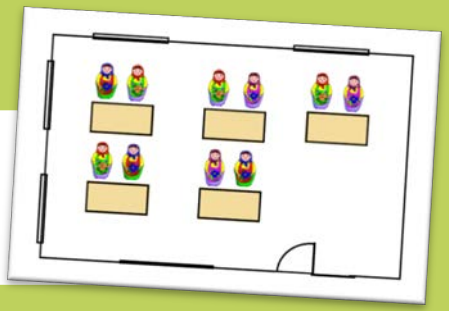
M53

TABLES FOR MATRYOSHKAS



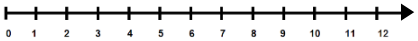
15–20 minutes

To foster familiarity with basic features of an axis line
To introduce a procedure for splitting a quantity into groups of 2
To introduce a procedure for quantifying the number of groups created
To practise creating a graphic model that facilitates comparison of quantities

- 10 Matryoshkas

- Brown rectangles (tables)

- A large sheet of paper to be the 'classroom' with walls, doors, windows and a whiteboard marked on it (but not tables) – see image top right
- A 'Teacher' (e.g. an owl or other animal toy)
- A large sheet of paper with a 1 to 12 Axis Line drawn on it in black



- Red and brown marker pens
- A glue stick

Tables for Matryoshkas – Counting by Groups (Modelling and Discussion):

Introduce the Matryoshkas and the Teacher. Explain: *They are very excited because they are about to start school. Their new teacher is excited too. He is very busy setting up their classroom.*

Spend some time discussing all the things that the teacher and the Matryoshkas might like to have in their classroom and mark them on the room plan. Agree that they need tables to sit at. Then have the Teacher explain that he needs 1 table for every 2 Matryoshkas. Ask: *So how many tables must he put in the room so that every Matryoshka gets a seat?*

Explain to your child that they can use an axis line, as they are so good at that now, to help the teacher find the answer to this problem. Draw their attention to the axis line on your large sheet of paper and line up the 10 Matryoshkas.

Pick up one of the Matryoshkas and a red marker. Draw a red line alongside the first segment of the axis line, and put the Matryoshka to one side. Pick up another Matryoshka and mark the next segment in red. Continue until there are no more Matryoshkas to be counted and the red line covers 10 segments. Starting at the end of the red line farthest to the right, draw a red arc over the top of the axis line, extending back to the start of the line; put the initial M or draw a Matryoshka symbol next to the arc. Summarise: *The red arc shows us how many Matryoshkas are going to be in the class.*

Show your child the 'tables' (brown rectangles) and then put them to one side. Prompt your child to remember that the Teacher needs one table for every 2 Matryoshkas and ask if they have any ideas about how they could show this on the axis line.

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Your child can use segments on an axis line to represent a given number of Matryoshkas.
Your child can use labelled arcs on an axis line to represent groups of 2.
Your child can match 1 'table' (i.e. a rectangle) to each arc to get the number of 'tables' required to seat all the Matryoshkas, 2 to a table.
Your child can check their work by placing the given set of Matryoshkas '2 to a table' to confirm that every Matryoshka has a seat.

KEY TO LEARNING @HOME

M53

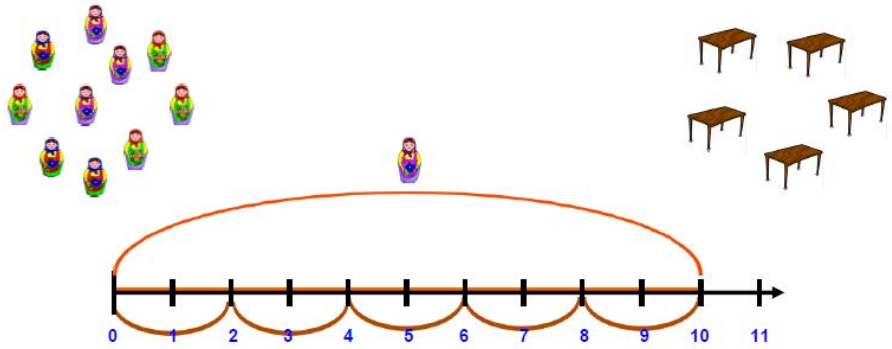
TABLES FOR MATRYOSHKAS – continued

Model how to draw a brown arc showing a table for 2 Matryoshkas*: I start at zero and I move one forward, that's 1 Matryoshka; then I move another 1 forward, that's 2 Matryoshkas; then I draw my brown arc like this, back to where I started. So that is 2 Matryoshkas and I need 1 table for them. The brown arc represents the table.*

Ask your child to draw the arc that shows a table for the next 2 Matryoshkas. Make sure that they begin at the second segment and move 2 segments further to the right, and then draw a brown arc under the axis line back to where they started. Confirm that these 2 Matryoshkas also need a table.

Continue until there are 5 brown arcs under the axis line. Ask your child to point to a 'table' (brown rectangle) for the first brown arc, then the second, third, fourth and fifth 'tables'. Summarise: *Now we have tables for all the Matryoshkas. So how many tables does the Teacher need in total? Let's check it.*

Ask your child to act it out in your 'classroom' – put the brown rectangles in the room and sit 2 Matryoshkas by each (see image on the first page). Ask them to check that everyone has somewhere to sit in the new classroom and how many tables are needed in total. Confirm: *That's right, the Teacher needs 5 tables for all the Matryoshkas to be able to have a seat.* Ask your child to stick the tables in place in the classroom and then have the Teacher thank your child for their help.



If your child needs more practise, you can devise many similar tasks such as these ideas below. You can always use counters/tokens as substitutes so you don't need to cut out different pictures for each game, for example orange counters for carrots and grey ones for rabbits. Here are some ideas:

Carrots for Greedy Rabbits – Invent a short story about very greedy rabbits and how each rabbit wants two carrots for breakfast. Say that you have 12 (or 4, 6, 8, 10) carrots. Ask them to use an Axis Line to find out how many rabbits they can feed.

Building Snowmen – Say that some children want to go out and build snowmen. But there are only 8 (or 4, 6, 10, 12) gloves. So how many children can go out to play?

Cut out each Matryoshka and each brown rectangle (table) separately.