Pattern and sequences

Your child will be learning about pattern and sequences over the coming days. S/he needs to know the mathematical language associated with pattern and sequences: copy, extend, devise, predict, repeated pattern, element of the pattern.

Note 1: Stages of development in exploring patterns:
1. Children copy patterns.
2. Children extend patterns.
3. Children devise their own patterns.

Note 2: Your child should be able to predict what comes next in a given pattern and should give a reason for his/her prediction.

Game: What is missing?

Devise a pattern with your child using any material you have to hand at home, such as pasta shapes, coloured clothes pegs, socks, etc. Invite your child to close his/her eyes. Remove one item from the pattern and tell your child to open his/her eyes. Your child must decide what is missing and explain his/her reasoning. For example, make a pattern out of socks: red, red, blue, green, purple, purple, red, red, blue, green…

Pattern detective

Ask your child to examine patterns from his/her environment around the home or garden, such as wallpaper, gift-wrapping paper, bathroom/kitchen tiles, striped jumpers, etc. Discuss them and draw attention to the way each pattern is repeated.

Integrate patterns

Have fun copying, extending and devising the following patterns. Always invite the children to say what comes next and to explain their reasoning for their answer.

- *P.E.: Long step, short step, long step; clap hands, touch knees, touch toes.*
- *Visual Arts: Matchbox dipped in paint: vertical, horizontal, vertical, etc. Design a necklace with three to four different coloured beads.*
- *Nature: Life cycle of animals.*
- *Science: Use rough and smooth materials to make rough, smooth, rough, smooth, etc. patterns.*
- *Music: Create a pattern with two or three percussion instruments, e.g. hit a triangle, drum, tambourine, triangle, drum, tambourine. Children take turns repeating the same sounds. Make singing patterns, e.g. doh ray me fa, doh ray me fa.*

Extension: Invite your child to close his/her eyes. As with earlier patterns, remove one item from these patterns. Ask your child to open his/her eyes, decide what is missing and explain his/her reasoning.

Time patterns

Days of the week: Discuss the days of the week pattern with your child. Ask him/her what day comes after Tuesday, Friday, etc. Ask similar questions about the patterns for the months of the year and the seasons.

Your child's day: Examine the pattern for a typical day for your child and discuss it, e.g. before breakfast, after breakfast, at school, when I go home, after dinner, etc.

Money patterns

Your child can copy, extend and devise patterns with 5c, 10c, 20c and 50c coins.

Extension: Ask your child to predict what the 10th/15th, etc. coin will be in the pattern.

Skip counting in 2s, 3s, 4s…10s

Ask your child to find things in the local environment, home or garden that come in 2s, 3s, 4s…10s. S/he could also research this on the internet under your guidance.

Calculator fun

Ask your child to press 6 + = = = on the calculator to show counting in 6s. This can be done for all tables.

Ask your child to key in 108, then press – 9 = = = on the calculator to show counting back in 9s. This can be done for all division tables.

Hundred square detective work

Using the hundred square on page 123 of the textbook, ask your child questions such as:

- *How many rows are on the hundred square?*
- *How many numbers begin with 7? Where are they?*
- *What is the first number in the second row? What is the last number in the eighth row?*

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Time 2

Over the coming days, your child will be learning to convert hours to hours and minutes and vice versa. S/he will be learning to add and subtract amounts of time. S/he will also look more closely at bus, train and TV timetables and real-life problems based around time. Your child will need to know the mathematical language associated with time: hours, minutes, digital/analogue form, addition, subtraction, regroup minutes to hours, television, guide, timetable.

Reading the time on an analogue clock – revision

Source an analogue clock that you and your child can manipulate (move and change the hands). Show different times on the clock and ask your child to read these times, e.g. 10 past 6, 7 o'clock, ¼ to 9, 25 past 2, 13 minutes to 11. Similarly, you can call out a specific time and ask your child to show that time on the clock.

Reading the time on a digital clock – revision

Source a digital clock that your child can manipulate, e.g. a mobile phone clock, watch or an alarm clock. The digital clock is used very often in our daily lives and children often find it easier to read than the analogue clock. Ask your child to read the time, remembering that the hour comes first and the minutes come after.

Extension 1: Call out specific times and ask your child to show these digital times on his/her digital clock.

