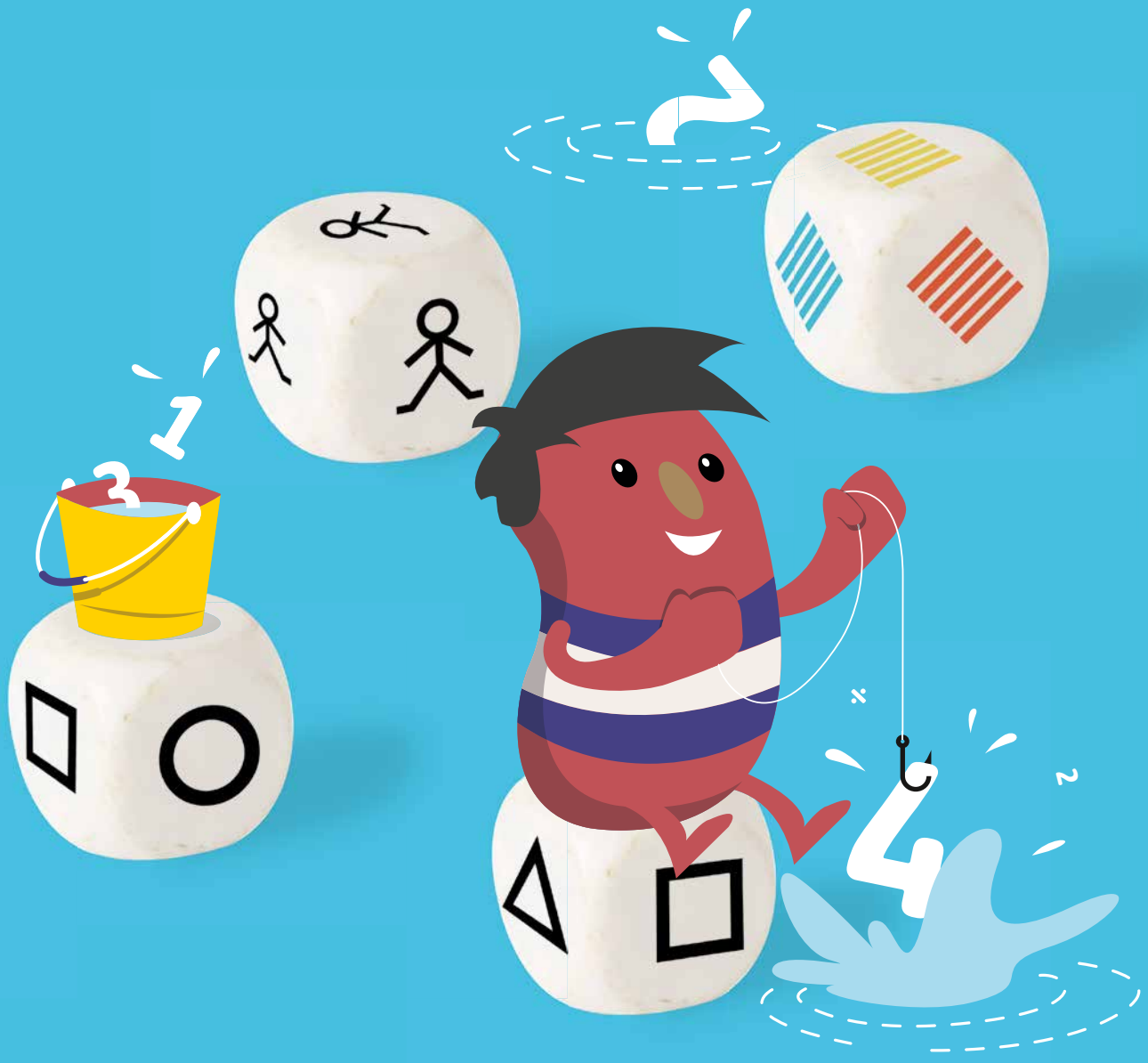
EMAT

• mathematics for life •



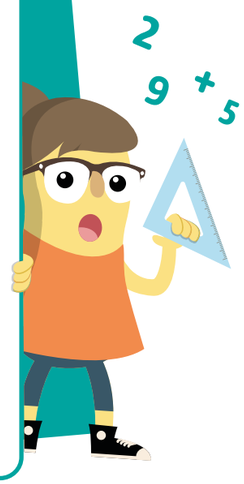
Teacher's Guide - Level 2 sample

¿What is EMAT?

EMAT is a **mathematics teaching program based on innovative methodologies** that allow for meaningful learning. Thanks to games, manipulation and context-specific activities, **your students will enjoy mathematics.**

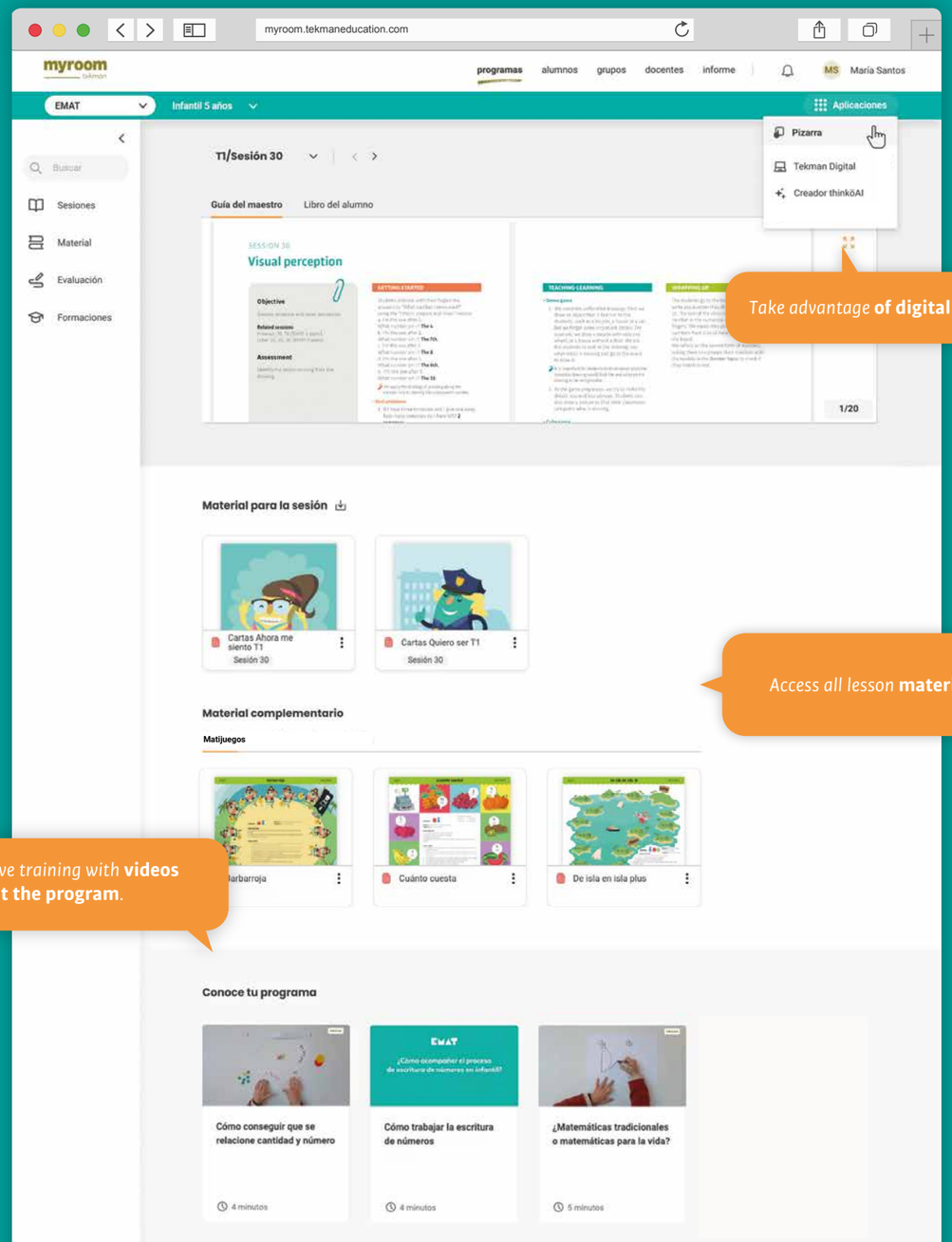
Moreover, **cyclic sequencing of the content** and the wide range of learning experiences will make it possible to achieve in-depth, long-lasting learning from an early age **while respecting all paces of learning.**

Here you will find a **selection of pages from the Teacher's Guide**, the document containing all the activities in detail, as well as the key educational aspects to plan your daily classes.



Your classroom manager day by day

myroom, your online teaching platform, provides you will everything you need to implement the program in your classroom. All the information is **organized**, **with all the necessary resources for the day**, so that you can carry out the activities in just one click!



