Expressions: Weekly Planning for Teachers (Online)

Chapter 2, x Marks the Spot · November 2026 · draft for review

How the chapter runs

This plan covers Chapter 2, Expressions, taught online: 13-year-olds with five maths lessons a week of about 55 minutes, each student working on a device in the Expressions pages. It takes 4 weeks (20 lessons): 15 teaching lessons, 3 mixed practice and review days, the chapter check and a buffer lesson at the end.

Every day is a normal lesson. Monday to Friday, each lesson teaches one skill (or half of a harder one) with the same 55-minute plan. When a skill is finished, its mastery check is the last part of that lesson. The page marks the check straight away.

Below the pass mark is “not yet”, never a fail. The student practises that skill again, then retakes the check with new questions at the end of a later lesson. The mixed days and the buffer lesson have time for retakes built in.

Two routes. The mandatory route is 14 skills for every student; the chapter is mastered when all of them are. The advanced route has one optional skill (common denominators with expressions underneath), still to be written.

Week	Focus	Lessons
1	Expressions, like terms and powers	EX01, EX02, EX03, EX04, EX05
2	Dividing powers, then brackets	EX06, EX07, MX04, EX08, EX09
3	Factoring and number tricks	EX10, EX11, EX12, EX13, MX05
4	Fractions and the chapter check	EX14, MX06, CH2, BUF3

Numbering. Skills are numbered EX01 to EX15. Mixed practice and review days are numbered MX04, MX05 and MX06, after Chapter 3’s MX01 to MX03: they practise several skills at once and have no mastery check of their own, so they are not skills. CH2 is the chapter check and BUF3 the buffer lesson.

Answers are typed as expressions. Students type an answer as they would write it (2x^3 for $2x^3$) or use the keys under the box. An answer that is equal to the right one but not finished, such as $2 \cdot 3x^4$ or $2(3x + 6)$, gets “not yet” with what is left to do; it never counts as right in a mastery check.

What you do

- In each lesson: lead the Learn part with the class, then walk round while students practise. There is nothing to prepare, print or mark.
- After each lesson, five minutes in the class view: who is “not yet” on today’s check, and the mistakes each student makes most often (see The class view after each lesson).
- Use what you see there in the next lesson’s warm-up.

A normal lesson

Every lesson, Monday to Friday, follows the same four parts, so students know what to expect and you never plan from scratch.

Minutes	Part	Students	You
0 to 8	Warm-up	Answer one or two quick questions on earlier skills, in the page	Read the answers out in a minute. Add the mistake the class view showed most often yesterday, if there was one

Minutes	Part	Students	You
8 to 20	Learn	Open the day's lesson and follow it together: the narrated video (about a minute and a half), the explanation, and the activity (name the parts, which rule, cross out what cancels)	Lead it from the front on your own screen. Ask "why is that step allowed?" more than "what is the answer?"
20 to 45	Practise	Work through the practice, easiest first. Each answer gets instant feedback that names the mistake, or says what is left to do when the answer is equal but not finished. Hints are there when stuck. Students who finish early do the two extra exercises	Walk round. Look for the mistakes listed in the day's plan and stop the class if you see one several times
45 to 55	Exit	If the skill finishes today: its mastery check (about 10 minutes), plus any retakes. Otherwise: redo, without hints, the hardest practice question they got right	Make sure everyone submits before the bell. The page marks the checks and gives every student different questions

A student who finishes the practice early may take the mastery check before the Exit.

Mastery checks and retakes

1. **Check at the end of the skill.** On the day a skill finishes, its mastery check takes the last 10 minutes of the lesson. The page builds a new set of questions for every student and every attempt, so there is nothing to copy.
2. **The page marks it.** Students see their score, which rows they missed and why, straight away. A row counts only when it is exactly right and finished. The result appears in the class view at the same moment.
3. **Below the pass mark: "not yet".** The student practises that skill again (the lesson's practice, its extra exercises, or the practice sets for the hardest skills), then retakes the check at the end of a later lesson, with new questions. Wednesday of week 2 and Friday of week 3 end with retakes, and in week 4 every check of the chapter can be retaken on the week 4 page.
4. **The chapter check has no pass mark.** On Thursday of week 4 it shows, skill by skill, what each student still knows. Every skill a student misses goes on their review list for Friday's buffer lesson.

Some students cannot get online at home. Let them practise and retake in a lunchtime or after-school session on the school's devices.

The four weeks

Week 1: Expressions, like terms and powers

Students learn the words for the parts of an expression, put numbers into expressions, combine like terms, and multiply powers of the same base and then whole terms. Every lesson ends with its skill's mastery check.