Extension 2: Show a specific time on your analogue clock, e.g. 22 minutes past 7, and ask your child to show the equivalent time on the digital clock, e.g. 7:22.

Extension 3: Look through timetables in magazines, newspapers or online (e.g. television timetables, bus and rail timetables, cinema guides) and ask your child to read these times.

Hours and minutes

Encourage your child to convert minutes into hours and minutes, e.g. 94 minutes = 1 hour 34 minutes. Similarly, ask your child to convert hours and minutes into minutes, e.g. 2 hours 1 minute = 121 minutes.

Extension: Encourage your child to revise his/her 6 times table. Once this is mastered, s/he will find it easy to count in 60s, as they are obviously linked, e.g. 6, 12, 18, 24, 60, 120, 180, 240. This will help your child to quickly convert minutes to hours and minutes and vice versa.

Timetables

Ask your child to look through timetables in magazines, newspapers or online, e.g. TV timetables, bus and rail timetables, cinema guides. Ask questions to make sure your child understands how to read a timetable, such as:

- *What time does the first train leave at?*
- *How long does it take the train to travel from Newbridge to Limerick Junction?*
- *If the second train was delayed in Templemore for 17 minutes, at what time did it arrive in Limerick Junction?*

Extension: Give a timetable to your child. Ask him/her to write four or five questions about the timetable that you or another family member could answer.

Real-life word problems

Set simple but meaningful little problems for your child to solve on a regular basis. For example:

- *If we leave for swimming at 4:20 and the journey takes us 17 minutes, what time will we arrive?*
- *If I walk into the supermarket at 11:04 and leave at 11:48, how long did I spend inside?*
- *If we go horse riding at 3:45 and the lesson lasts 1 hour and 28 minutes, what time will it end?*
- *Football training starts at 10:45. It lasts for 70 minutes. What time will football training end?*

Fantasy timetable

Invite your child to make up a fantasy timetable for a 'Family Fun Day'. Your child must choose at least five activities (e.g. bowling, swimming, baking, archery, etc.) for the family to complete and decide the start and end times of each activity. The times must be written in digital form. When the timetable is completed, ask your child questions based on the timetable, e.g. 'How long does 'bowling' last for?', etc.

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Chance

Your child will be dealing with chance (probability) over the coming days. S/he has already been introduced to chance in Third Class. Probability or chance is a measure of the likelihood of a particular event actually taking place. Your child will need to know the mathematical language associated with chance: impossible, unlikely, likely, even chance, certainly, never, possible, always, definitely.

Game 1: Memory – go fish in the pond

This game is best played with two players. Pick out five pairs from a deck of cards, e.g. two 5s, two aces, two 9s, two 10s and two queens. Shuffle the 10 cards and place them face down in neat rows on a table (5 x 2 or 2 x 5). Explain to your child that the aim of the game is to make a match (matching pair) by turning over any two cards at a time. If a match is made, the player gets to keep the cards. If a match is not made, the cards are turned back over for the next player's turn. Throughout the game, ask your child questions about the chance of him/her making a match, e.g. Is it certain that you will make a match? Is it possible/impossible that you will make a match? Is getting a match on your first go likely or unlikely? Encourage your child to use the language of chance throughout the game.

Game 2: Higher or lower

To play this game, each pair needs a deck of cards and a pencil and paper to keep track of the score. One person is the dealer and the other is the player. The dealer holds all the cards and turns them over one at a time. The player must predict whether the next card will be higher/lower than the previous card. If s/he guesses correctly, a tick is recorded beside his/her name on the piece of paper. If the player predicts incorrectly, the dealer gets a point. The player with the most points at the end of the game wins. Encourage your child to use the language of chance while playing the game. e.g. It's likely to be higher. I'm certain that it will be lower. There is an even chance that it will be higher/lower.

Game 3: Mystery card

This game is similar to the Higher or Lower game above. The card in the middle (face down) is the mystery card. The player must predict whether the mystery card will lie somewhere between the values of the two overturned cards or lie outside this range of values. If the prediction is correct, s/he gets a point. If the prediction is incorrect, the dealer wins the point.