Plan your calendar

EMAT proposes **120 lessons** over the course of 3 quarters. These lessons include the initial and final assessments, where we recommend dedicating 2 lessons to each one, and 3 learning situations, where you can dedicate between 2 and 4 lessons, depending on the time you have. Lastly, the shaded lessons are the lessons that contain an activity in the Student's Book.

1st QUARTER

Initial assessment

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	LS 1			

2nd QUARTER

37	38	39	40	41	42	43	44	45	46
47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72	73	74	LS 2	

3rd QUARTER

75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94
95	96	97	98	99	100	101	102	103	104
105	106	107	108	109	110	LS 3	Final assessment		

Lessons with the Student's Book

Understand horizontal cyclicity

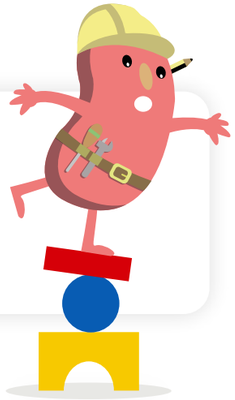
In order for students to be able to use mathematics in their daily life, proposals must be designed to allow them to **build knowledge and practice math skills** in realistic contexts. The best way to **sequence this learning is by doing so cyclically**, in other words, by interspersing information throughout the weeks and quarters to link them together. We indicate the following key aspects that are worked on in EMAT, as well as the lessons they appear in, so that you have an overall view.

Kim: Numbering

1 4 8 12 18 21 25 27 28
31 33 36 37 41 44 47 54 57
60 63 67 73 74 78 82 86 89
92 96 102 107

Max: Measurement

7 14 20 34
40 48 53 64
80 87 91 98
104 110

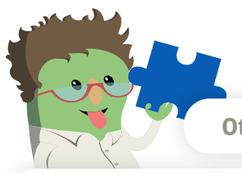


Leo: Geometry

6 13 19 26
32 43 49 52
62 69 72 79
85 97 103 109

Doc: Visual perception

3 10 16 23
30 39 46 51
59 66 70 76
83 94 100 106



Otto: Logical reasoning

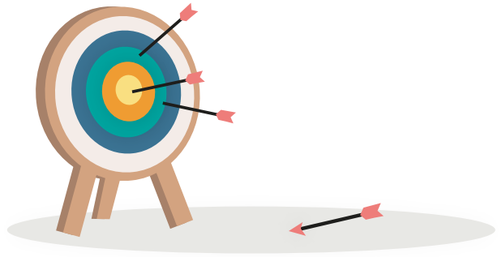
2 9 22 29 38 45
50 55 58 65 75 81
88 93 99 105

Nora: Spatial orientation

5 11 15 17 24
35 42 56 61 68
71 77 84 90 95
101 108

Review the objectives

- Develop critical thinking skills by applying the notions of “one more” and “one less” in everyday situations.
- Match the numbers to their corresponding quantities in an accurate and applied manner (from 0 to 7).
- Efficiently coordinate the graphical representation of the numbers (from 0 to 10) by integrating visual and manual skills.
- Use mental arithmetic strategies, including the use of materials such as Cuisenaire Rods and fingers, in counting exercises.
- Build number series in a creative and play-based way, exploring patterns by 1s, 2s and 5s.
- Compose and decompose numbers autonomously using Cuisenaire Rods.
- Solve number problems mentally and graphically, incorporating addition and subtraction operations.
- Recognize patterns in number series based on shape, size and color.
- Make groupings and quantitative matching with elements, demonstrating an understanding of number relationships.
- Discover common attributes in groups of elements, encouraging sorting and logical reasoning.
- Identify the belonging of an element to a grouping and establish relationships based on signs.
- Search for elements within a set, developing observation and visual discrimination skills.
- Build series with elements based on variable signs, promoting cognitive flexibility.
- Integrate knowledge of ordinal and cardinal numbers in a contextual and applied manner.
- Apply notions of orientation, organization and directionality in relation to oneself and objects.
- Connect dots to form geometric shapes and explore visual and spatial connections.
- Follow mazes, developing orientation and problem-solving skills.
- Build geometric shapes on the geoboard, integrating manipulation with mathematical concepts.
- Recognize and describe geometric shapes (circle, square, triangle and oval) in different contexts.
- Use grouping criteria to sort logic blocks according to attributes such as shape, color, measurement and thickness.
- Identify Geometric Shape Bits, encouraging pattern recognition.
- Compare and order objects based on contrasting notions of long, wide, high, full, empty, thin, thick, heavy and light.
- Use the notions “more than”, “less than” and “same as” in contexts of masses and lengths.
- Use mathematical vocabulary in detailed descriptions of shapes, positions and measurements.
- Experiment with probability in practical situations and mathematical games.
- Offer creative solutions and predictions in mathematical problems and transformation of elements.
- Actively participate and show an interest in mathematical games, encouraging play-based learning.
- Collaborate effectively in the distribution and collection of mathematical materials during activities.
- Show an interest in the answers and solutions provided by classmates, promoting collaboration.
- Keep students’ attention, manage impulses and participate enthusiastically in all mathematical activities.



Plan your assessment

Assessment with EMAT is an **overall**, **continuous** and **formative** assessment that is designed to help you gather information that you can then use to describe the development of your students and the achievement of the assessment criteria at that stage. We recommend the following moments of time, strategies and assessment tools.

1

INITIAL ASSESSMENT

- **When?** Before starting the EMAT lessons.
- **How?** Carry out specific activities on mathematical skills for no more than 4 lessons and write down the difficulties and potential that you identify in your students.
- **Tools:** initial assessment activities available in this guide.

2

SYSTEMATIC OBSERVATION

- **When?** In the lessons.
- **How?** Regularly write down the achievement of the lesson’s objective, choosing students based on previous observations.
- **Tools:** assessment indicators of the lesson.

EVIDENCE OF THE PROCESS

- **When?** In the lessons.
- **How?** Regularly document the development of math skills, focusing on the process.
- **Tools:** pages from the Student’s Book and photographs of the learning experiences.

At the end of each quarter, we recommend that you gather all the observations and evidence and analyze them together with the *Competence Rubric*, available in myroom, for the level of achievement of the assessment criteria.

3

FINAL ASSESSMENT

- **When?** At the end of the EMAT lessons.
- **How?** Carry out specific activities on mathematical skills for no more than 4 sessions and assess the level of achievement.
- **Tools:** final assessment activities available in this guide.

SELF-ASSESSMENT

The lessons also contain self-assessment and co-assessment proposals for students that relate to learning processes and cooperative work. They will help students improve their self-regulation and autonomy.

Discover learning situations

Learning situations are tasks and activities that are based on a challenge or a problem and allow students to practice knowledge and skills in an integrated and context-specific manner. It enables students to develop their competences and transfer their learning to real life.

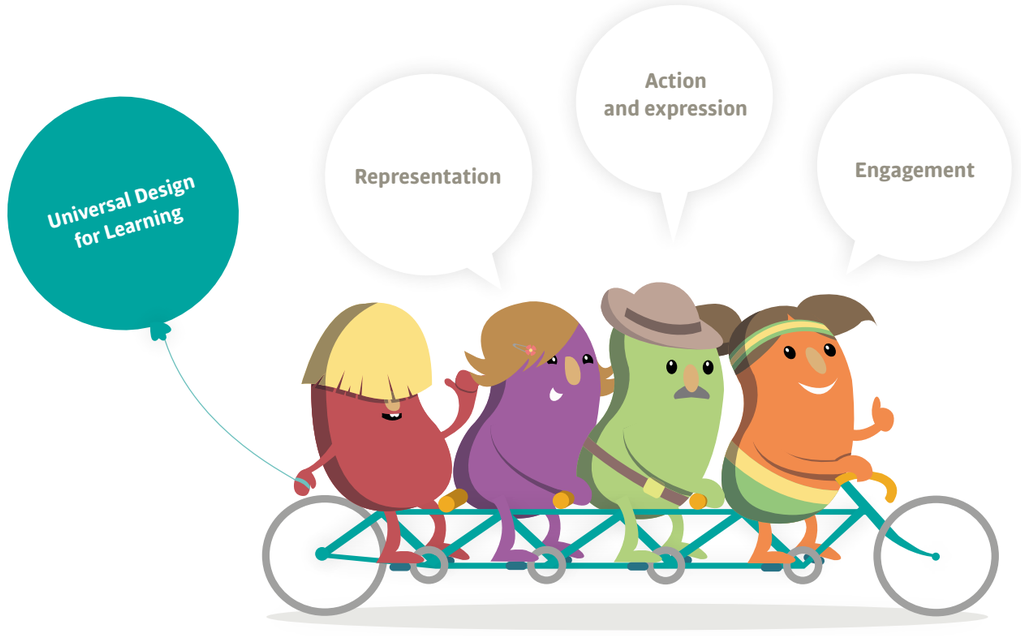
The EMAT lessons provide you with context-specific activities that will allow for developing this competence. Furthermore, we designed 9 learning situations to carry out over the course of several lessons: 3 of these situations are developed in the Teacher's Guide, one at the end of each quarter, and the rest are complementary and explained in the Classroom Programming.

