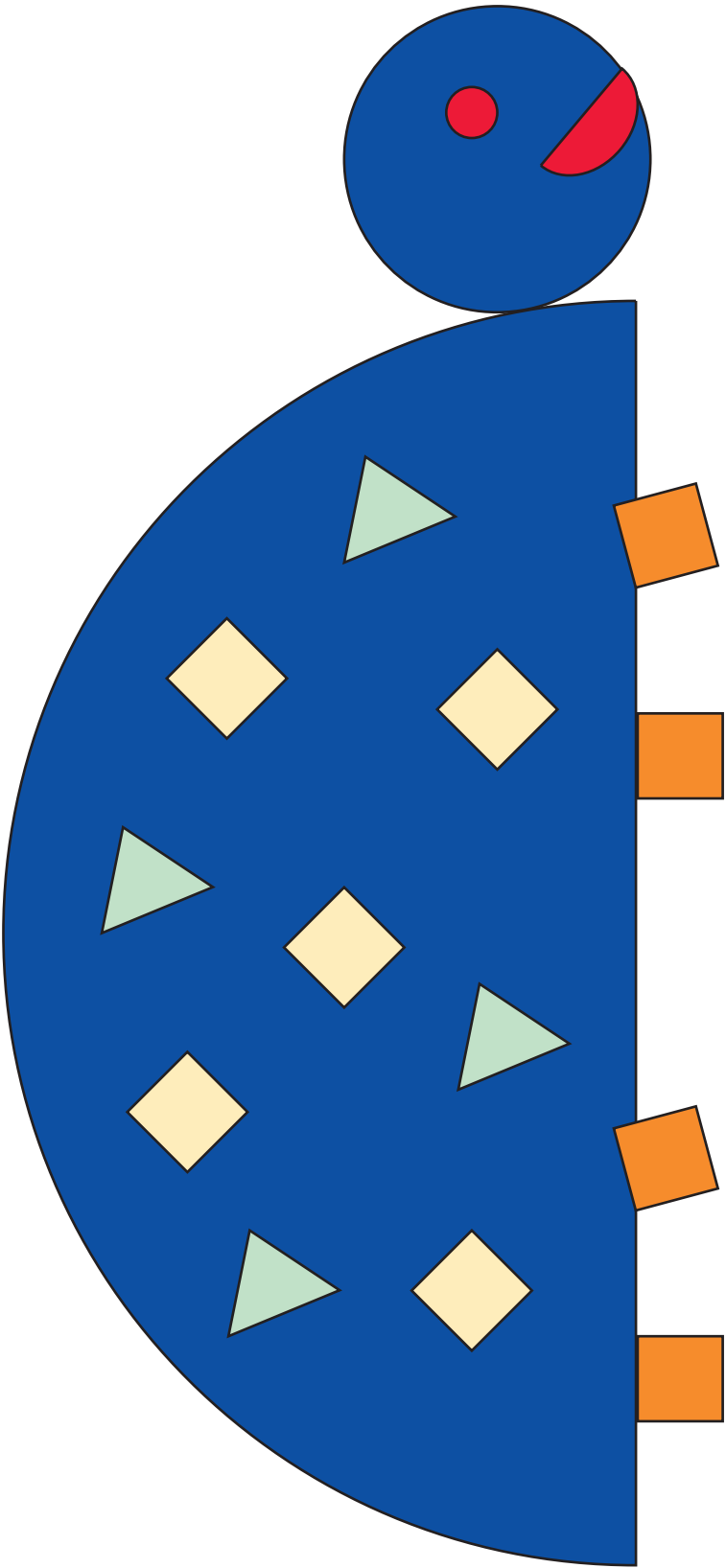




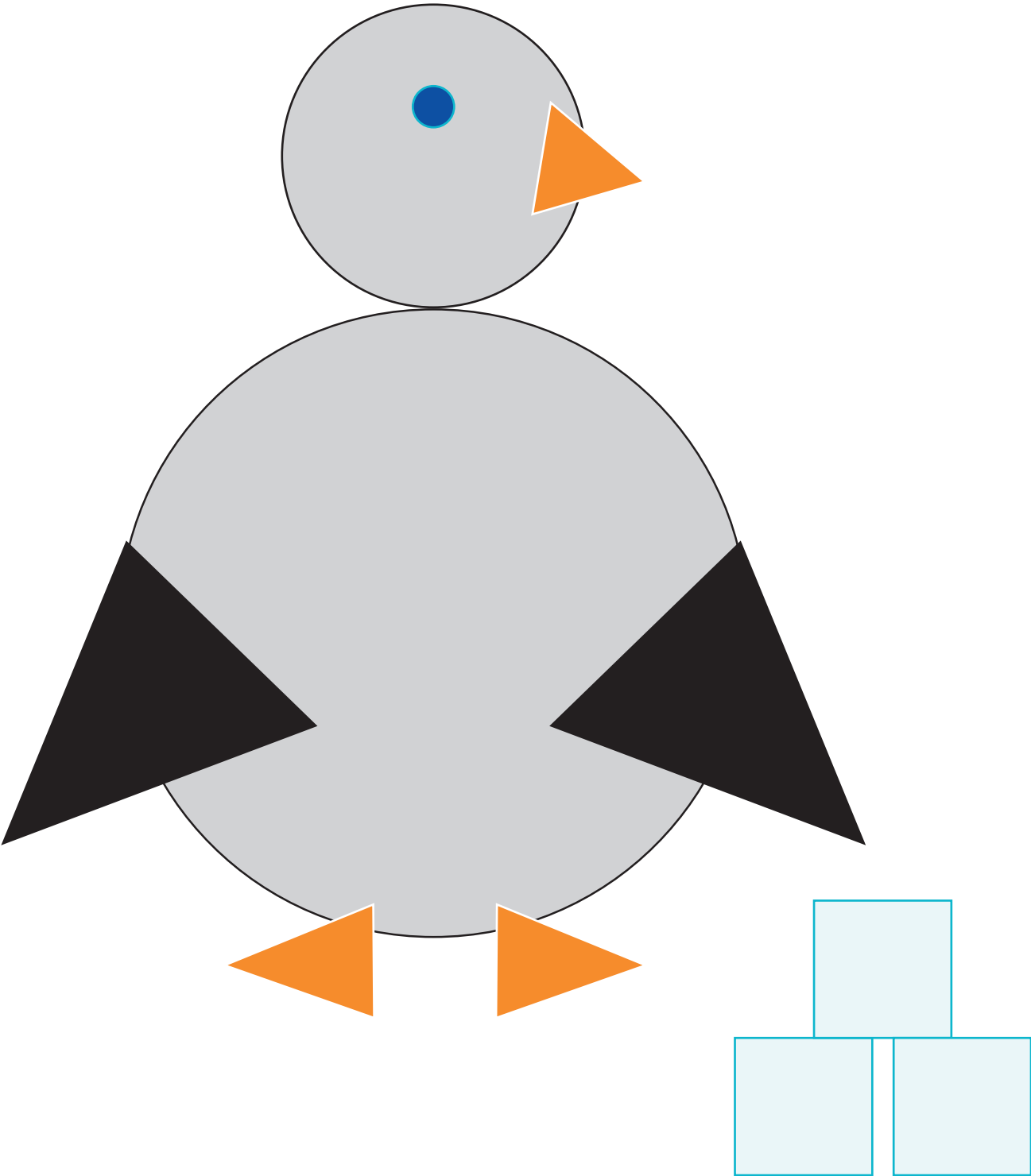
Handout 3: Hidden Picture—The Tiger



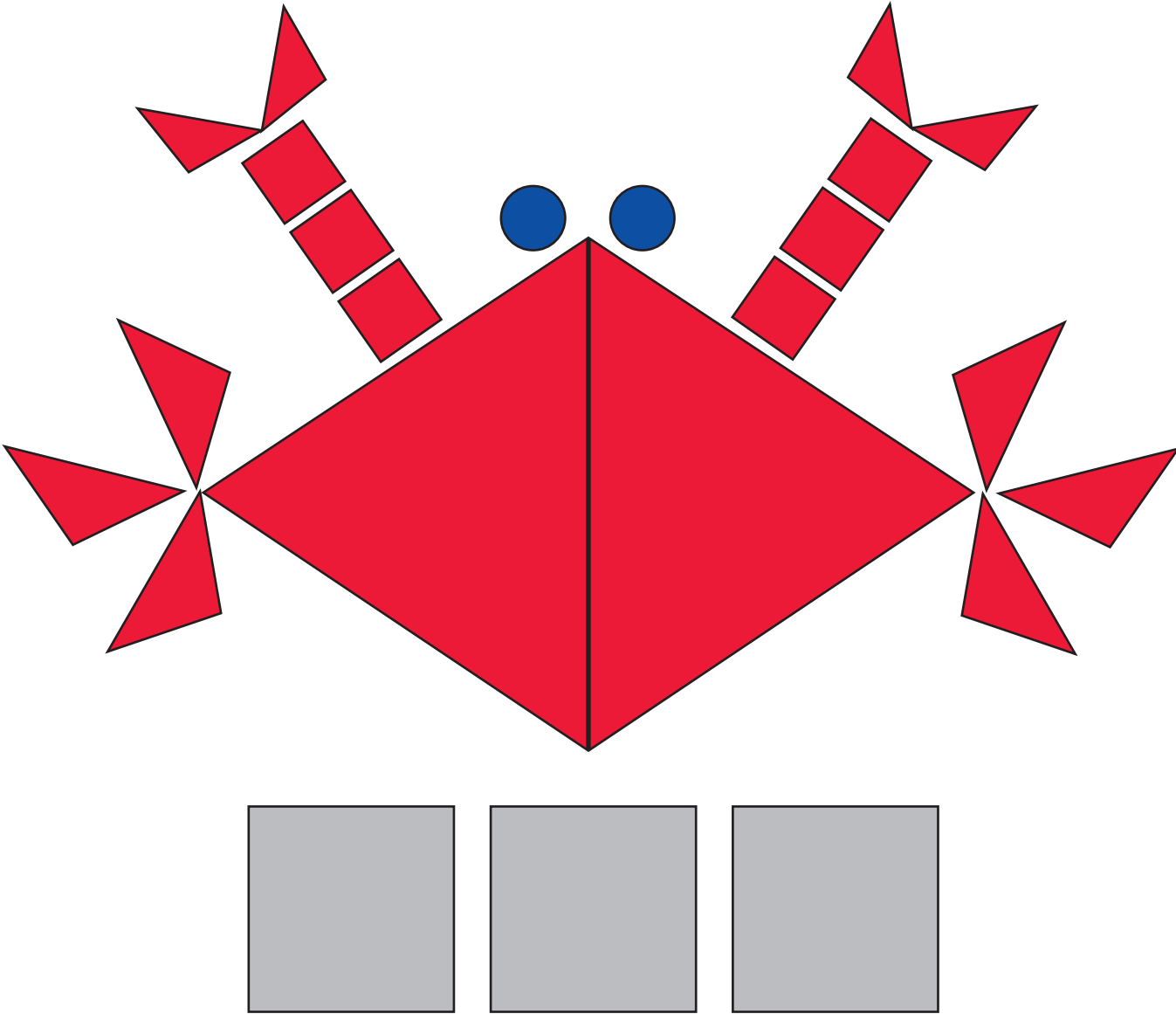
Handout 3: Hidden Picture—The Turtle

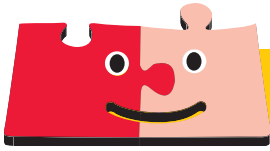


Handout 3: Hidden Picture—Penguin and Ice Cubes



Handout 3: Hidden Picture—Crab Sitting on Rocks





# Just for Families

## Shape Art

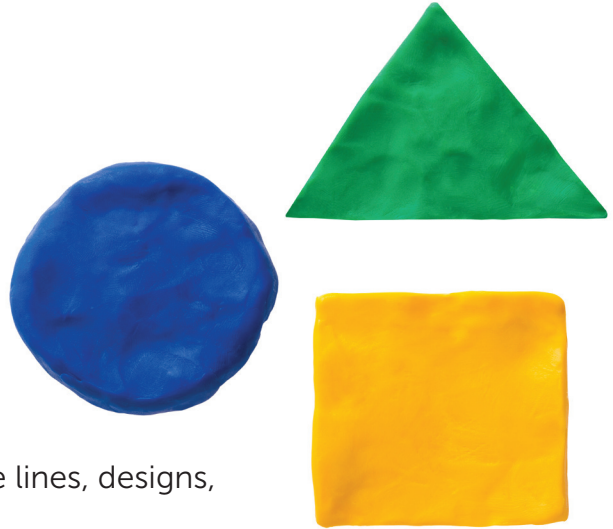
This week, we're learning about shapes:

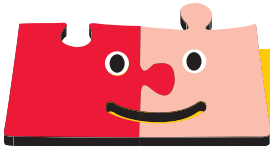
- **Circle** (no points, curved line)
- **Square** (4 corners, 4 equal sides)
- **Triangle** (3 corners, 3 sides)

Make a set of shapes for your child to play with by cutting 5 (each) of circles, squares, and triangles from scrap paper or cardboard. Together, create pictures by combining shapes

You can also use these shape cut-outs to make lines, designs, or even patterns.

Talk about the shapes you see as the two of you play. Count the sides. Count the corners. And name the shape!





## Solo para familias

### Arte y figuras

Esta semana, estamos aprendiendo sobre las figuras:

- **Círculo** (sin puntos, 0 lados curvos)
- **Cuadrado** (4 puntos, 4 lados iguales)
- **Triángulo** (3 puntos, 3 lados)

Haga un conjunto de figuras para que su hijo juegue cortando cinco (de cada uno) círculos, cuadrados, y triángulos de papel o cartón.

Con su hijo, haga dibujos combinando figuras.

Con su hijo, pueden crear líneas de figuras, diseños con figuras o incluso imágenes con estos recortes de figuras.

Hablen sobre la forma de las figuras que ven mientras juegan los dos. Cuente los lados. Cuente las esquinas. ¡Y nombre la forma de la figura!

