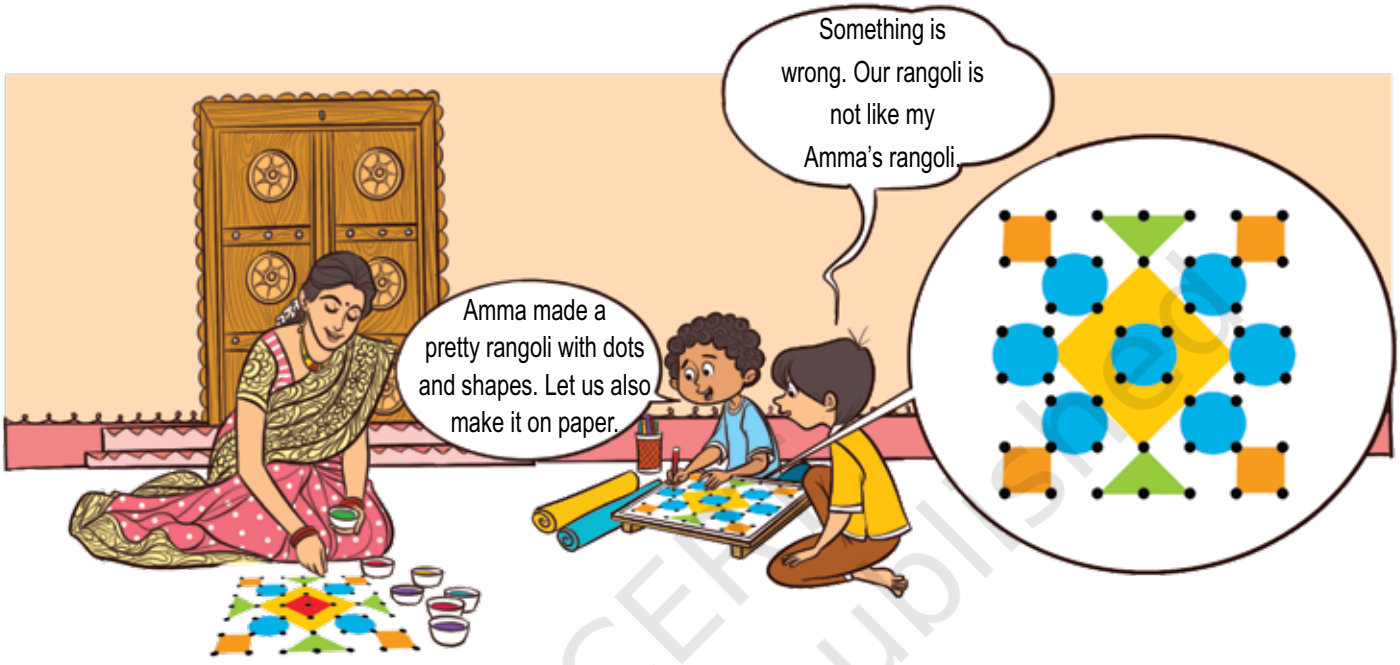
5 Fun with Shapes

0333CH05



Let us Do

1. Make Amma's *rangoli* on the dots given below.

2. Name the shapes drawn in Amma's *rangoli*:

_____, _____, _____

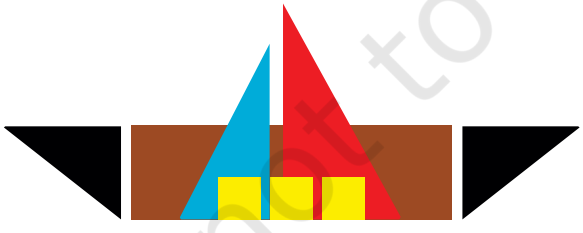
3. How many shapes are made with

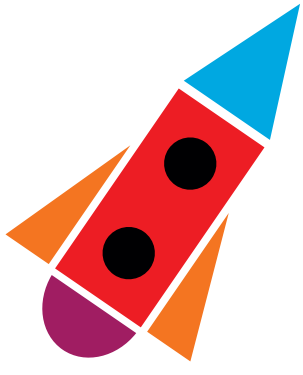
(i) Curved lines _____

(ii) Straight lines _____

4. Use cut outs of shapes to make a *rangoli* design. Outline the object and colour.

5. Try to make the following objects using shape cutouts.





*May use Early Mathematics Kit (NCERT)

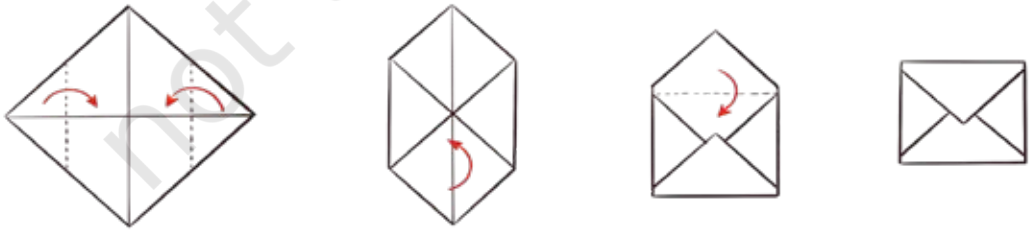
Teacher's Note: Encourage children to use cut outs of shapes creatively. Let children compare two rangolis and discuss their similarities and differences.

Let us Do

1. Collect some cardboard boxes and open them up carefully. What shapes do you see in the flattened boxes?

2. Make an Envelope. Use a square piece of paper and fold it as shown in the picture.

1 2 3 4



Teacher's Note: Encourage children to open the box and look at the number of faces and notice their shapes. Let children make cylinders and cones with paper, and cubes and cuboids with the nets provided in the book.

Baking biscuits

Why did the two children get different shapes? Discuss.

Name any three objects that have rectangular faces.

