Chapter 4: Shadow Story (Togalu)

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Exercise 4.1 — Let us Talk — Fun with Shadows

Q1 Have you seen your own shadow or the shadow of a tree, a dog, a cow or any other animal?

SOLUTION

Yes. We see shadows of ourselves, trees, animals, and objects around us.

Q2 When do we see a shadow?

SOLUTION

We see a shadow when light falls on an object and the object blocks the light, forming a dark shape behind it.

Q3 When does a shadow vanish?

SOLUTION

A shadow vanishes when there is no light — for example, at night or when we go indoors away from light.

Q4 Will the size of shadows change on changing the position of the torch?

SOLUTION

Yes. When the torch is moved closer to the object, the shadow becomes bigger. When it is moved farther away, the shadow becomes smaller.

Q5 At what time of the day is your shadow longest?

SOLUTION

Our shadow is longest early in the morning and late in the evening, when the sun is low in the sky.

Q6 At what time of the day is your shadow shortest?

SOLUTION

Our shadow is shortest around noon (midday), when the sun is directly overhead.

Exercise 4.2 — Let us Trace

Q1 Trace the shape of the objects around you — for example, eraser, leaf, matchbox, sharpener, pencil colour, etc. Draw the shapes you get after tracing.

SOLUTION

Trace activity: place each object flat on paper and draw around its outline. A matchbox face gives a rectangle; a coin gives a circle; a leaf gives a leaf shape. Draw the outlines in the box provided.

Q2 Write the names of objects that have the same trace as: A. Bottle cap B. Eraser

SOLUTION

A. Bottle cap → circular trace. Objects with a circular trace: coin, bangle, button, wheel.

B. Eraser → rectangular trace. Objects with a rectangular trace: matchbox face, book, pencil box lid, rubber stamp.

Exercise 4.3 — Hide and Seek — Shapes

Q1 Circle can hide in the clock, ball, _____, _____.

SOLUTION

From the room picture, objects whose face is a circle: clock (round face), ball, coin, bangle. Two more answers: coin, bangle.

Q2 Rectangle can hide in the shoe box, photo frame, _____, _____.

SOLUTION

From the room picture, objects whose face is a rectangle: shoe box (given), photo frame (given), TV, door. Two more answers: TV, door.

Q3 Triangle can hide in _____, _____.

SOLUTION

A triangle can hide behind any object whose face is triangular. Examples: a slice of pizza, a triangular flag, a set square, a yield/warning sign.

Q4 Square can hide in _____, _____.

SOLUTION

A square can hide behind any object whose face is square. Examples: a tile, a chessboard square, a handkerchief, a cracker biscuit.

Exercise 4.4 — Colour the Carpet

Q1 Colour the Triangles red, Circles green, Rectangles yellow, Squares blue.

SOLUTION

Colour the carpet shapes: Triangles (the pointed shapes radiating from the centre and at corners) → red; Circles (the large central circle and small circles along the border) → green; Rectangles (the long flat tiles along the border strips) → yellow; Squares (the small square tiles at the border corners) → blue.

Exercise 4.5 — Catch the Corner!

Q1 Name the children standing near the corners of the table.

SOLUTION

From the picture: Paramjeet (top-left corner), Udit (bottom-left corner), Naysa (top-right corner), and Seema (bottom-right corner) are standing at the four corners of the table.

Q2 Can you tell who will clap next?

SOLUTION

Wasim is standing on the side of the table between two corners, not at a corner. So Wasim will clap next.

Q3 Where is Wasim standing?

SOLUTION

Wasim is standing on the side (long edge) of the table, between Paramjeet and Naysa — not at a corner.

Q4 Can this game be played around a round table? Why or why not?

SOLUTION

No. A round table has no corners, so there is no fixed corner for children to run to. The game needs corners, so it cannot be played around a round table.

Q5 Name the objects around us that have straight edges.

SOLUTION

Objects with straight edges: book, ruler, matchbox, door, window, table, blackboard, notebook.

Q6 Many objects around us have curved edges. Explore and share the names of such objects that you see around.

SOLUTION

Objects with curved edges: ball, coin, plate, bangle, wheel, cup, bowl, banana, egg.