Game 4: Beads in a bag

For this game, you will need some beads, counters, cubes, toy bricks, etc. and a bag or box that your child cannot see inside. Encourage your child to use the language of chance as outlined on the left during this game. Place five coloured beads into the bag, e.g. three blue, one red and one yellow. Explain that you are going to pick one bead out of the bag at random. Discuss the possible outcomes, asking questions such as:

- *Am I certain to pick out a blue bead? (No.)*
- *Is it possible that I will pick out a red bead? (Yes.)*
- *Is it likely or unlikely that I will pick a red bead? (It is possible, but it is more unlikely than likely.)*
- *Is it possible that I might pick out a green bead? Why? (No, it is impossible because there are no green beads in the bag.)*

Extension: Play the game using different combinations of beads, e.g. 4 red, 3 green and 2 blue; 3 red, 4 green and 5 blue, etc.

Snakes and Ladders

Play the traditional board game with your child. As you play, discuss the role played by chance in the game – players have an equal chance of winning but each roll of the die has different outcomes – you might land on a snake or a ladder – it's all about luck!

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Length 2

Kilometres and perimeter

Your child will be learning about kilometres and metres as well as perimeter over the coming days. S/he needs to know some the mathematical language associated with the metric system: length, centimetres (cm), metres (m), kilometre (km), measure, longer, shorter, total, decimals, fractions, metre stick, more/less than, long, longer, equal, distance, high, tenth, hundredth, decimal point, all around, perimeter, sides.

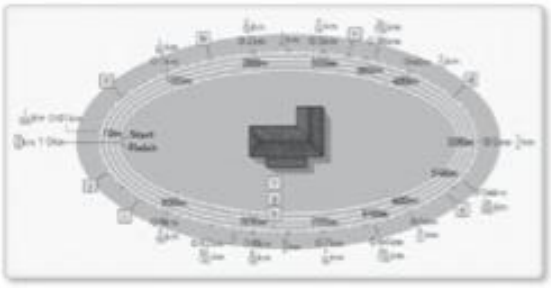
How far is a kilometre?

Explain to your child that a kilometre is 1000 metres long. Kilometres are used to measure longer distances than we have previously looked at. Discuss distances that are measured in kilometres, e.g. from Longford to Cork; from Dublin to London; from your house to a local attraction, e.g. a castle, park or lake.

Extension 1: When travelling on a familiar journey in the car, ask your child to predict where you will be after 1km. Measure the distance on the car's odometer. Discuss the outcome with your child – does a kilometre feel longer or shorter than s/he imagined?

Extension 2: Walk a kilometre with your child. Time how long it took you to walk this distance.

The kilometre – a closer look

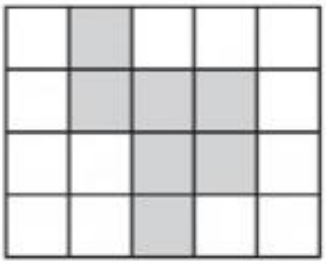


Help your child to practise reading the kilometre in metres in both fraction and decimal form by asking questions such as:

- *How many metres are in $^1/_4$ / $^1/_2$ / $^3/_4$ km?*
- *How many metres are in $^7/_{10}$ km?*
- *How many metres are in 0·19km?*
- *What is 540m in fraction and decimal form?*
- *How many metres are in 2km?*
- *What is 1 $^{86}/_{100}$km in decimal form?*

Perimeter

Explain to your child that the perimeter of an object is the total distance around all the sides.



If the length of each square in the above picture is 1cm, the total perimeter of the shaded shape is 14cm.

Using squared paper from a sums copy (the squares may not be 1cm exactly, but for the sake of the exercise, pretend that they are), draw patterns similar to the one above and invite your child to calculate the perimeter of each.

Extension: Ask your child to create shape pictures on squared paper that have a perimeter of 9cm, 11cm, 12cm, etc.

Calculating perimeters

Invite your child to find a simple rectangular photograph or picture frame. Using a ruler, ask him/her to measure the length of each side and then add them in order to find the perimeter.

Extension 1: Encourage your child to find an easier/quicker way of calculating the perimeter: The two long sides are the same length and the two shorter sides are the same length. So you could add one long side and one short side and multiply your answer by 2!

Extension 2: Encourage your child to calculate the perimeter of a selection of household objects. As a challenge, invite him/her to calculate larger perimeters, such as the perimeter of a bedroom or garden.

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