_____, _____, _____

Let us Do

1. Trace all the faces of any cuboidal object.
(example — sharpener or eraser)

(a) How many different faces did you get? _____

(b) What shapes are these faces? _____

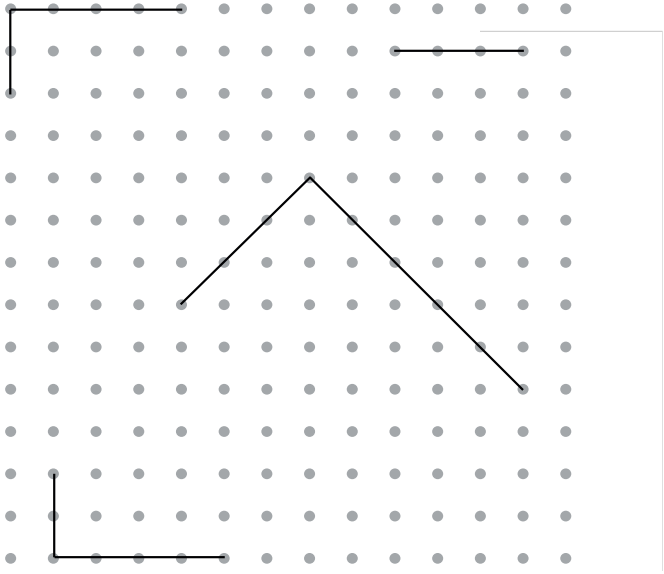
(c) Did you get a square? _____

(d) Can you get six different rectangles by tracing a cuboid? _____

(e) Can a cuboid have a face like a triangle? _____

(f) The faces of a cuboid are _____ or _____ in shape.

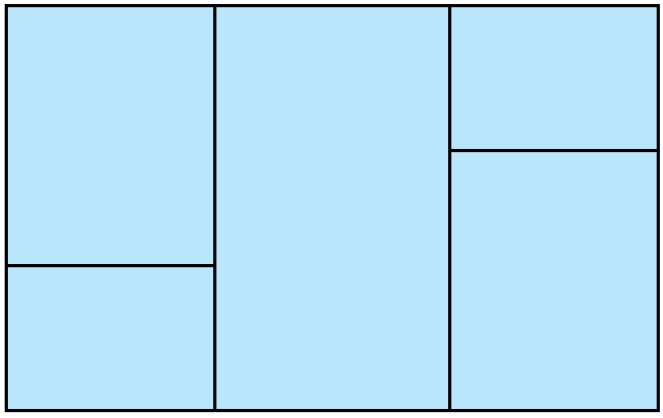
2. Construct the rectangles using the sides given below:



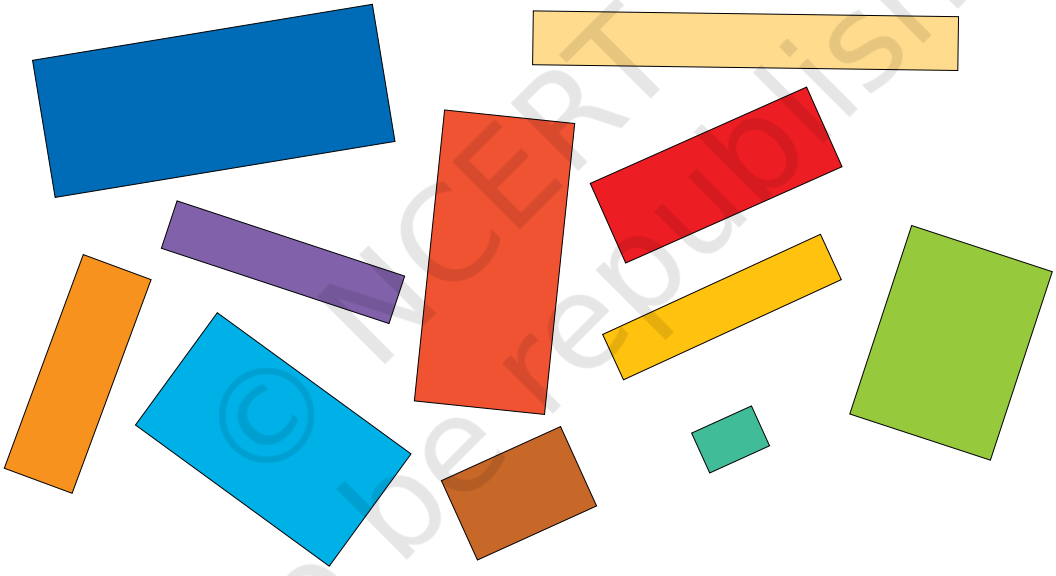
3. Draw 3 bigger rectangles around this small rectangle.

Teacher's Note: Allow children to build a rectangle with 4 sticks. Observe if children have developed an intuitive sense of a rectangle. Introduce the word rectangle. Provide them opportunities to observe and draw rectangles of different sizes and in different orientations on a dot grid.

