

Mathecary and Lexecary

Teacher and Parent Guide

Current games and future plans

Created by AliciaOS | October 2026 edition

My teaching philosophy

I believe every child can learn. Children learn in different ways and at different rates, and I want every child to have the chance to learn and have fun. My goal is to create games that welcome children at different starting points and make room for curiosity, practice and growth.

Some children need more time or repetition. Some need to see a model, hear an explanation, move objects, talk through an idea or try it another way. The support that helps can change from one task to the next. I want learning to feel encouraging, so children can make mistakes, try again and discover what works for them.

I want progress to mean something for each child. A small step can be a big achievement. Enjoyment matters too: exploring, solving a puzzle and feeling proud of a new idea can all be part of learning.

Put this philosophy into practice

- Begin with what the child already understands. Choose a starting point that offers both confidence and something to discover.
- Offer different ways to explore an idea, such as objects, pictures, spoken explanations, movement and written working. Change the support when it helps.
- Give the child time. Use untimed or Free Play options where available, and introduce a speed challenge when it suits that learner.
- Notice the child's own progress, effort and changing strategies. Invite another try, and make space for play and enjoyment.

The role of teachers and parents

A game creates an opportunity; your attention helps make it a learning experience. Listen, ask a useful question and notice when the child needs a different approach or a break. Adjust the activity to the learner, and use the ideas in this guide flexibly.

The following pages explain the current collection, practical ways to use it at home and in class, and the future plans. The collection is at different stages of development, so the guide identifies what is ready and what still needs to be completed.

Explore the collection

This guide helps teachers and families choose a starting activity, talk about a child's thinking, and connect play with learning away from the screen. It describes what Alicia has built so far and the next steps already recorded in the project plans.

Mathecary brings together early number exploration, arithmetic practice and logic puzzles. Lexecary First Words is a separate spelling project. Each can support adult-led teaching and independent practice when the content and controls fit the learner. A game score is only one observation; listen to the child's explanation too.

What has been built

Part of the collection	Learning focus	Current stage
Mathecary arithmetic	Addition, subtraction, multiplication and division	Android app released; four subjects with ten levels each.
Mathecary First Numbers	Early number, patterns, shapes and spatial language	Ten activities in Android and browser testing builds.
Mathecary Puzzle Lab	Spatial reasoning, logic and planning	Ten puzzle games in Android and browser testing builds.
Lexecary First Words	Listening, spelling and word patterns	Android review build with 1,000 words; recordings and picture clues still needed.

How to use this guide

Start with the setup advice on page 3. First Numbers is on page 4; arithmetic on pages 5 and 6; Puzzle Lab on pages 7 and 8; and Lexecary on pages 9 and 10. Page 11 offers sample sessions, page 12 explains the future plans, and page 13 is a reusable observation sheet.

Work in progress is likely to change through play testing. Games in testing or development have a high chance of revisions to gameplay, visuals, controls, settings, difficulty and planned features as feedback comes in. This guide is a snapshot, not a promise of the final design. Check the version before planning a lesson. Lexecary app activities still require completed audio; use its offscreen ideas for now.

Choose a useful starting point

- For exploring quantity, patterns, shapes and position words, begin with First Numbers.
- For practising an operation the child has been taught, choose an appropriate Mathecary arithmetic level.
- For planning, testing an idea or explaining a logical deduction, try a Puzzle Lab game.
- For spelling and word patterns, review the Lexecary curriculum and offscreen ideas while its recordings are completed.

Getting started at home and in class

Choose by what the child can already do, rather than by age alone. Begin with a familiar task, watch one or two attempts, and adjust. The suggested session lengths below are flexible starting points, not app requirements.

A simple first session

- Choose one aim. For example, count each object once, explain a subtraction strategy, or fit a shape by turning it.
- Model one turn aloud. Name what you notice and demonstrate the control without solving every later turn.
- Give the child time to try. Ask one useful question, then wait. Let the child move the pieces or enter the answer.
- Finish with a short explanation or an offscreen example. Stop while the child is still comfortable, even if a game could continue.