What do the situations contain?

The learning situations are characterized by entailing a complex challenge for students that is adapted to their developmental age, presenting an authentic context and using active methodologies. For example:

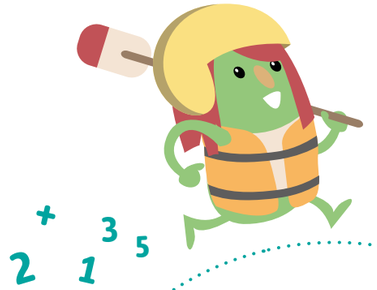
- **Challenges:** they can be formulated as a question to be answered, a product to be made or an action to be carried out.
- **Contexts**: framed within the daily work of the classroom, the school, the family and the immediate surroundings.
- **Methodologies:** methods such as manipulation, cooperative learning, the culture of thinking, reflection, and self-regulation of one's own learning or emotional education are integrated.

Moreover, the learning situations are designed to respond to diversity in the classroom and break down the barriers of learning and participation. To achieve this, we use the **Universal Design for Learning**, a teaching framework in which students find multiple ways:



How are the situations developed?

The learning situations consist of one or more activities and should allow for a resolution process that includes complex reasoning and resolution skills. That is why it is necessary to start with an initial challenge and sequence the tasks, based on the moment of resolving the same, with processes such as the following:



1. Activate knowledge and analyze the context.
2. Understand and practice knowledge, explore and practice.
3. Integrate knowledge and skills, apply and reflect.

Specifically in EMAT, the learning situations allow students to use different forms of mathematical reasoning, representation and communication in meaningful and functional contexts.

Create a mural with the learning situation in your classroom!

Learning situations should promote the comprehensive development of competences in all areas. Creating a learning mural in your classroom is a good strategy to facilitate this aspect and it will also be an excellent opportunity to gather evidence of learning... and motivate your students!

LESSON 1

Numbering

Objective

- Develop hand-eye coordination.

Assessment

- Follow the directionality of the strokes of the number 0.

Related lessons

- Previous: 78, 82, 92 (EMAT Level 1)
- Subsequent: 1, 4, 8, 12 (EMAT Level 2)

Materials

Student materials

- *Tracing numbers 0*

Classroom Box

- *Number* cards

Other

- Finger paint, wrapping paper, play dough, string

WARM-UP

We work on counting and displaying numbers by showing and hiding from 0 to 10 fingers and vice versa. Students need time to learn to count out loud in both directions. We will start, continue and finish all together. We will gradually stop counting with the students so that they can finally do it alone.

We show students how to place their fingers to represent the quantities from 0 to 10.

We talk to students about the concept of "nothing". For example, we show an empty jar and ask them, "What is in the jar?".
We ask questions with obvious answers, such as: "How many giraffes are in the classroom?"; "How many students came to school today dressed as a firefighter?"; "How many apples do we have in our pocket?". Each time they answer one of these questions, we show the 0 number card.

• Story problems

1. You have three toys and I take one from you. How many do you have left? **2 toys.**
2. In the red drawer there are three scarves and in the green drawer there is one. How many scarves are there in total? **4 scarves.**
3. How many tails do three little dogs have? **3 tails.**

Classroom management

In the first week of the course, show students the EMAT materials (**Student's Book**, **Student Materials**, **Classroom Box**, etc.) and encourage them to use them. Highlight the importance of properly taking care of them and show the specific place where they will be stored after use.

TEACHING-LEARNING

• DemoGame

1. We use trays to create two sets: one with several elements and one that is empty. Students must count, with their fingers, the elements in the first set to find the exact amount. Then, we point to the empty tray and ask an intriguing question: "How many items are here?" We explain the secret to them: when there is nothing, we say there is zero!
2. In groups of four, students go up to the blackboard to trace a large number, a huge zero! Each student uses a different colored piece of chalk and, following the correct direction, traces the zero.
   Then we ask "What does the number 0 look like?" We expect answers such as: **the letter O, an oval, etc.**

We propose other counting strategies. For example: for every number that is mentioned, point to an object without repeating it. We also remind you that the last number mentioned is the one that represents the total number of objects in that series.

3. Students repeat the following riddle out loud: "I go down and then I go up round. Who am I?". **The number 0**.

• Manipulative activity

1. Students use finger paint to trace the number 0 on wrapping paper.
2. Students use play dough to model and form the number 0. Then, they trace it with their finger, saying the movements they make out loud.
3. Students work with string to model the number 0 and trace its shape with their finger.

Choose the most suitable manipulative activity or activities to explore the number 0. Also consider the activities of the Tracing numbers 0 resource, since it facilitates the practice of writing numbers and the progressive mastery of tracing. Remember that it is not necessary to write full pages for each number, but it is essential to indicate the starting point and the pattern of movements necessary to trace the numbers properly.

WRAP-UP

We can use the Ematis Puppets to introduce the EMAT characters.

LESSON 2

Logical reasoning

Objective

- Match the logical attributes to the corresponding shapes.

Assessment

- Identify one or more properties of the logic blocks.

Related lessons

- Previous: 10 (EMAT Level 1)
- Subsequent: 9 (EMAT Level 2)

Materials

Classroom Box

- *Logic Blocks*
- *Which is Which?* Cards

Other

- Plastic plates
- Parcheesi tokens

WARM-UP

We create a pattern of movements to follow. For example, students can jump, then clap, then jump again, and so on, forming an AB pattern in the sequence of movements.
We use geometric shapes such as circles and squares. We ask students to continue an AB pattern with the shapes, such as circle, square, circle, square, etc. and we ask: "What should go next?". Circle
We explain that Kim gets tangled up in counting and that they should help her count. If she makes a mistake, they should help her count correctly. For example: we can incorrectly order numbers (1, 2, 3, 4, 6, 5), forget numbers (1, 3, 4, 6, 7), repeat numbers (4, 5, 6, 7, 7, 8) or replace numbers (2, 9, 4, 9, 6, 7, 8, 9).

• Story problems

1. If I do not have any cookies and you give me three, how many cookies do I have? **3 cookies.**
2. If I have two croquettes and I eat them, how many croquettes do I have left? **No croquettes.**
3. One vase contains two roses and another vase contains two others. How many roses are there in total? **4 roses.**

By following the 3 response steps (Think, Prepare and Show) in the story problems, we optimize time and give all the students the chance to participate.

Classroom management

In the story problems, it is important to use common sense when deciding when to ask students to "show". We should give them enough time, but not draw attention to the slower students. Moreover, after saying "show", a short period of time will pass while we check answers, during which time students can still search and show their answers.

TEACHING-LEARNING

• DemoGame 1

1. We introduce the idea of one-to-one correspondence: we place a bunch of parcheesi tokens on a plate, more than the number of students in the class. We ask: "Do you think there are enough tokens for each student?". Possible Answer: **Yes.** "How can we know if there are enough?". Possible Answer: **By counting.** "Counting is a good way, but let's pretend we don't know how to count... How would we know if there are enough tokens?".
2. Without counting, we give each student a token, saying their name. The remaining tokens are left on the plate.
We ask, "Are there enough tokens for everyone?" The expected answer is: **Yes.**
"Are there more tokens or more students?"
The correct answer is: **There are more tokens.**
3. We continue, "How did we find out that there were more tokens?" We encourage them to give different answers, showing that there is more than one way to understand it.

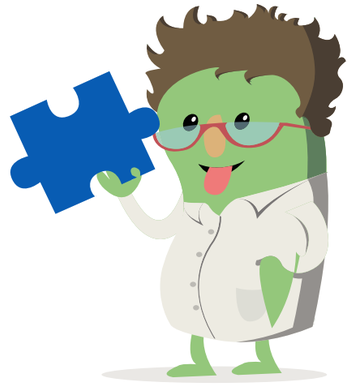
We encourage the understanding of the one-to-one relationship and the notion of "more" or "less" without relying exclusively on counting.

• DemoGame 2

1. We distribute the logic blocks and the Which is Which? color attribute cards among the students. We ask a volunteer to choose a card, for example, the red card. Classmates select the blocks that match the chosen card and place them in a designated area to form a set.
2. We ask, "What do you see in the set?"; "Are all the blocks the same?"; "Is there any block that does not belong to the set?"; "What if we add another block that is not the same color?".
3. We talk about the students' observations, how we can tell if a block belongs to the set and what would happen if we changed the rule and created a set with two colors instead of just one.
4. We continue playing by choosing other cards and placing the blocks in the set.

WRAP-UP

We ask students: "What clues tell us that there are some mistakes in Kim's numbers?". Students can answer: **She miscounted** or **She forgot a number**.