4. Count and write the number of rectangles in the following picture. _____



5. Look at the different rectangles given below and answer the following questions.



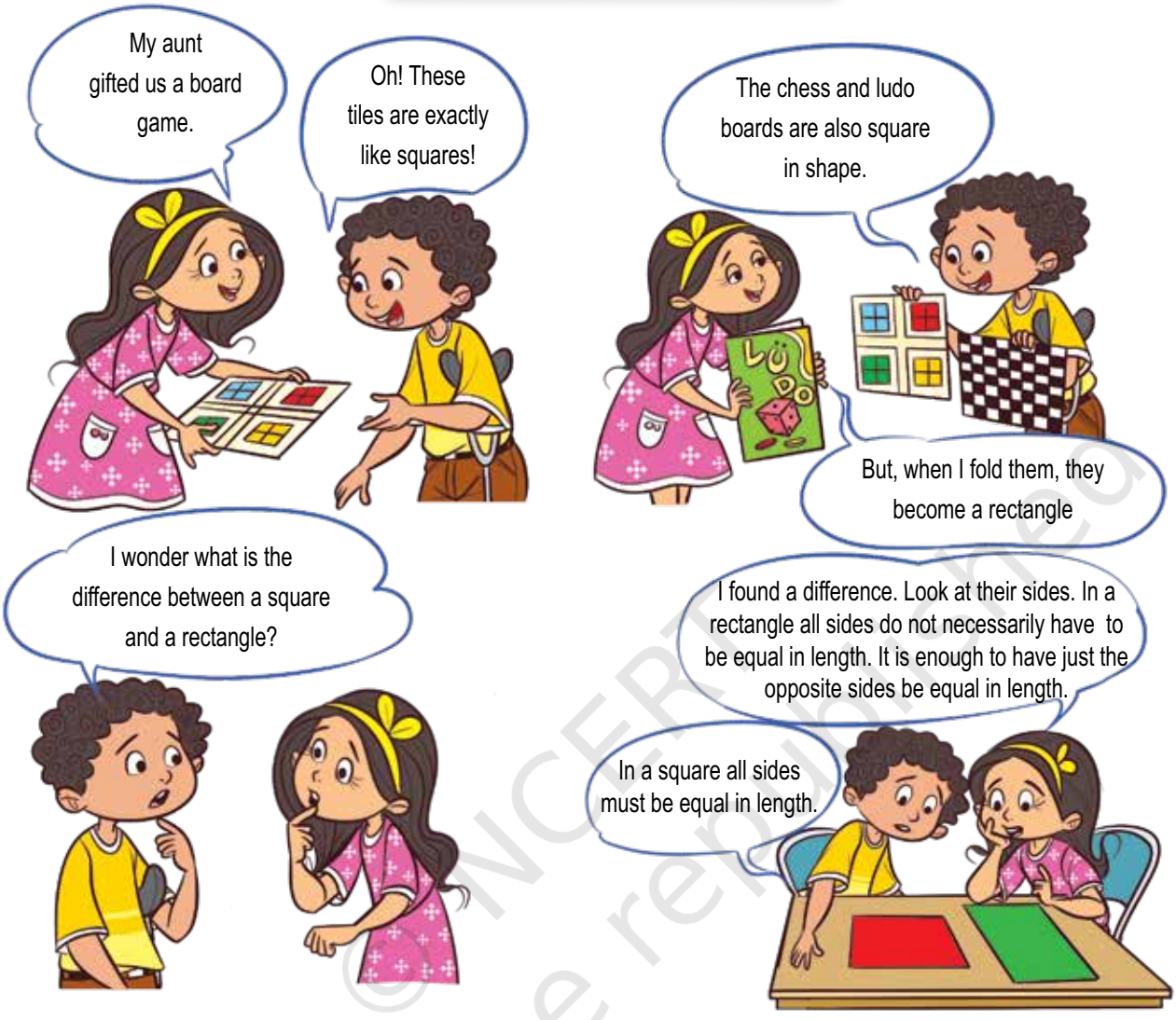
(a) How many sides are there in a rectangle? _____

(b) How many corners are there in a rectangle? _____

(c) Are there any sides in a rectangle that are equal in length to each other? _____

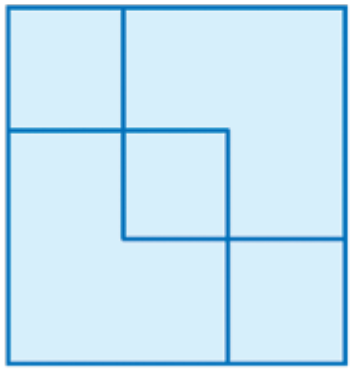
(d) What do you notice in a rectangle? Describe it in your own words.

Same to Same



1. Both have _____ sides.

2. Both have _____ corners.

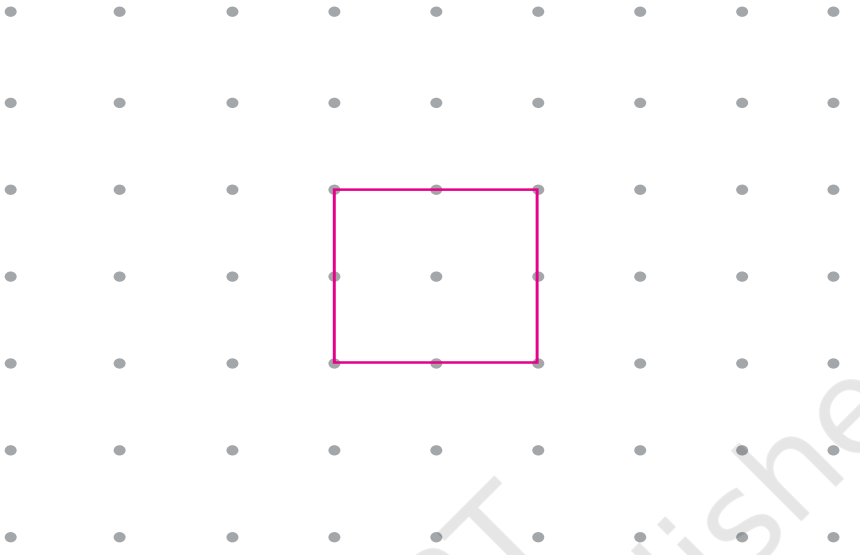


How many squares do you see in this drawing?

Teacher's Note: Allow children to make a square with 4 sticks. Observe if children have developed an intuitive sense of a square and right angle.