Two ways to fit play into the day

At home	In the classroom
Try 5 to 10 minutes together, then repeat one idea with household objects.	Use a 10 to 15 minute station. Give one clear goal and a short reflection task.
Repeat a favorite activity. Increase the challenge when the child is ready.	Share a device in pairs. Alternate the player and observer, who predicts or explains.
After a retry, ask what changed in the child's strategy.	Record observations separately. Device best scores and saved arrangements do not identify pupils.

Prepare the device

Check sound, screen size and the controls yourself. Use untimed or Free Play options where available for first teaching. Mathe Cary arithmetic has high contrast, text scaling and a mirrored keypad. Lexecary includes Light, Dark and Clean themes. Availability of accessibility settings varies between apps; try the exact activity with the learner.

First Numbers and Puzzle Lab have browser builds and separate installed Android builds. On iPad, the current route is the browser or Add to Home Screen web app. An Android update and a website update are separate. Download required content and check it opens before a session; managed beta access may still need periodic internet verification.

The regular arithmetic app works offline, has no ads and requires no account. Invited testing has separate adult-managed access and feedback. Use the test portal for available builds and instructions. Record individual learning observations separately; the portal is not a class gradebook.

Testing portal <https://aliciaos.dev/testing>

First Numbers through exploration

First Numbers uses photographs of handmade play materials, including bottle caps, cardboard and small objects. Regular Mode offers gentle guided rounds and recognizes completion. Free Play gives room to arrange and explore. There are no scores, lives, timers or level progression to manage.

Activity	What to notice	Try saying
Number Bubbles	Recognizing numerals 0 to 9; finding matching caps	Can you find another one with the same number?
Count & Collect	Counting one object at a time; making a requested quantity	How will you keep track of what you have counted?
More, Fewer, or the Same?	Comparing quantities and recognizing equal amounts	Which group has more? How could we check?
Number Train	Ordering numbers and finding missing numbers in a sequence	What comes just before this number?
Pattern Parade	Recognizing and continuing a repeating pattern	Which part repeats? What should come next?
Sorting Workshop	Grouping objects and explaining a sorting rule	What makes these belong together?
Shape Town	Finding shapes in photographed scenes	Where can you see that shape in the picture?
Tiny Builders	Combining and turning shapes to make pictures	Which pieces could make this part?
Find Bear	Using position words such as in, on and under	Where is the bear? Tell me using a position word.
Counting Bus	Counting passengers and empty seats; making a full bus	How many more passengers will fit?

Use each mode for a purpose

Choose Regular Mode to work on a specific prompt. Choose Free Play to invite the child to make a pattern, group caps, build a picture or tell a story about the passengers. Saved Free Play arrangements support returning to a creation; they are not assessment results.

Shape Town uses tapping in both modes. Tiny Builders is about composing pictures from shapes. These controls and tasks differ from the other games, so model the selected activity rather than assuming everything is dragged.

Take it offscreen

Use paper shapes, toy passengers or large counters to repeat one idea. Ask the child to make a group, a pattern or a picture for you to copy. Listen for the explanation as well as the finished arrangement.

Arithmetic practice with Mathecary

The arithmetic app contains addition, subtraction, multiplication and division. All four operations are included in the complete Android app. Each subject has ten levels, and the starting level can be selected directly. Use the level map on page 6 to match practice to something the child has already been taught.

Understand the two kinds of progress

A spree is a run of consecutive correct answers. A wrong answer ends that run; in Timed play, an expired timer also ends it. Untimed removes the clock but keeps the one-mistake spree rule. Tell the child this before starting so the end of a run is not a surprise.

Progression is optional and separate from the spree. Choose a target of 20, 40, 60 or 80 total correct answers at each of Levels 1 to 9. These do not have to be consecutive. A mistake ends the current spree while keeping correct answers already earned toward the progression target.