Exercise 4.6 — Let us Think — Corners and Edges

Q1 How many corners do objects with curved edges have?

SOLUTION

Objects with only curved edges have 0 (zero) corners. For example, a ball, a circle, or a coin has no corners at all.

0 corners

Q2 Name the objects that have both straight and curved edges.

SOLUTION

Objects with both straight and curved edges: a semicircle-shaped protractor, a half-cut orange, a door with a rounded top (arch), a fan blade, a leaf.

Exercise 4.7 — Origami Fun!

Q1 Take a paper and fold it to make it a square. It has _____ corners and _____ edges.

SOLUTION

A square has 4 corners and 4 edges (sides).
4 corners and 4 edges

Q2 Fold it in half by joining two corners as shown in the picture. Tick the shape which you get.

SOLUTION

When a square is folded in half by joining two opposite corners, you get a triangle. Tick option iii (triangle).

Q3 This shape (after folding the square in half) has _____ corners and _____ edges.

SOLUTION

The triangle formed has 3 corners and 3 edges.
3 corners and 3 edges

Q4 Now make two triangles from two corners of the triangle. How many corners are there now?

SOLUTION

Fold the two bottom corners of the triangle upward to make two smaller triangles.
The resulting shape (used to make the paper dog's ears) now has 4 visible corners.
4 corners

Q5 Can you fold the square sheet in such a way so as to get a shape with 4 sides? How many corners does it have now?

SOLUTION

Yes. Fold the square into a rectangle (fold in half along one edge). A rectangle has 4 sides and 4 corners.
4 corners

Exercise 4.8 — Extend the Patterns

Q1 Extend the following patterns (A through I as shown in the textbook).

SOLUTION

A. ↑ ↓ ↑ ↓ — repeating unit is ↑ ↓. Next two: ↑ ↓. B. Big flower, medium flower, small dot — repeating group of 3. Next: big flower, medium flower, small dot. C. Orange-crescent, blue-fan, orange-crescent on alternating pink-blue background — continue the colour-block and shape repeating strip. D. Square divided diagonally: blue-top-left+green-bottom-right, then blue-top-right+green-bottom-left, alternating. Next two squares: continue the alternating diagonal pattern. E. Oval with 1 chevron (^), oval with 2 chevrons, oval with 3 chevrons — count increases by 1 each time; then blank ovals (0 chevrons) suggesting a new cycle. Next ovals follow the increasing chevron count. F. Decorative arch-and-circle border — repeating arch unit; continue drawing the same arch motif. G. AB BC CD → next: DE, EF, FG (each pair shifts one letter forward). H. AA BB CC DD EE → next: FF, GG, HH (each repeated-letter pair advances by one). I. Brick tile pattern alternating red and yellow bricks — continue the same alternating brick row.

Exercise 4.9 — Kikku's Tile Jump

Q1 Kikku rabbit jumps on the 4th tile. He forgot where to jump next. Help him by drawing a circle on the next tiles. 1, 4, _____, _____, _____, _____, _____, _____

SOLUTION

Kikku starts at tile 1 and lands on tile 4. The gap is 4 − 1 = 3.
So Kikku skips 3 tiles each time.
Pattern: 1, 4, 7, 10, 13, 16, 19, 22
1, 4, 7, 10, 13, 16, 19, 22

Q2 Kikku's mother also jumps on the 6th tile. Help her by putting a × on the next tiles. 1, 6, 11, _____, _____, _____, _____, _____

SOLUTION

Mother starts at tile 1 and lands on tile 6. The gap is 6 − 1 = 5.
Pattern: add 5 each time.
1, 6, 11, 16, 21, 26, 31, 36

Exercise 4.10 — Let us Do — Number Patterns

Q1 Extend the following number patterns. A. 5, 10, 15, ___

SOLUTION

Each number increases by 5.
5, 10, 15, 20, 25, 30

Q2 Extend the following number patterns. B. 7, 14, 21, ___

SOLUTION

Each number increases by 7.
7, 14, 21, 28, 35, 42

Q3 Extend the following number patterns. C. 1, 7, 13, ___

SOLUTION

Each number increases by 6.
1, 7, 13, 19, 25, 31