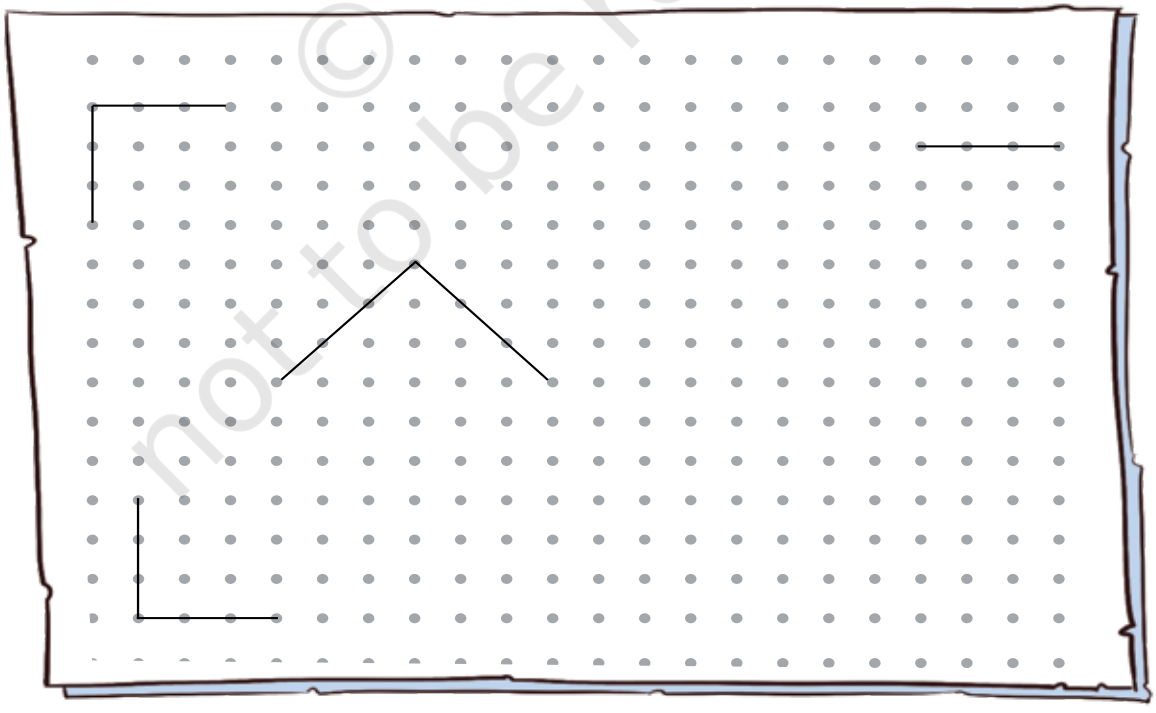
Let us Do

1. Here is a square. Draw 2 bigger squares around this square.



2. Use matchsticks to make a square so that it has squares on all its sides. How many squares did you get?

3. Complete the squares using the sides given below.



4. Use the square cutouts from the book to do this activity.

How many different shapes can you make by joining

(a) 2 squares

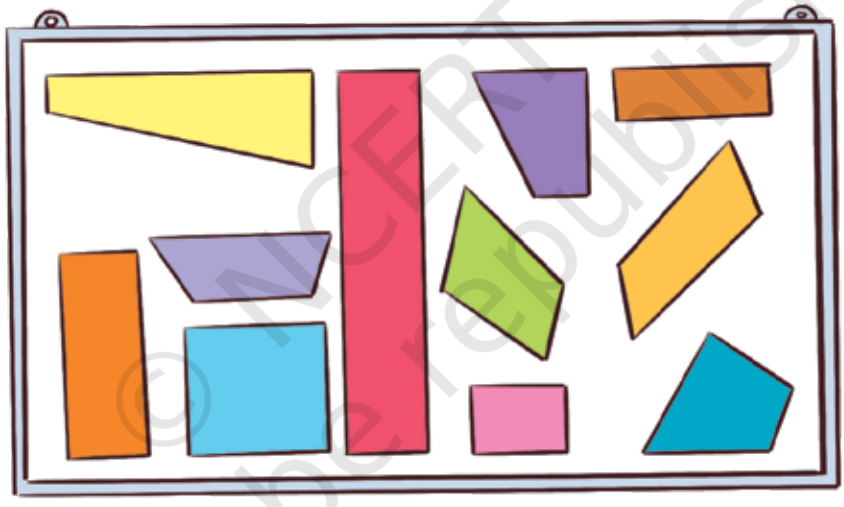
(b) 3 squares

(c) 4 squares

Show them in a dot grid. Some dot grids are provided in the back of the book.

Let us Explore

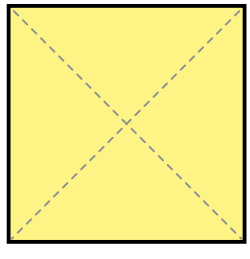
1. Tick ✓ the shapes that are rectangles.



Which figures are not rectangles? Explain why.

2. Can you fold all the corners of a square sheet in such a way that the number of corners remains the same?

3. Make a square on a cardboard sheet and cut along the dotted lines marked on the square as shown to get 4 triangles. Make as many different shapes as possible by joining three triangles together. How many shapes can you make?



Now try with four triangles together.

Square corners

Are the corners of a square the same?_____

How do you know?

Pile up some squares over one another and see.

Are the corners of a rectangle the same?

How do you know?

Pile up some rectangles over one another and see.

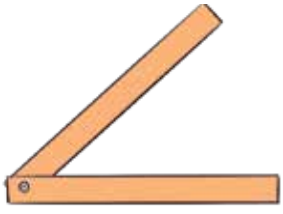
Are the corners of the square and a rectangle the same?

Name some objects in your class that have only square corners.

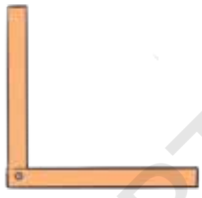
_____

Let us Do

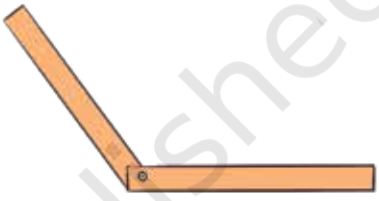
You can join two paper strips to show different corners.