Setting	When it can help
Single Level	Stay with one skill and choose when to change it. A useful first choice for teaching or checking a strategy.
Progression	Continue through levels with a selected total-correct target. Saved progress is separate for each subject, target and timing choice.
Untimed	Allow explanation, counting tools, written working and careful checking.
Timed	Offer a speed challenge once the child understands the skill and wants that challenge.

A short practice routine

Choose one subject and level, then start with Single Level and Untimed. Invite the child to solve a question with counters, a drawing or a written method before entering the answer. After a few turns, ask the child to explain one useful strategy. For example, to add 8 and 5, make 10 first and then add the remaining 3.

When a run ends, revisit the question together and try a related example. Choose another run only if it serves the learning goal. A higher spree can reflect familiarity or faster input as well as mathematical understanding.

What the app remembers

Best records and progression checkpoints are stored on the device. They are not individual pupil profiles. Question pools avoid repeating a question until that subject and level's pool has been used, then recycle. Level 10 is an open-ended mix of Levels 6 to 9, with no Level 11 or completion target.

The app supports practice; it does not replace teaching the meaning of an operation or certify mastery when a target is reached.

Choose an arithmetic starting level

This map summarizes the current question sets. The same level number does not mean the same readiness across all four subjects. A child may begin addition and division at different levels.

Level	Addition	Subtraction	Multiplication	Division
1	Sums to 5	Take away within 5	2 times table	Divide by 2
2	Sums to 10	Take away within 10	5 and 10 times tables	Divide by 5 and 10
3	Sums to 20	Take away within 20	Factors 1 to 5	Divisors and answers 1 to 5
4	Two digits plus one digit	Two digits minus one digit	Factors 1 to 10	Divisors and answers 1 to 10
5	Two digits without carrying	Two digits without borrowing	Factors 1 to 12	Divisors and answers 1 to 12
6	Two digits with carrying	Two digits with borrowing	Harder facts with factors 6 to 12	Two digits divided by one digit exactly
7	Three digit numbers	Three digit numbers	Two digits times one digit	Three digits divided exactly by 2 to 12
8	Four digit numbers	Decimal hundredths with nonnegative answers	Two digits times two digits	Whole quotient and a remainder
9	Decimal tenths and hundredths	Whole number calculations with negative answers	Decimal tenths with products up to two decimal places	Exact terminating decimal answers
10	Mix of Levels 6 to 9	Mix of Levels 6 to 9	Mix of Levels 6 to 9	Mix of Levels 6 to 9

Before moving to a new skill

- Ask the child to represent one question with objects, a drawing or a written method, then explain why the answer makes sense.
- For carrying and borrowing, connect the screen calculation with exchanging units and tens. The Level 4 sets can already include an exchange.
- For division with a remainder, discuss what is left after equal groups are made. The app asks for both the quotient and remainder.
- For decimals or negative answers, use a familiar context or number line before introducing speed.

If a level feels too difficult, step back within that subject or work with concrete materials. A child does not need to clear every earlier level to select an appropriate one.

Puzzle Lab for thinking and explaining

Puzzle Lab contains ten games in an illustrated workshop, with stained-glass pieces and playful machinery. Use a puzzle to start a conversation about a strategy: what the child noticed, what they tried and what changed. These are opportunities to practise reasoning, not a formal measure of ability.

Game	Main task	A useful question
Tangrams	Fit shapes into a silhouette without gaps or overlaps	What changes when you turn this piece?
Sudoku	Complete a number grid using row, column and region rules	Which number is ruled out here, and why?
Shape Drop	Place falling shapes; complete rows so they shatter	What space will this piece leave behind?
Codebreaker	Infer a hidden code from feedback on guesses	What did the last clue let you rule out?
Picture Reveal	Use row and column number clues to reveal a picture	Which cells must be filled in this run?
Connect the Pairs	Join matching pairs with paths that do not cross	Which pair has the fewest possible routes?
Minesweeper	Use nearby hazard counts to decide where it is safe	What does this number tell us about its neighbors?
Island Bridges	Join islands with the required number of bridges	Will every island still connect to the whole network?
Tower Transfer	Move stacked disks while keeping smaller disks on larger ones	What move must happen before the largest disk can move?
Number Crosswords	Use crossing digits to complete arithmetic clues	Which crossing answer can help with this clue?