LESSON 3

Visual perception

Objective

- Recognize the rule of the series worked on.

Assessment

- Recognize the pattern of the proposed series.

Related lessons

- Previous: 76, 80 (EMAT Level 1)
- Subsequent: 10, 76 (EMAT Level 2)

Materials

Student materials

- *Create series*
- *Items*

Classroom Box

- *Logic Blocks*
- *Which is Which? Cards*
- *Attribute Dice*

Other

- Colored cardboard or paper

WARM-UP

We take students outside the classroom, to the playground or around the school. We encourage them to look around and ask them to look for patterns on things like floor tiles, bricks in a wall, leaves on trees, the colors of parked cars, etc. When they find a pattern, we stop and together point out which elements are repeated in order. For example, floor tiles follow a pattern: “gray tile, white tile, gray tile, white tile...”.
After finding several patterns, we reflect on the rules followed by these patterns.
We can guide the conversation with questions such as: “What elements are repeated in these patterns?”, “How do the elements change in each repetition?”, “Why do you think they follow that sequence?”.

• Problem of the day

1. What happens if I first eat the cone and then the ice cream? **The ice cream will fall on the floor**; **it is better to eat the ice cream first.**
2. What happens if I first put on my shoe and then my sock? **My foot will not be comfortable; the shoe will not fit well; it will be difficult to put the sock on; it goes the other way, first the sock and then the shoe.**

Help students to think about the order of actions and understand how it affects the final result.

Classroom management

The structure of the lesson is key, as is the importance of being flexible and adapting to the needs and interests of students during the activities. One-on-one attention, providing multiple practical opportunities and offering positive feedback are key elements for the lessons to be successful and effective.

TEACHING-LEARNING

• DemoGame 1

1. We divide the class into two groups: one that will represent a colored snake and another one that will guess the pattern of the snake.
2. To do this, we give each student in the first group a piece of colored cardboard that can be hung around their neck and a ball. Students begin to create a series of colors by passing the ball from one child to another following a specific pattern. For example, red-green-blue-red-green-blue...
3. While the snake is passing the ball, the other group watches closely and tries to decipher the pattern of the colors.
4. Once the snake completes its series, the guessing group tries to reproduce the observed pattern. Then the group that formed the snake confirms whether they are right.
5. The groups swap roles so that everyone has the chance to create a series and guess the pattern.

You can use the *Create series* and Items resources for students to reproduce different patterns.

• DemoGame 2

1. We ask students to match the logic blocks with the positive cards. We show a logic block and ask students to choose two *Which is Which?* attribute cards that best describe that block. For example, they could select the “red” and “big” cards to describe a specific block.
2. We gradually introduce the idea of using three attribute cards to describe another block. For example: “red”, “big” and “square”.
3. Once the students feel comfortable identifying shapes with the positive cards, we gradually introduce the negative cards. We ask them to choose two attribute cards that best describe a block. For example, they could select the cards ”it is not red” and “it is not big” to describe one or more specific blocks.

WRAP-UP

We ask students to draw or represent the patterns they found during the outing to find patterns in nature.

LESSON 5

Spatial orientation

Objective

- Use mathematical concepts in dialogue situations.

Assessment

- Use the concepts of “in front” and “behind” in communicative situations.

Related lessons

- Previous: 46, 56, 77 (EMAT Level 1)
- Subsequent: 35 (EMAT Level 2)

Materials

Student materials

- *Where are the Ematis?*
- *Items* of the Ematis

Classroom Box

- *Where are the Ematis?*

Other

- Tape

WARM-UP

Students form a circle holding hands and we start the game with instructions such as: “Those who are wearing something red, take one step forward” and “those who have blond hair, take one step back.” In this way, students move inside the circle following the instructions based on the characteristics mentioned.
We repeat with new instructions so that all students have the opportunity to move forward or backward. For example: “Those who are wearing white shoes, take two steps forward” or “those who are wearing blue socks, take three steps back”; “those who are wearing a striped shirt, take one step forward” or “those who are wearing shorts, take two steps back”.

- **Problem of the day**

We draw a circle, a square and a triangle on the blackboard and ask:
“Which group does each shape belong to?”
Students should answer: **The triangle and the square have sides; The triangle and the square also have vertices; the circle is the shape with curves.**

Students should respond by identifying the specific characteristics of each shape: “Which shapes have sides?”, “Which ones have vertices?”, “And which shapes have curves?”.

TEACHING-LEARNING

- **DemoGame 1**

1. We look for a large play area for students to move freely and we ask them to choose an animal and use their imagination to transform into it. For example, they could be lions, elephants, birds or snakes. We provide instructions based on spatial notions while they move like animals. For example: “The lions take a leap forward”; “the birds fly to the right”; “the elephants take two steps back”; “the snakes slither to the left”.
2. We introduce different spatial challenges as students continue to move.
3. Finally, we encourage them to make up movements that are associated with their animals and that express different directions or spatial positions. For example: “The lions roar and turn to the right” or “the snakes slither backwards”, etc.

We recall the importance of using mathematical vocabulary: “in front”, “behind”, “on top of”, “under”, etc., and the use of terms of comparison as: “closer”, “farther away”, “higher”, “lower”, etc.

- **DemoGame 2**

1. We play Where are the Ematis?. To do so, provide each student with the *Where are the Ematis?* and the *Items* of the Ematis resource.
2. To start, we draw a card from the *Where are the Ematis?* deck and we read aloud the spatial position indicated on the card. For example, “behind... (and we indicate a place on the board)”.
3. Students should look for the location on the board and place an item of the Ematis according to the position described on the card.
4. We check if they have placed the Emati in the correct position. Then we take another card from the deck and read the position so that students locate the Ematis in different places on the board.

WRAP-UP

We recall DemoGame 1 and we promote dialogue with questions such as: “What animal did you represent during the game?”, “Do you remember how you moved?”, “How did you move when you were that animal?”, “What was the funniest thing about moving like an animal?”, “Was there a moment when you were confused about the direction?”.
Then we ask them to draw arrows or lines on a mural to represent the movements they imagined at the end of the activity. For example, an arrow indicating a turn for lions or a squiggly line for snakes.
Once finished, we ask a student to explain what they drew on the mural. We encourage them to share their experiences and explain how they felt when making those movements.

LESSON 6

Geometry

Objective

- Recognize objects with a circular shape.

Assessment

- Identify objects in the environment that have a circular shape.

Related lessons

- Previous: 10, 23, 57 (EMAT Level 1)
- Subsequent: 32 (EMAT Level 2)

Materials

Classroom Box

- *Looking for Shapes!* Cards

myroom

- Learning cards: *geometric shapes*

Other

- Circle stickers

WARM-UP

We draw a large circle on the blackboard and ask students to name real-life objects that have a circular shape, such as coins, game tokens, signs, etc. Next, we provide some of these objects for them to explore, trace their outline and describe their shape.
We show Tracing Shapes and identify the circle. Students review it while we explain that it is perfectly round, and that it is a line that is always curved.
We look at the circle we drew previously and ask students to suggest how to turn it into a real object (a face, a wheel, a flower, the sun, etc.). We provide chalk so that they can try it.

• Problem of the day

We show two random logic blocks and compare them based on their shape. Students should show thumbs-up if the two shapes are the same and thumbs-down if they are different.

a. A small circle and a big one: **thumbs-up**.
b. A square and a triangle: **thumbs-down**.
c. Two circles with the same size: **thumbs-up**.
d. A square and a rectangle: **thumbs-down**.
e. A triangle and an oval: **thumbs-down**.

Classroom management

It is a good time to send the *Letter to Families* and promote smooth communication between the school and home. This letter is ideal for telling families about the content that students are going to learn, practice and consolidate in this quarter (matching numbers to their quantities, recognizing patterns, looking for elements in a set, etc).

TEACHING-LEARNING

• DemoGame 1

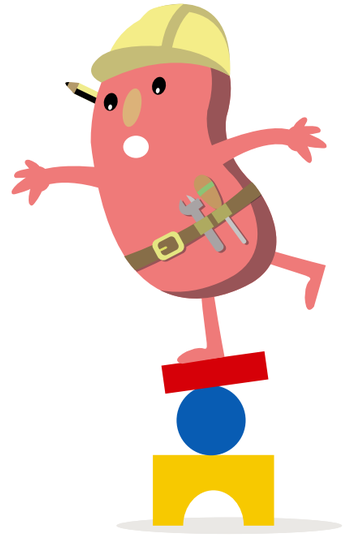
1. We look for a nearby space such as the playground or the motor skills room where students can find circles (clocks, toy wheels, lids, plates, etc.).
2. We ask students to look for these objects and mark them with circle stickers.
3. Once found, we talk about the objects they identified as circles.