Less than a square corner



Square corner

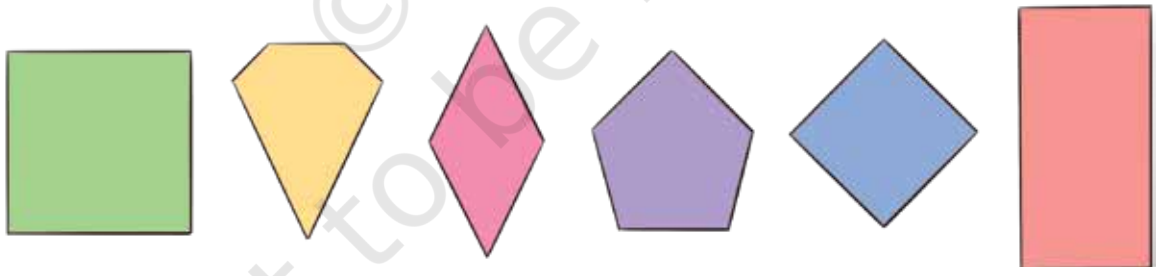


More than a square corner

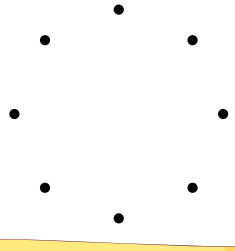
Use the strips to show a square corner, more than a square corner and less than a square corner.

Can you use the strip to check whether the corner of your table and the board are square corners?

1. Mark the square corners in these shapes.



2. Connect the dots to make some squares.



How many different squares did you get?

_____

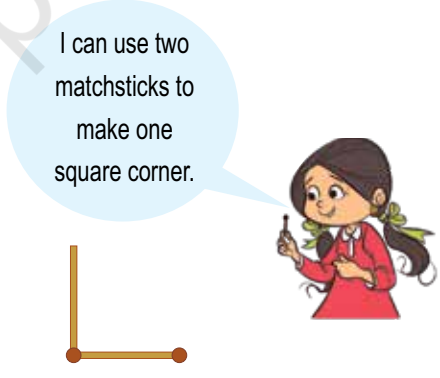
Teacher's Note: Encourage children to classify shapes with only a square corner, shapes with less than a square corner, and shapes with more than a square corner. Some shapes will have more than one type of corner. Make such shapes using matchsticks.

3. Look at the picture given below and answer the following.

a. Count and write the number of corners. ____

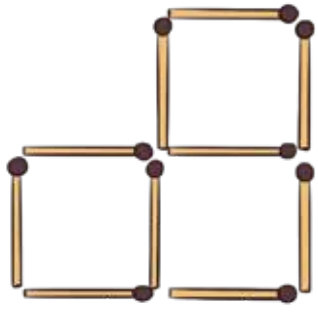
b. Circle the square corners.

4. Use two matchsticks to make two square corners and then four square corners. Draw and show it in the space given below:



5. Murugan made three squares with 10 matchsticks.

How many squares can you make with 12 matchsticks?



Triangle - Triangle ...so many Triangles

Describe a Triangle

Triangles have _____ sides. They have _____ corners.

Let us Do

1. Draw and name some triangular objects that you see around you, in your notebook.

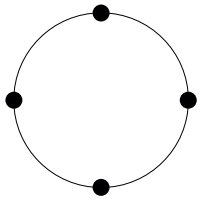
2. Count the number of triangles in the given rangoli.

(a) 

(b) 