Make reasoning visible

Invite the child to point before moving, predict an outcome and explain a revision. For partner play, one child can propose a move and the other can ask for the reason. Let them change roles. Use a smaller board or easier mode when the controls or rules are still new.

Check the rule that belongs to the game

Connect the Pairs does not require filling every cell. Island Bridges requires the islands to form one connected network as well as meeting each island's count. In Tower Transfer, only a top disk can move and a larger disk cannot rest on a smaller one. Demonstrate these details before expecting independent play.

Three Puzzle Lab starting points

Tangrams

Begin with Easy to focus on choosing and placing pieces. The needed pieces already face the right direction, so dragging alone can solve the puzzle. Normal adds extra pieces while the useful ones remain correctly oriented. Hard uses a reusable supply of shape types; pieces may need turning or flipping, and the exact required piece count matters.

Normal unlocks after 10 distinct Easy completions. Hard unlocks after 10 distinct Normal completions. Repeating one solved puzzle does not replace those distinct completions. Valid alternative arrangements can count when they cover the silhouette correctly without overlaps.

Adult prompt: “Which part of the outline gives you the strongest clue?” Offscreen, offer paper shapes and ask for a new picture using the same pieces.

Sudoku

Choose from 4 by 4, 6 by 6 and 9 by 9 grids, with Easy, Normal and Hard options. Start with a 4 by 4 puzzle when teaching the rules. Each row, column and marked region uses the allowed numbers once. Model elimination rather than guessing.

New Puzzle selects an unused puzzle; Continue restores an unfinished one. The generator creates and checks puzzles for a unique solution, and the app can generate more offline. Notes, undo and erase support working through possibilities. The number symbols do not make Sudoku an arithmetic calculation task.

Adult prompt: “What must go here because of this row and this region?” Ask the child to explain one placement before entering it.

Shape Drop

Shape Drop is a portrait falling-block game. Seven approved stained-glass shapes stay visually whole while falling and stacked. Rows crack as they fill and shatter when complete, allowing pieces above to move down. Relaxed mode falls automatically at a gentler pace; Speed mode falls faster.

Gesture	Action
Swipe left or right	Move the falling piece sideways
Tap	Rotate the piece
Swipe down	Drop the piece quickly
Press and hold	Temporarily slow the fall; the piece does not stay frozen
Swipe up or tap a saved jar	Send a piece to reserve, or bring a saved piece back into play

Begin in Relaxed mode and practise one gesture at a time. The two upcoming shapes and reserve jars support planning. Ask the child to notice gaps; do not expect a long explanation while a piece is falling. Newer board alignment and machinery refinements are in a local review build, so check the installed version.

Lexecary First Words

Lexecary is a separate spelling app built around listening to a word, using a clue when needed and arranging letter tiles. The approved curriculum contains 1,000 unique words in ten levels of 100. Its word data and gameplay logic are integrated in an Android review build.

What is ready and what is still needed

The word bank, letter tiles, definition clues, required context sentences and mode settings are implemented. The remaining content is substantial: 2,000 human recordings, with a normal and a separate slow take for every word, plus 170 picture-clue images. Those recordings and images are not yet supplied in the current review build.

A real word round currently stops at a neutral missing-audio message with Retry and Back. It cannot be submitted or counted as a mistake. The sessions below describe the intended completed experience; an adult reading aloud does not bypass this missing-audio state in the app.

How a completed word round will work

- Listen to the word at normal speed, followed by a separate, slower human recording. Replay can repeat the audio.
- Read the automatic context sentence when one is supplied. The 96 required contexts distinguish the intended word or meaning; the answer remains blank.
- Use a free optional definition or picture clue when helpful. The curriculum includes 830 definition clues and 170 planned picture clues.
- Arrange letters in the blanks. The tray includes the required letters, including repeated letters, and additional decoy letters.