• DemoGame 2

1. We show the geometric shape cards or the *Looking for Shapes!* Cards one by one, and we ask students to identify the circle among the shapes shown. Once identified, we encourage them to explain why they think it is a circle by highlighting its specific characteristics.
2. Next, we divide the class into groups to play Memory with the Looking for Shapes! Cards.
3. We mix and distribute the cards face down in rows.
4. Each turn, a player turns over two cards to find a matching pair. If they match, the player keeps them and continues; if not, they turn them upside down again. The next player in the clockwise direction takes their turn and the game ends when all the pairs are found.
5. The group with the most pairs wins.

WRAP-UP

We encourage students to draw the geometric shapes that we remember from the Memory game on the blackboard.
To finish, we ask them to draw a circle and an oval, and we ask: “What are these shapes called?”, “Why is the circle different from the oval?” We expect answers such as: **An oval can be wider or taller, but a circle is always the same; when we draw the shape of an egg it is like an oval, and the circle is like a cookie.**



LESSON 7

Measurement

Objective

- Start with problem reasoning.

Assessment

- Offer answers to the questions posed in the problem of the day.

Related lessons
- Previous: 49, 50 (EMAT Level 1)
- Subsequent: 66 (EMAT Level 2)

Materials

Classroom Box
- Grow, Grow Cards

Other
- Building blocks

WARM-UP

- **Problem of the day**

Otto, Nora and Kim have six grapes and want to share them fairly. We ask:
"How can they share them so that all three have the same amount to eat?". **They must have two grapes each.**
"How many grapes do they need for everyone to have one?" **Three.** "Are there enough grapes for every Emati to have one?" **Yes.** "How do you know?" **Because they have six grapes and six are more than three.**
"If Nora has four grapes and Kim and Otto only have one each, do they all have the same amount?" **No.**
"How can we find the number of grapes that each one has?". We encourage students to suggest different methods. If they do not suggest anything, we ask: "How can we represent this problem?". **Three students can represent the three Ematis from the problem.**
"We do not have any grapes here. How can we represent it?". **We can use tokens or any other object to replace the grapes.**

In the Problem of the Day, division is understood as equal distribution, which means dividing into equal parts to ensure that everyone receives a fair amount. We make sure that everyone gets the same answer and can say the following: **Each student has two grapes.**

Focus on diversity

- **Oxygen**
  In the manipulative activity, students build two towers, order them from shortest to tallest height and justify why they ordered them that way.

- **Challenge**
  In the manipulative activity, they build and order five towers describing the sequence with "tall", "medium", "short", "taller than" and "shorter than".

TEACHING-LEARNING

- **Manipulative activity**

1. We divide the class into groups of five and give them building blocks.
2. We ask them to build three towers of different heights with the pieces they have and order them based on their size.
3. Each group explains why it ordered the towers in one way and not another.

We recall the importance of using mathematical vocabulary in activities that involve comparing heights: "tall", "medium", "short", "taller than", "shorter than", "same as".

- **DemoGame**

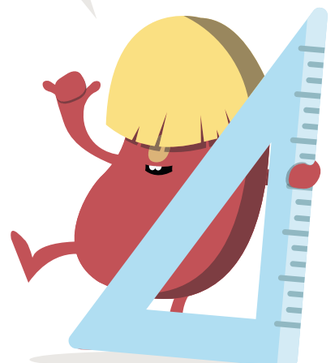
1. Mix the Grow, Grow Cards well and give each student an equal number of cards. The goal is to form trios of cards that represent similar heights (tall, medium, short).
2. One student begins by asking another student for a specific card with the aim of forming a trio of heights. For example: "Do you have a card of a tall [animal...]?".
3. If the other student has the card asked for, they must give it to the student. If they do not, the first student draws a card from the deck.
4. The game continues with the next student, who asks another student for a card to try to form a trio.
5. When a student gathers three cards that follow the desired height sequence (tall, medium, short or vice versa), they place the trio in the *Taller or shorter?* resource.
6. The game continues until all the cards have been used to form trios. The player with the most trios at the end of the game wins.

WRAP-UP

We talk about the representation strategy and we ask: "What did you find useful about the strategy of representing the problem?". **It is easier to see what is happening in the problem; it is easier to keep track of the things we are doing such as, for example, sharing out grapes.**
We provide paper and pencils or crayons to students and encourage them to draw how they would solve the problem of grapes. Then, we ask them to share their drawings and reflect on the different representations.

Page of the Student's Book

Students complete the page of the **Student's Book** individually: placing the stickers following the tall, medium and short height sequence. When we finish, we share why students ordered the vehicles this way and not another way.



Estimated time:
2-4 lessons

LEARNING SITUATION

What would you like to cook for your family?

The learning situation is designed to work on the number sense (quantity and counting), the measurement sense (estimation) and the stochastic sense (data analysis), without forgetting the socio-affective sense. This learning situation is related to SDG 12 (responsible consumption and production) aimed at ensuring sustainable consumption and production patterns.

In "What would you like to cook for your family?" food is counted and compared, and estimates are made. The proposed final product is the creation of a recipe to cook for your family.

Materials

myroom
- *Ladder of metacognition*
- *Learning situation programming*

Learning objectives

- Identify the graphical representation of the numbers.
- Recognize similarities and differences between elements.
- Count from 0 to 10 in an ascending and descending manner.
- Know the graphs as a representation of data.
- Use the vocabulary "more than" and "less than" to make comparisons.
- Encourage autonomy when making decisions in problem-solving situations.
- Actively participate in teamwork.
- Recognize mistakes as an opportunity in learning mathematics.

1

ACTIVATION
What do we know about the art of cooking?

1. We provide students with several cookbooks from different countries and let them read them. Then we talk about whether they recognize some of the dishes and we talk about their favorite foods. We ask them if they have ever cooked something and we talk about their personal experiences. Then we propose the following challenge to students: draw a recipe to cook for your family, asking the question: "What would you like to cook for your family?".

The initial situation aims to catch the attention of students so that when they carry out the activities, they work on the proposed knowledge and develop specific competences almost without realizing it.

2. We present what they are going to learn (learning objectives) with the development of the learning situation.

2

CONTEXT
What happened at home?

1. We explain the problem to make it easier to understand: "You have been asked to help think of a recipe since your family is coming for lunch over the weekend and your parents do not know what to cook".
2. In a large group, we share the dishes that we like the most and the ones that we like the least. The teacher can write a list on the blackboard and make tallies if the dishes are repeated. This allows us to introduce the concepts of dishes that are mentioned more often and those that are mentioned less often.

At this point, we can conduct a small survey among students, allowing them to choose between three dishes. We subsequently draw a small bar graph on the blackboard and show them how we use the graph to represent the number of times they have chosen that dish.

3

EXPLORATION
What information do we have about the problem?

1. We proceed to analyze the information that we have so far by brainstorming. Then, in a large group we proceed to answer the questions:
«What is the problem presented to us?"
"What do we know?"
"What do we need to know?"

We guide the practice so that students complete the sentences with the missing words. Thus, we allow students to work in groups and we foster the participation of all students. We put the answers on the learning situation mural.

4

ORGANIZATION
How could we solve the problem?

1. We project different recipes or we consult them again in the cookbooks we have in the classroom. We observe them and reflect on the structure they all have. All of the recipes contain ingredients that are foods that should be used for cooking. We guide the reflection with some questions:
"Do all the recipes have the same ingredients?"
"Do the recipes tell us the quantities of ingredients that we should use?"
"What other things do the recipes explain to us?"
2. We encourage students to think of a specific recipe, such as a tomato soup (that we can project and observe), and complete the page with the ingredients that are needed.

Assessment

Challenge:

Create a recipe.

Individual challenge, through daily observation and experimentation (through the different activities):

- Recognize mathematics present in everyday life.
- Understand the questions raised.
- Make simple mathematical guesses.
- Use suitable strategies to solve the problem (counting and comparing objects).
- Find possible solutions to problems in a guided way.
- Recognize mistakes as an opportunity to learn mathematics.
- Actively participate in teamwork.
- Communicate possible mistakes with assertiveness.

5

STRUCTURING

What recipe are we going to cook?

1. At this point, if necessary, we read the problem again and leave five minutes to review the ideas that have come up so far.
2. It is time to think about the recipe that we want to cook for our family.
   In pairs, students should think about and agree on the recipe they want to prepare, in addition to thinking about all the foods they will need to cook it. Furthermore, we think about the people we have to cook for and the ingredients we need depending on those who will be eating the meal. To do this, students must complete the page by drawing or writing the ingredients they will need.

We can guide students when choosing the recipes. We can offer them different options that they can choose from. Then we ask students to discuss the different proposals and review them in a group.

6

APPLICATION AND VERIFICATION

How do we prepare the recipes?

1. In a large group, we organize a trip to the market to simulate buying the ingredients they need for the recipe.

If a trip to the market cannot be organized, we can simulate a market in the classroom with different shelves and food stalls.