_____ _____

3. How many different triangles can be made using the dots on this circle?

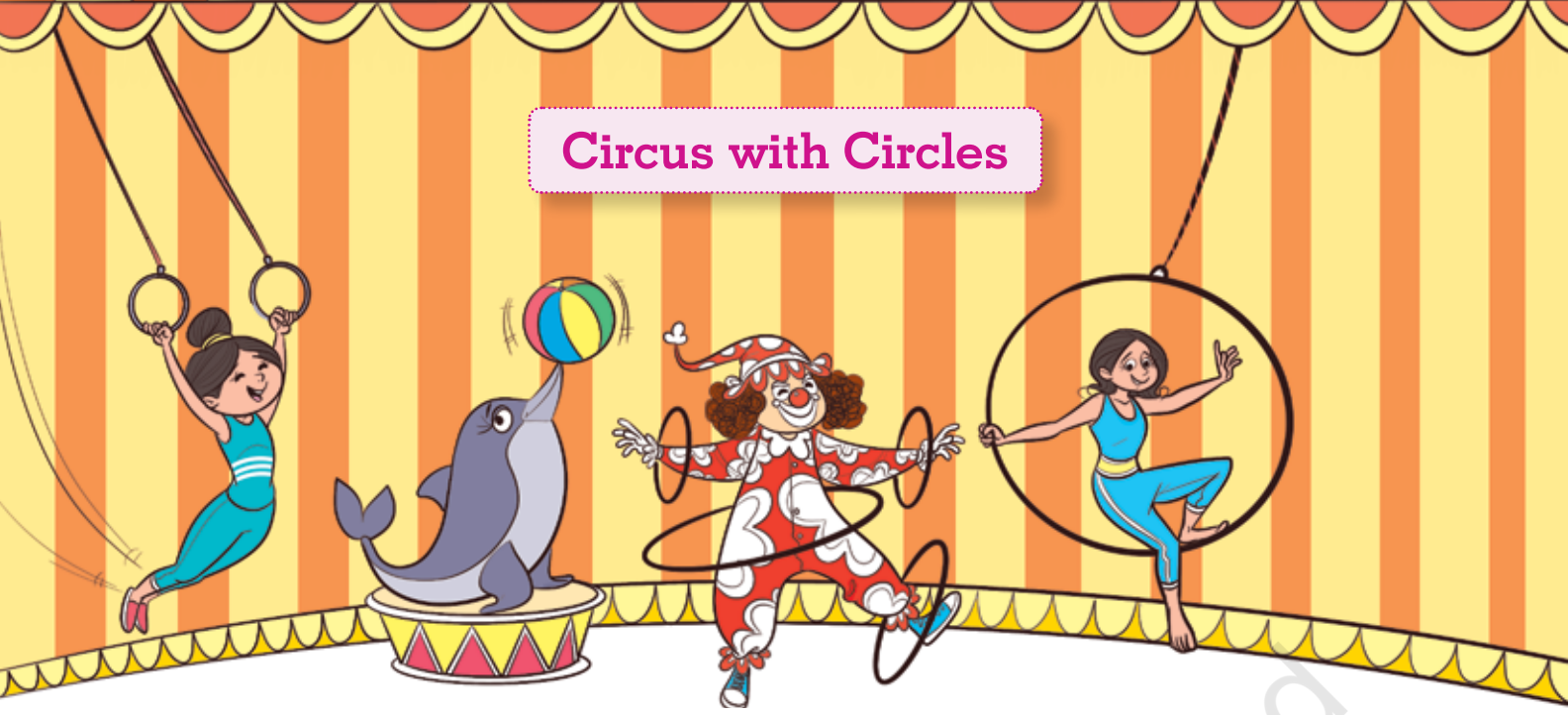


4. Move two matchsticks to turn the one triangle into two triangles.

Teacher's Note: Paper folding and cutting to be used to create different types of triangles.

Students should be encouraged to build triangles with sticks and clay.