Choose settings for the learning goal

Setting	What it means
Free Play	Retry without a score; a selected timer still applies. Incorrect attempts report only how many letters are in the correct positions, not which letters.
Spree	Build a run of correct words. The first incorrect submission ends the run.
Progression	Off, or 10, 20 or 30 correct words before advancing. This is separate from the timer and is not a saved long-term checkpoint.
Timer	Off, or 30, 60 or 90 seconds per word. Begin with Off when teaching or discussing a word.

Progression and timing can be chosen independently. Level 10 remains open-ended. Word order cycles through a level before repeating. These settings belong to Lexecary; they are different from Mathecery arithmetic's progression targets.

The Lexecary word journey

Each level contains 100 approved words. The examples below come from the actual curriculum. They illustrate a focus rather than giving a complete teaching sequence. Introduce the sound or spelling pattern with the child before expecting independent spelling.

Level and name	Broad focus	Example words
1 Short & Simple	Simple short-vowel words	bad, bag, bat, bed
2 Bigger Builds	Longer simple words and doubled final consonants	off, ill, bell, boss
3 Blended Beginnings	Consonant blends at the start	stop, plan, club, still
4 Tricky Endings	Consonant blends at the end	and, just, last, help
5 Letter Teams	Consonant letter teams in short words	ash, bash, cash, dish
6 Spelling Patterns	Consonant spelling patterns such as ck and ng	back, long, thing, check
7 Pattern Mix	Combining previously introduced consonant patterns	black, class, bring, strong
8 Words Within Words	Compound words and familiar word parts	anthill, backdrop, backflip, bedroom
9 Syllable Stretch	Longer words and syllable divisions	rabbit, picnic, napkin, basket
10 Full Mix	A mixed challenge drawing on the word patterns	bland, blimp, brisk, brunch

Listen for meaning as well as sounds

Use the required context to establish the intended meaning, especially when two words sound alike. Ask the child to say what the word means or use it in a sentence. Optional clues are free in every mode; using one is part of the available support, not a penalty.

The curriculum uses US English and includes documented pronunciation and spelling exceptions. Later compound and multisyllable words include some familiar components and unstressed vowels. Do not assume that every word follows one simple rule or that a spoken syllable always maps neatly to one spelling chunk.

An activity you can use before release

Choose a familiar example above and use paper letter tiles away from the app. Say the word, discuss its meaning, let the child build it and ask which letters work together. For “bell,” notice the two final letters; for “bedroom,” identify the two familiar words. This is an adult-led activity using the curriculum examples, not a playable substitute inside the current review build.

Practical sessions and learner support

Use these sessions as adaptable examples. Keep one clear goal, offer enough support for the child to participate and end with evidence you can actually describe.

Early number at home or in a small group

Goal: connect a spoken number with a quantity. Begin by asking the child to make a small group with counters. Play a few Count & Collect rounds, then ask the child to make the same quantity offscreen in a different arrangement. At home, a parent can take a turn following the child's instructions. In class, a partner can check by counting without moving the counters.

Notice whether the child counts each object once and understands that the last number tells how many. If counting is difficult, use fewer counters and model moving each counted object into a separate space.

Arithmetic strategy practice

Goal: explain a useful addition strategy. Choose an appropriate level, Single Level and Untimed. Work through a few questions with drawings or counters available. Ask the child to explain one answer, then make up a similar question on paper. In class, let partners compare two methods; at home, invite the child to teach the method to an adult.

Notice the method, not just the spree. If the child enters answers quickly but cannot explain them, return to a representation. If the child explains accurately but enters slowly, leave the timer off.

Spatial reasoning with Tangrams

Goal: explain how a shape fits an outline. Use Easy while placement is new. Ask the child to identify one distinctive corner before dragging. After the puzzle, use paper pieces to build a different picture. At home, each person can make a silhouette for the other; in class, partners can describe a move before touching the device.