At the market we can ask students to look for the ingredients on the shelves or at the stalls, count them, compare them, etc.

We work with students to count from 0 to 10 in an ascending and descending manner. We compare foods based on size and type and observe whether there are more ingredients of one type than another. We guide the reflection with questions such as: “What vegetables are there more of?”; “Do we have ‘more’ or ‘less’ carrots than tomatoes?”, “Which vegetable is bigger?”, etc.

FINAL PRODUCT

Creating the recipe

1. In a large group, we reflect on the recipes that we chose and think about the materials that we will need. We reflect on safety in the kitchen and we talk about the fact that children cannot cook without an adult since there are dangerous utensils and we cannot use the stove by ourselves.

We can teach and read different infographics about safety for children in the kitchen and reflect on them.

7

REFLECTION

Let’s all reflect together

1. In a large group, we reflect on what students learned, how they learned it and in what other situations they will be able to use it.

We end the lesson by projecting the **myroom** *Ladder of Metacognition.* We ask students to reflect on the learning process carried out during the learning situation.

EMAT materials

EMAT offers a set of materials to consolidate meaningful learning. Student materials include manipulative material and the notebook. Teachers have a detailed Teacher's Guide and access to myroom, the classroom manager that includes digital resources and training. Complete classroom materials are essential to be able to carry out the manipulative activities.

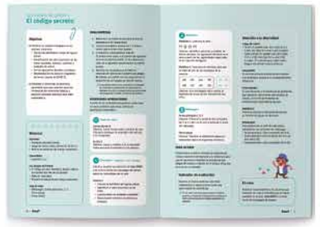
STUDENT MATERIALS

1 uni **Student's Book**

1 uni **Student materials**

1 uni **Magic Blackboard**

TEACHER MATERIALS



1 uni **Teacher's Guide (online)**

1 uni **myroom**

CLASSROOM MATERIALS

Classroom materials box + Individual case for the complete stage

Training and support

We propose several training and support models throughout the course so that in addition to getting the most out of your program, you can make great strides in your teacher training.

Personalized itinerary

Meetings with families
Support in communicating to families how their children learn with the program.

Advice and support
Resolving pedagogical concerns and support with the implementation of the program in the classroom.

Events in different cities

In-person tekman Academy
On-site training with leading speakers in education.

tekman Laboratory
Training sessions to share experiences with other teachers and receive training on the main topics in education.

Always available online

Training in tekman programs
Online courses to master the program and ensure optimal implementation.

Online tekman Academy
Online talks, conferences and interviews with professionals and experts in education.

EMAT is a mathematics teaching program based on innovative methodologies, which develops mathematical competences from the beginning of the early childhood education stage.

Its sequence is designed to foster a gradual understanding adapted to the developmental and cognitive level of the youngest students, while ensuring continuity with the later stages.

Thanks to the great range of cooperative, reflective and experiential situations, all students connect with mathematics.

With EMAT, mathematics are used and enjoyed.

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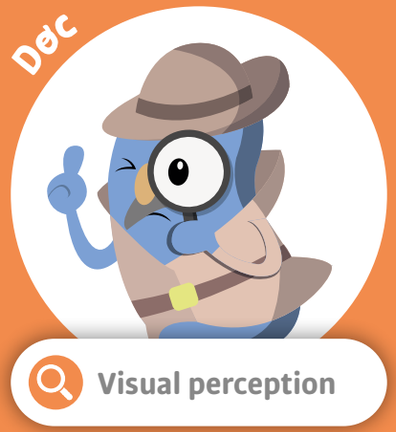
EMAT

• mathematics for life •

Level 2 sample

Name .....

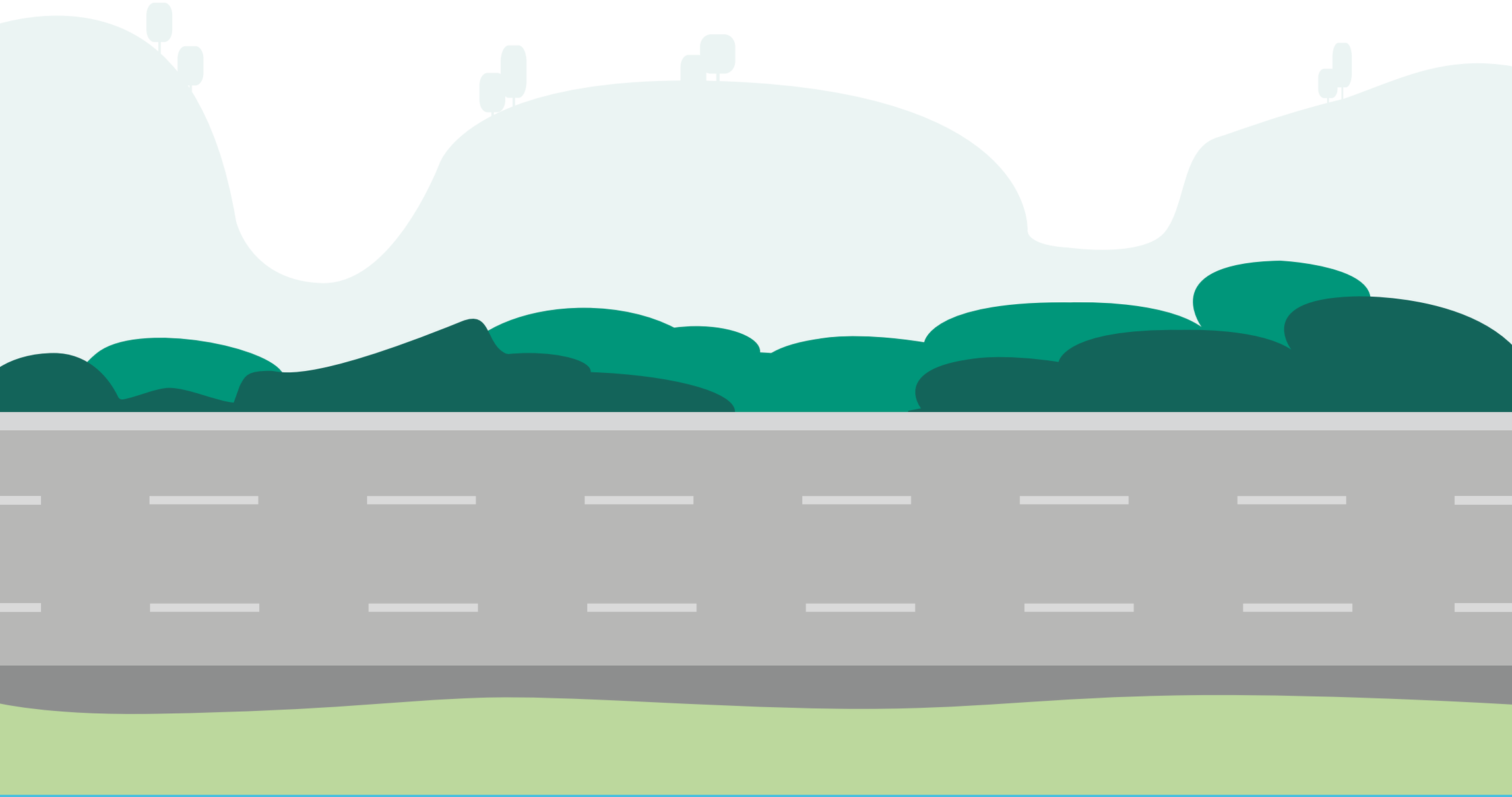
With **EMAT**, we work on all adapted mathematical concepts
at students' maturational age, based on **six aspects**:



EMAT

EMAT

Stick the stickers on the vehicles in order from largest to smallest.

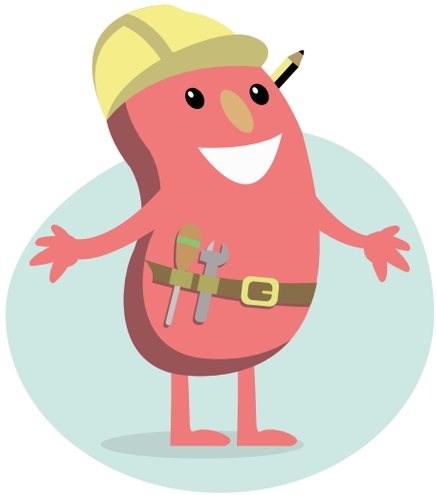


L7

In each row, find the Emati's brother and circle him.