Circus with Circles



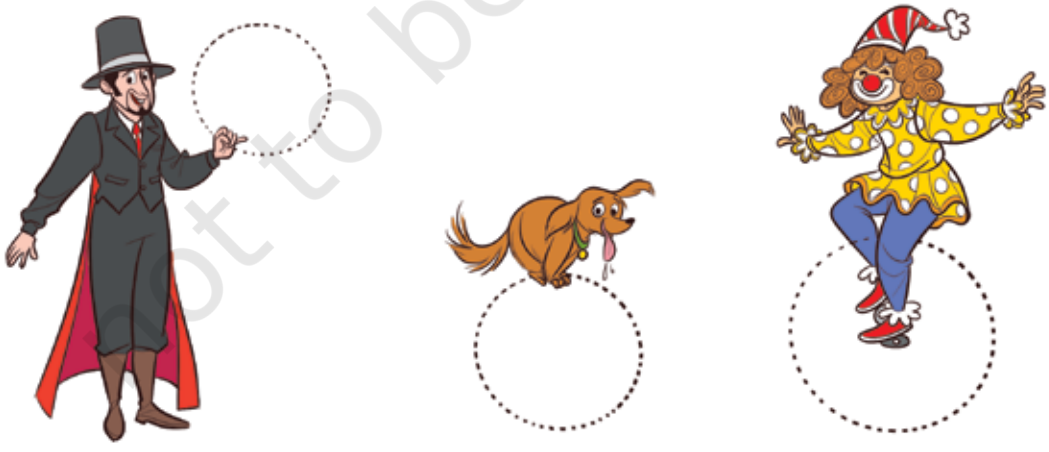
Let us Discuss

1. Have you been to a circus?
2. What does a circle look like? How is a circle different from a rectangle?

Let us Do

1. Name some objects that are like circles.

2. Draw colourful circles to complete the circus scene.

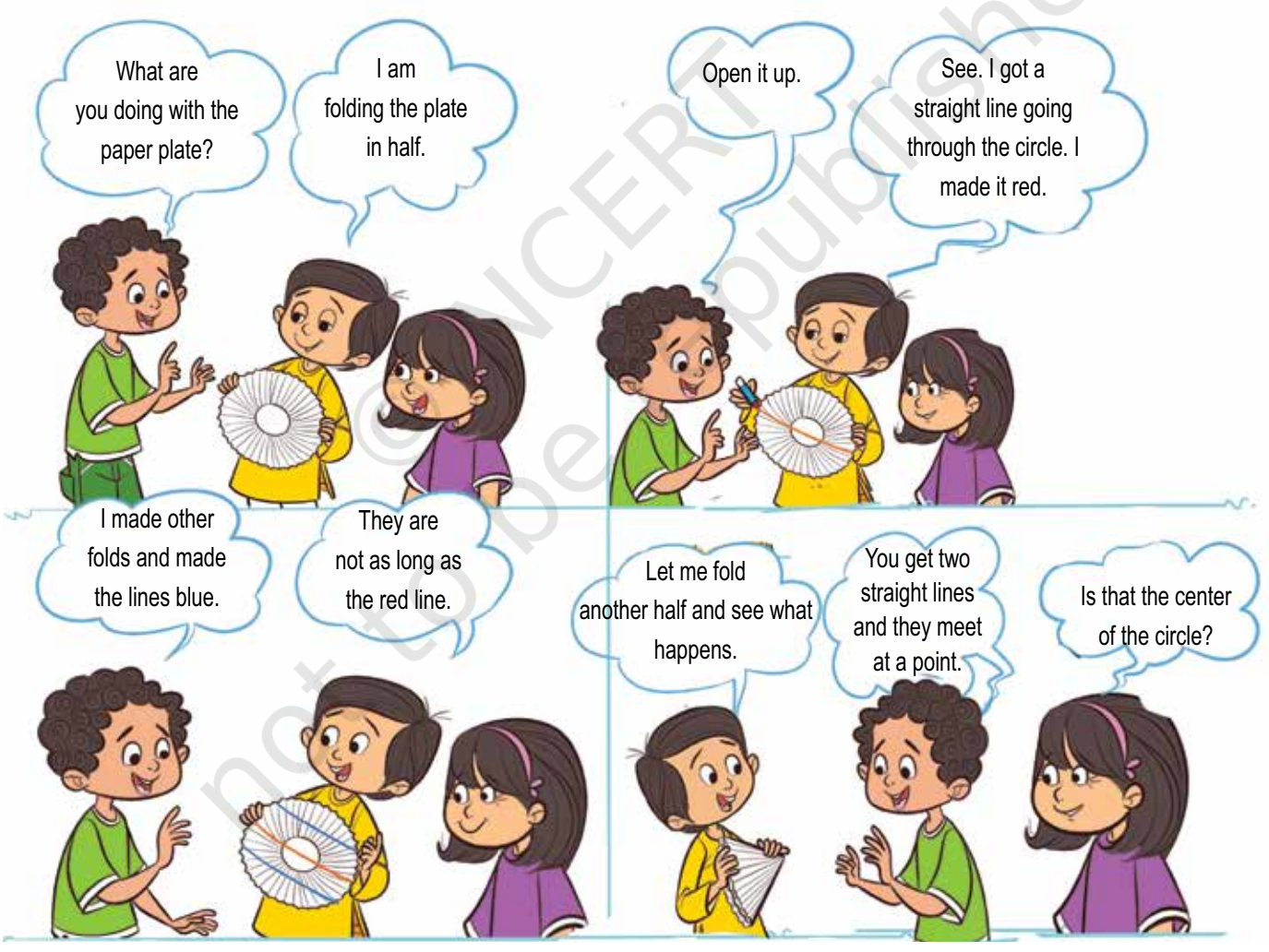


3. Draw circles by tracing bottle caps, bangles, and rings in your notebook.

Children are playing a game. They have made a circle on the ground.

Have you played any game where you need to draw a circle? _____

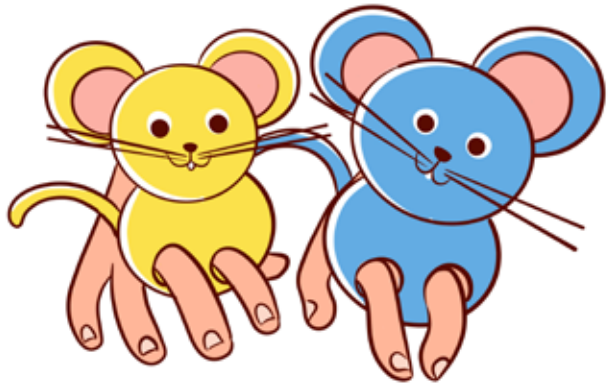
Try to make a
circle on the playground.



Let us take a paper plate and fold it in half the same ways as the children did.

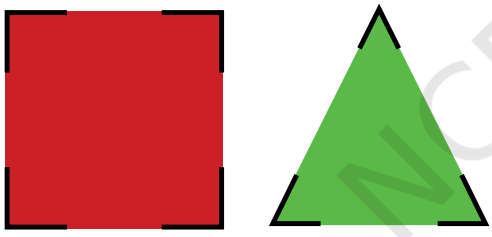
The point where the lines meet is the center of the circle.

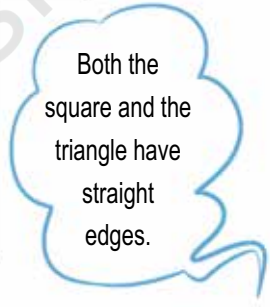
Make some puppets using circular shapes and play with them.



Let us Do

1. Look at these two shapes and discuss their similarities and differences. Tick ✓ the appropriate word.

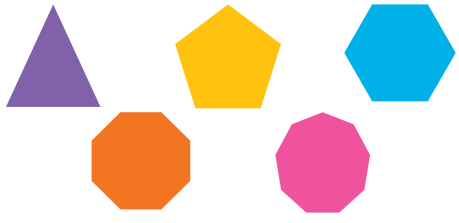




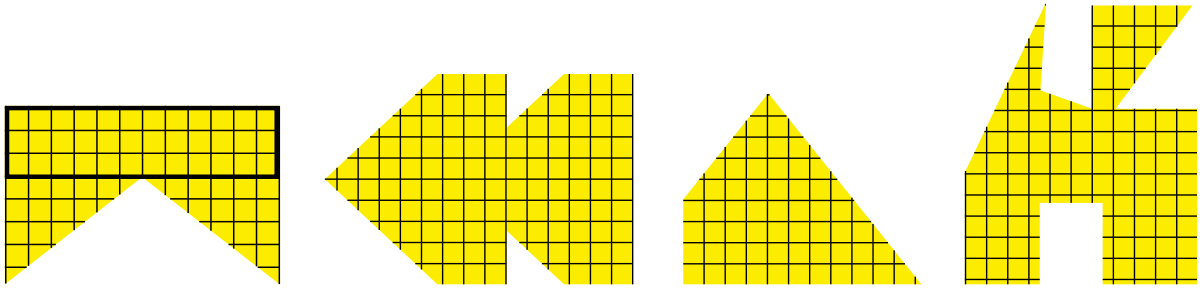
a. Their corners are: same ○ different ○

b. Number of sides is: same ○ different ○

2. Choose any pair of shapes. Share the similarities and differences in these shapes with your friends.



3. Find the largest rectangle in these shapes.

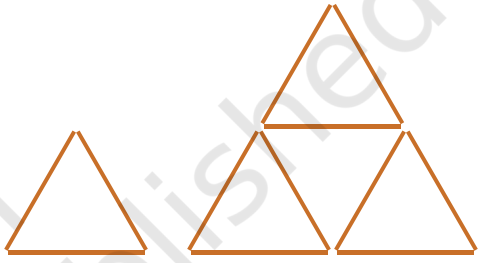


4. I made one triangle. Then I made another row of triangles.

How many triangles are there in the second figure?