Day	Lesson	Warm-up	Exit	Watch for
Mon	EX01 Read algebraic notation "Name the Parts"	signed-number arithmetic (PRE01)	EX01 check (5 of 6)	Dropping the sign of a coefficient (the coefficient of x in 7 − 3x taken as 3). Thinking a lone x has no coefficient, or coefficient 0 (it is 1)
Tue	EX02 Evaluate an expression "Put the Number In"	order of operations (PRE11); squares, cubes & square roots (PRE13)	EX02 check (7 of 8)	Squaring the coefficient too: $3x^2$ worked out as $(3x)^2$. Squaring the minus sign: $-s^2$ with $s = -4$ taken as 16

Day	Lesson	Warm-up	Exit	Watch for
Wed	EX03 Combine like terms “Like with Like”	EX01; signed-number arithmetic (PRE01)	EX03 check (5 of 6)	Combining unlike terms ($3x + 2 = 5x$, or $5x^2 + 6x = 11x$). Losing a term’s sign when regrouping ($-5r$ becomes $+5r$)
Thu	EX04 Multiply powers of the same base “Count the Factors”	squares, cubes & square roots (PRE13)	EX04 check (7 of 8)	Multiplying the exponents in a product ($y^2 \cdot y^4 = y^8$). Adding the exponents in a power of a power ($(v^3)^5 = v^8$)
Fri	EX05 Multiply monomials & powers of products “Group and Multiply”	EX04; signed-number arithmetic (PRE01)	EX05 check (5 of 6)	Raising only the letter to the power ($(2x)^3 = 2x^3$). Multiplying the coefficient by the exponent ($(2x)^3 = 6x^3$)

Week 2: Dividing powers, then brackets

Students divide powers and cancel common factors, meet negative exponents, practise choosing the right rule on Wednesday, then expand a bracket and subtract one. Subtracting a bracket is where most sign mistakes start: watch Friday closely.

Day	Lesson	Warm-up	Exit	Watch for
Mon	EX06 Divide powers & simplify quotients “Cancel the Factors”	fractions, decimals & reciprocals (PRE02); EX05	EX06 check (5 of 6)	Dividing the exponents ($x^8 / x^2 = x^4$). Cancelling parts of a sum ($(3 + 2x)/(5 + 3x) = (3 + 2)/(5 + 3)$)
Tue	EX07 Negative exponents “Below the Line”	EX06	EX07 check (5 of 6)	Thinking a negative exponent makes the value negative ($2^{-3} = -8$). Multiplying the base by the exponent ($2^{-3} = -6$)
Wed	MX04 Mixed practice: like terms and powers (covers EX03 to EX07). Like terms, products, quotients, powers and negative exponents, all mixed together “Which Rule? Mixed Practice”	EX03; EX05	Hardest practice question; retakes	Using the same rule for every expression (adding exponents in a sum, or multiplying them in a product)
Thu	EX08 Expand a product “Multiply Every Term”	properties of arithmetic (PRE12); EX03	EX08 check (5 of 6)	Multiplying only the first term in the bracket ($2(x + 7) = 2x + 7$). Not carrying a negative factor’s sign to every term ($-3(x - 4) = -3x - 12$)
Fri	EX09 Subtract an expression “Take Away Every Term”	EX08; signed-number arithmetic (PRE01)	EX09 check (4 of 5)	Subtracting only the first term of the bracket ($(x + 3) - (3x + 9) = -2x + 12$). Subtracting a negative term instead of adding it ($-(-7)$ taken as -7)

Week 3: Factoring and number tricks

Students reverse expansion: they take out the greatest common factor, then a common bracket. Wednesday turns instructions into expressions to explain number tricks. Thursday simplifies algebraic fractions by factoring first, and Friday mixes expanding and factoring.

Day	Lesson	Warm-up	Exit	Watch for
Mon	EX10 Factor out the greatest common factor “Take Out the Common Factor”	EX08; EX06	EX10 check (5 of 6)	Taking out a common factor that is not the greatest ($2(a^3 + 8a^2 - 4a)$). Leaving nothing for a term that is all factor ($3x + 3 = 3(x)$)
Tue	EX11 Factor out a common bracket “One Bracket, Twice”	EX10; EX03	EX11 check (3 of 4)	Multiplying the outside factors instead of adding them ($n \cdot 5(2n + 1)$). Losing a minus sign in front of the second part ($3(2d + 7) - 5d(2d + 7) = (3 + 5d)(2d + 7)$)
Wed	EX12 Turn instructions into an expression “Number Tricks”	EX09; order of operations (PRE11)	EX12 check (3 of 4)	Leaving out brackets, so a later operation reaches only the last number ($n + 4 \cdot 2$ instead of $2(n + 4)$). Dividing only one term of a sum ($(2x + 48)/4$ written $2x + 12$)
Thu	EX13 Simplify an algebraic fraction “Factor, Then Cancel”	EX10; EX06	EX13 check (4 of 5)	Cancelling terms instead of factors ($(6x + 9)/12 \rightarrow (x + 9)/2$). Dividing only one term of the numerator ($(6x + 9)/3 = 2x + 9$)
Fri	MX05 Mixed practice: expand and factor (covers EX08 to EX13). Expanding, subtracting brackets, factoring, number tricks and fractions, all mixed together “Expand or Factor? Mixed Practice”	EX08; EX10	Hardest practice question; retakes	Going the wrong way (expanding when the task says factor), or stopping halfway with a common factor left in the bracket

Week 4: Fractions and the chapter check

Adding fractions with letters takes two lessons because it uses nearly every earlier skill. Wednesday reviews the whole chapter, Thursday is the chapter check, and Friday is the buffer lesson: teach again where the chapter check shows a gap, then retakes.