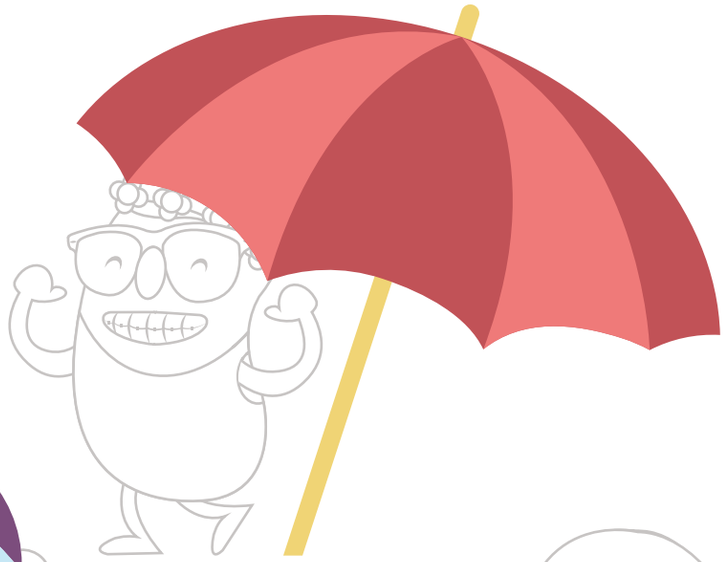


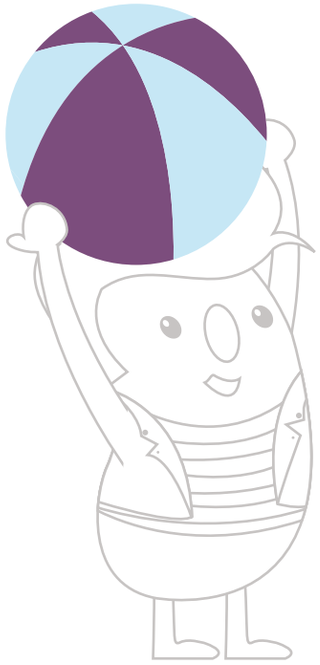





EMAT

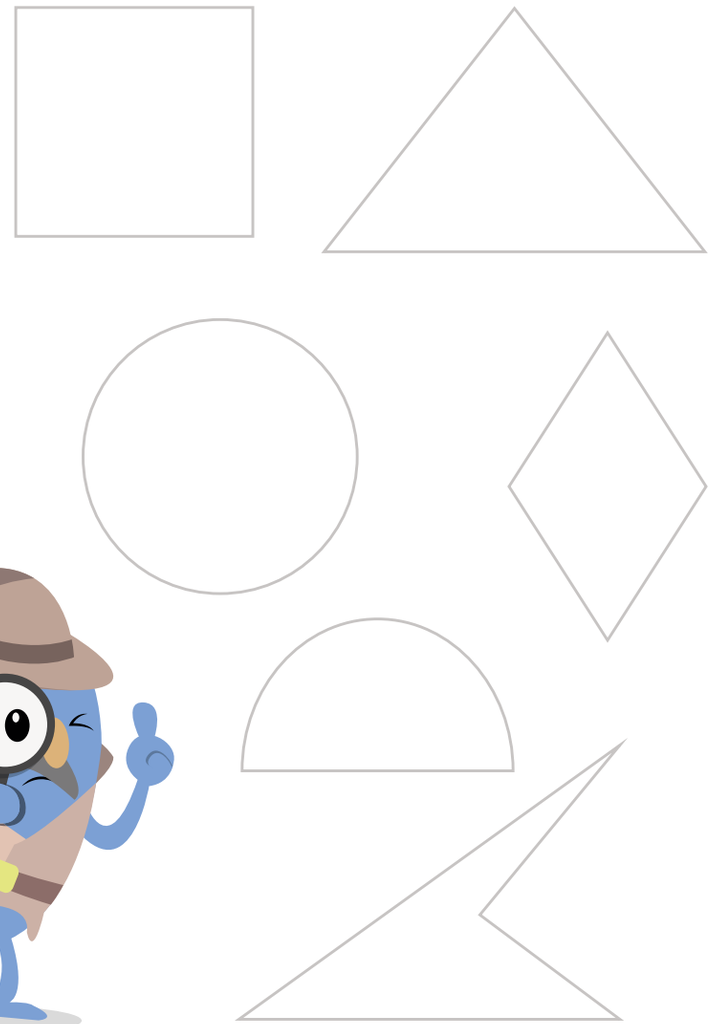
Colour the Ematis that are below the objects in blue, and those above them in red.

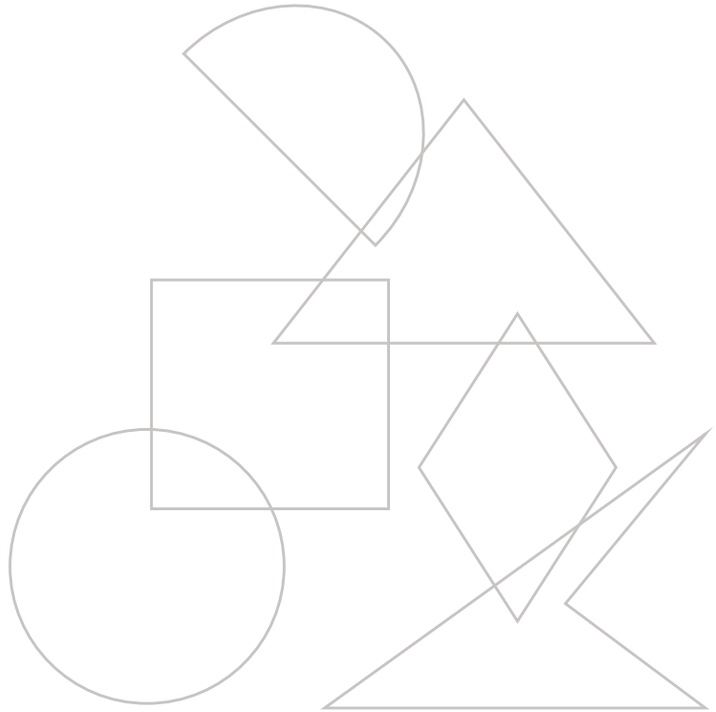




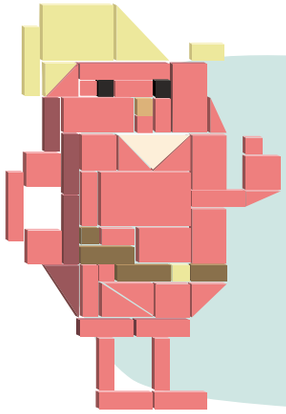
EMAT

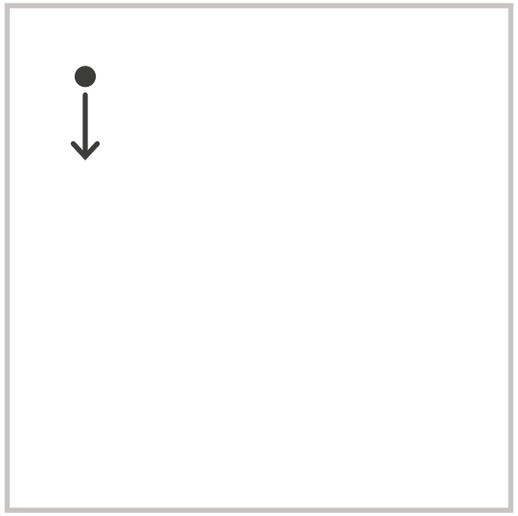
Trace the identical figures in the same colour.

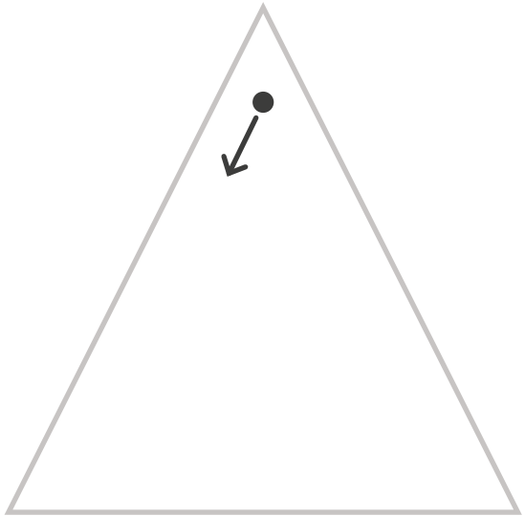


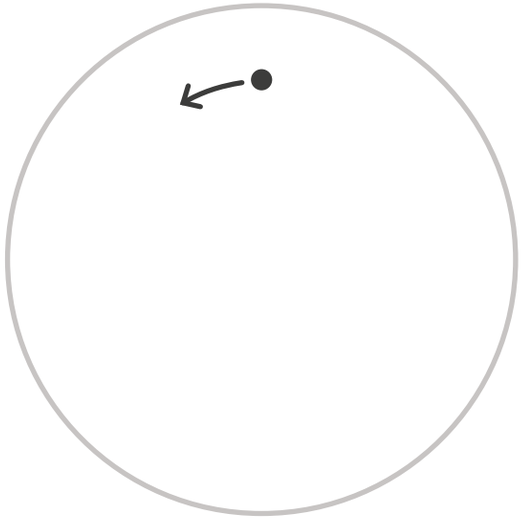


Trace concentric figures as in the model.