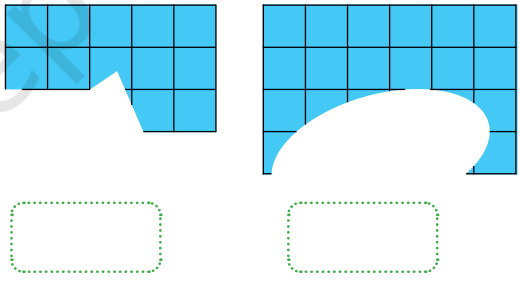
_____

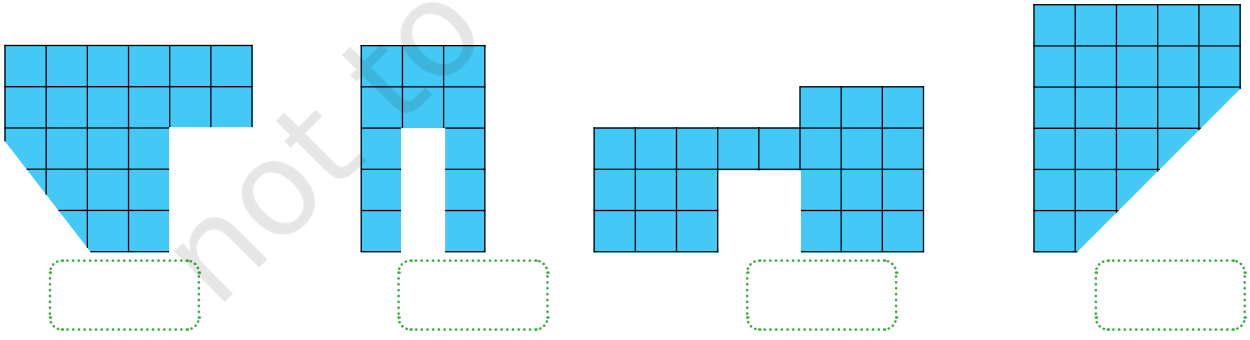
If I make one more row, how many triangles will be there in the third figure? _____



5. Here are some rectangles that are torn. How many square pieces have been torn from each shape?

_____



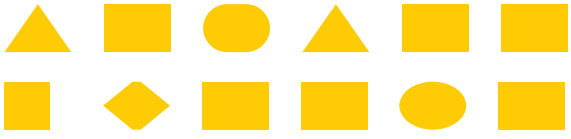


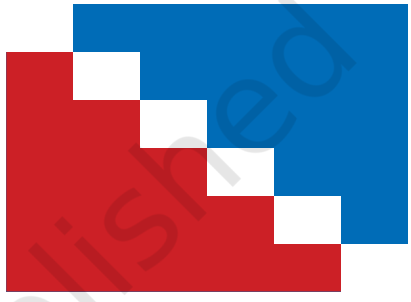
Teacher's Note: Children can play 'Find my rectangle game':
Use dot paper. One child marks 2 opposite vertices of a rectangle on the dot paper. The second child has to complete the rectangle shape(s).

6. Each of these shapes can be the odd one out.

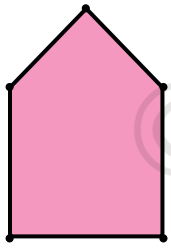
How is each one odd? Discuss.

7. To complete the rectangle, tick ✓ the appropriate shapes from the left side to fill the gaps in the shape on the right side.

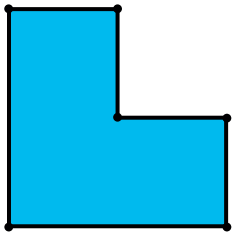




8. Draw two lines to split the shape into three triangles.



9. Draw one line to split the shape into 3 triangles.



10. Make the following shapes with different sizes and orientations (angular positions) in your notebook.

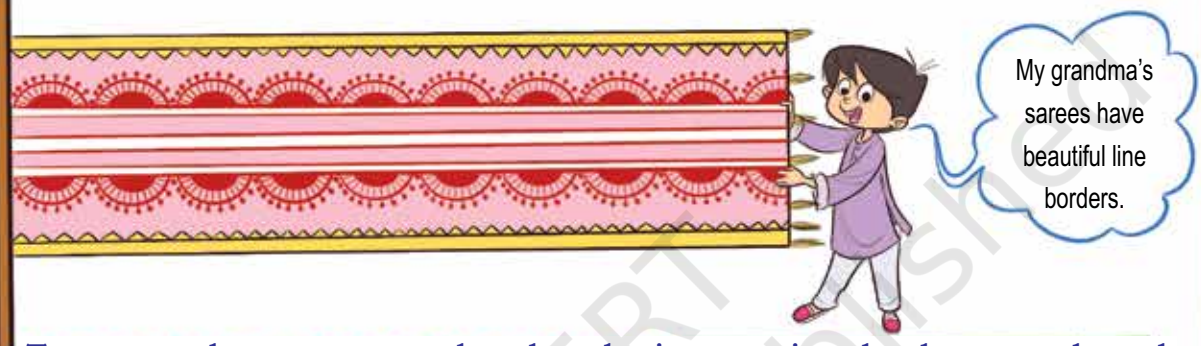
(a) Triangle

(b) Rectangle

(c) Circle

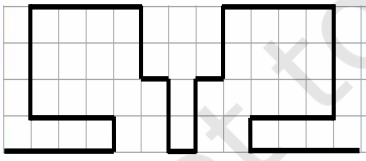
(d) Other shape

Doors-dots-lines



Try to make your own border designs using both curved and straight lines.

Continue the following line pattern.



Tangram

Use the pieces from the tangram puzzle given in the end of the book. Can you create these shapes using some of the pieces?