Notice the language the child uses for sides, corners, position and turning. A successful snap is not by itself evidence that the child understood the shape relationship.

Make participation easier

- For reading or language needs, explain one instruction at a time and demonstrate the action. Invite pointing or showing before expecting a spoken explanation.
- For touch or motor difficulties, try a larger screen and the simplest control first. A child can direct an adult's moves while still doing the thinking.
- For frustration or fatigue, reduce the challenge, remove the timer where possible, or return to familiar Free Play. Stop before a run becomes a battle.
- For a child ready for more, ask for a second solution, a prediction or an explanation of why another move would fail. Harder levels are only one way to extend learning.

For Lexecary after the audio is complete, begin with Free Play, Timer Off and a familiar level. Discuss meaning, listen, build the word and compare it with a related word. Before that, use the offscreen activity on page 10.

What Alicia plans to build next

The direction is a family of learning games that combines clear practice with playful visual worlds. First Numbers uses handmade materials; Puzzle Lab uses an uncluttered illustrated workshop and stained glass. The existing plans keep a friendly style that can appeal to older learners as well as children. The items below are plans, not release promises.

Finish and refine the current collection

- Complete Lexecary First Words with 1,000 normal and 1,000 slow human recordings, then add its 170 picture clues. Check pronunciation, meaning, playback and real-device usability before a learner release.
- Continue improving Puzzle Lab controls, clarity and phone layouts. Shape Drop's latest piece alignment and machinery refinements are locally reviewed work awaiting publication approval.
- Keep First Numbers usable across the browser, iPad Home Screen app and installed Android app. Verify each delivery separately, preserve Free Play arrangements and close remaining differences between versions.
- Use adult beta feedback to find confusing instructions, difficult controls and errors. Teacher and parent observations can guide these refinements.

Expand the mathematical topics

Planned area	Direction in the existing roadmap
Number foundations	More work with recognizing quantities at a glance, ten frames, number bonds, making ten, skip counting and place value.
Elementary mathematics	Dedicated learning in fractions, decimals, percentages, measurement, units, time and money.
Geometry and early algebra	Shape building, symmetry, coordinates, ratios, rates, proportions, equations, area, perimeter and volume.
Data and advanced mathematics	Statistics and probability, with longer-term ideas for algebra, powers, roots, slope, trigonometry and calculus.

Some parts already exist: arithmetic includes decimal calculations and negative subtraction answers, and Puzzle Lab includes Tangrams. The future roadmap means broader or dedicated teaching in these areas, not that every part is absent today.

Continue the word curriculum

The Lexecary handoff refers to a later vowel-focused app. That is a future curriculum direction; a completed follow-on app is not documented. Finishing First Words is the concrete next step. No release date or wider reading and writing suite is promised in this guide.

A teacher dashboard, automatic mastery reports and a native iPhone or iPad app are not documented as completed features. Current iPad delivery for First Numbers and Puzzle Lab uses the web app. Lexecary currently has an Android review build only.

Session plan and observation sheet

Copy this page for a child, pair or small group. Use your usual school or family records. Describe what you saw and heard; do not turn a device best score into an individual assessment.

Date and learner or group

App and activity Level or mode Device and version

One learning goal

What the child did or said

Support provided and what the child could then do

A next step or an offscreen connection

Questions for reflection

What did the child enjoy? What could they explain or do independently? What support helped? Did language, sound, touch controls or the timer get in the way? What progress matters for this child, and what should change next time?

About this edition

Prepared from the project's current README, arithmetic level definitions and progression records; First Numbers activity and repair reports; Puzzle Lab mode, Sudoku and Shape Drop reports; the approved Lexecary curriculum and October verification; and the existing product roadmap. Historical plans were checked against current implementation records. Suggested teaching activities are guidance for adults, not claims of independently measured learning outcomes.

For technical feedback, include the app name, version, device, the action attempted and what happened. Keep child-identifying information out of screenshots sent with a test report.

[Testing and feedback https://aliciaos.dev/testing](https://aliciaos.dev/testing)