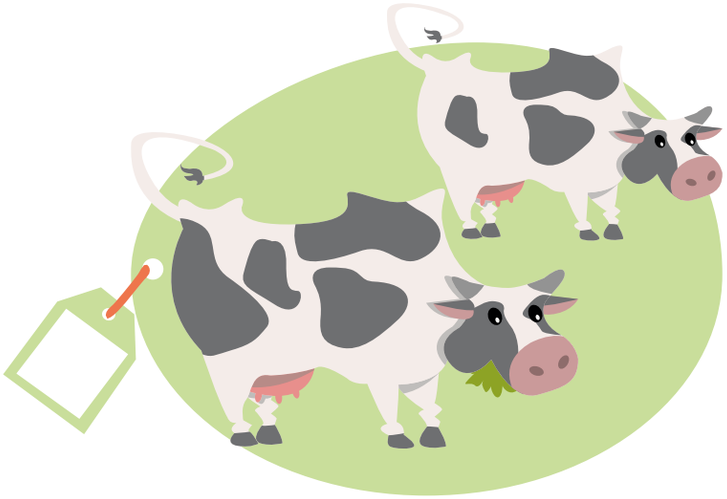




EMAT

Count the animals and circle the correct number next to each picture.

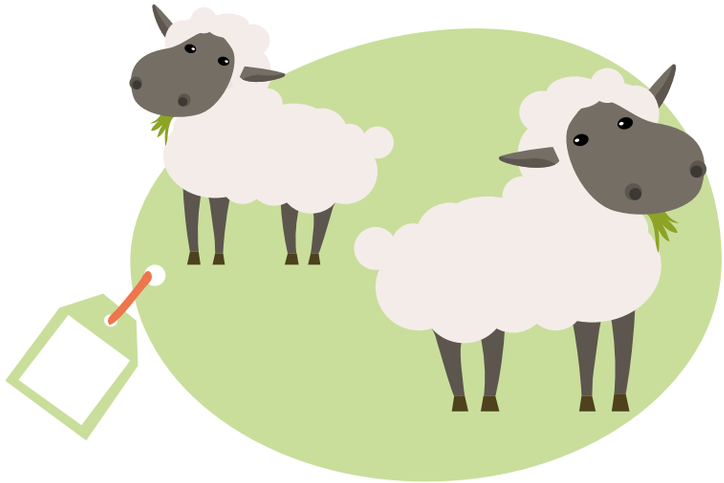
Place a cross on the label of the set with more animals.



2

3

1



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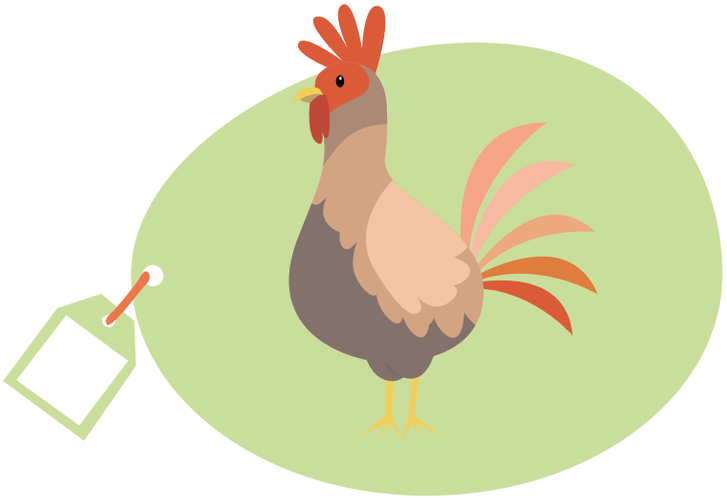
1



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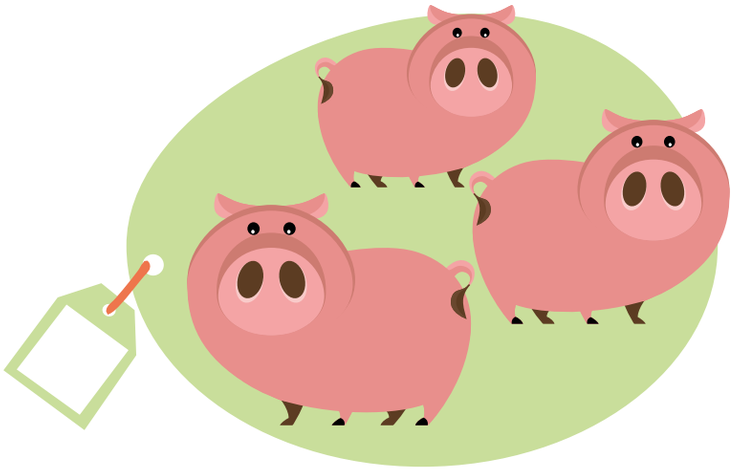

2

3

1

Colour in the amount of ingredients shown by the number.

Ingredients

- 4
- 1
- 3
- 1
- 1
- 1

Which recipe have you chosen? Write down the number of ingredients you need and draw them.

.....

.....

.....

.....

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Look at everything we have prepared for this year!
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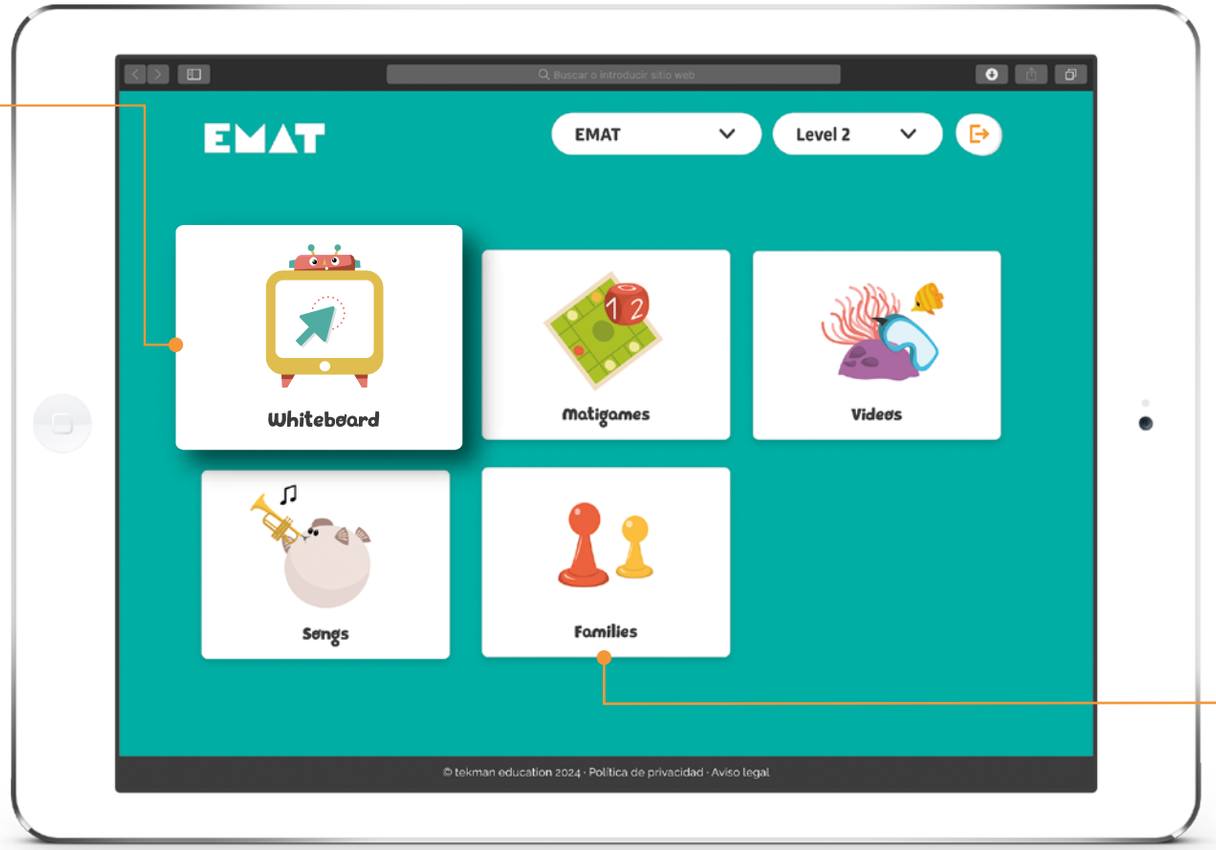
Whiteboard:
hands-on interactive mathematics tool.

Matigames:
board games to practise maths skills.

Videos:
fun short films to learn mathematical concepts.



Songs:
musical compositions related to mathematics.

Families:
useful information to share with your family.

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