Day	Lesson	Warm-up	Exit	Watch for
Mon	EX14 Common denominator: single-term denominators (part 1 of 2) “One Denominator”	common denominators (LCM) (PRE08)	Hardest practice question (check on Tuesday)	Adding numerators and denominators ($2/(3x) + 3/x = 5/(4x)$). Rescaling the denominator but not the numerator
Tue	EX14 Common denominator: single-term denominators (part 2 of 2) “One Denominator”	EX14; EX08	EX14 check (4 of 5)	Adding numerators and denominators ($2/(3x) + 3/x = 5/(4x)$). Rescaling the denominator but not the numerator

Day	Lesson	Warm-up	Exit	Watch for
Wed	MX06 Chapter review (EX01 to EX14: every skill of the chapter). A review of the whole chapter, weeks 1 to 4, in no particular order, like tomorrow's chapter check "Which Skill? Chapter Review"	EX02; EX05; EX09	Hardest practice question; retakes	Doing well when the skill is announced, but stalling or guessing when it is not
Thu	CH2 Chapter check: 16 questions, one or two from every mandatory skill, mixed (whole lesson)	None	None: the check is the whole lesson	Shows what each student still knows weeks later, skill by skill; it makes each student's review list for Friday
Fri	BUF3 Buffer lesson: warm-up, your review list from the chapter check, retakes	EX03; EX08; EX13	Retakes	Teach again any skill where many students missed the chapter check; then review lists and retakes

The lesson videos

Each teaching lesson opens its Learn part with a short narrated video; 15 videos in all. Every video has captions, a storyboard (one picture for each step, to print for students) and a teacher script (what to say and write on the board), so a class without screens can follow the same lesson. All of them are in Lesson videos on the course home.

Video	Title	Lesson	Length
EX01-V1	Name the Parts	Monday, week 1: Name the Parts	1:16
EX02-V1	Put the Number In	Tuesday, week 1: Put the Number In	1:15
EX03-V1	Like with Like	Wednesday, week 1: Like with Like	1:29
EX04-V1	Count the Factors	Thursday, week 1: Count the Factors	1:00
EX05-V1	Group and Multiply	Friday, week 1: Group and Multiply	0:58
EX06-V1	Cancel the Factors	Monday, week 2: Cancel the Factors	1:32
EX07-V1	Below the Line	Tuesday, week 2: Below the Line	1:32
EX08-V1	Multiply Every Term	Thursday, week 2: Multiply Every Term	1:25
EX09-V1	Take Away Every Term	Friday, week 2: Take Away Every Term	1:38
EX10-V1	Take Out the Common Factor	Monday, week 3: Take Out the Common Factor	1:25
EX11-V1	One Bracket, Twice	Tuesday, week 3: One Bracket, Twice	1:13
EX12-V1	Number Tricks	Wednesday, week 3: Number Tricks	1:12
EX13-V1	Factor, Then Cancel	Thursday, week 3: Factor, Then Cancel	1:06
EX14-V1	One Denominator	Monday, week 4: One Denominator	1:13
EX14-V2	One Denominator: Part 2	Tuesday, week 4: One Denominator	1:35

The class view after each lesson

This replaces marking. Five minutes after each lesson, open the class view at the bottom of the week's page. It is shown to teachers who can edit the course, and lists every student's progress, lesson by lesson, live.

Look at	What it tells you	What to do
Who is “not yet” on today’s check	Who needs to practise that skill again and retake	Next lesson, check that their retake happened
How many are “not yet”	Whether the skill landed	Half the class or more: teach it again the next day (see If the class is behind or ahead)
“Watch for”: each student’s most frequent mistakes	What the class misunderstood, by the mistake behind it	Put one question on it in the next warm-up
Last active, and students two or more lessons behind	Who is falling away from the class	Pair them with a classmate during practice

If the class is behind or ahead

Let the check results decide, not the calendar.

Behind. If half the class or more is “not yet” on a skill, teach it again the next day before moving on, and shift the plan by a day. The buffer lesson in week 4 absorbs one day of delay; beyond that, shorten the chapter review (MX06) to half a lesson and keep the chapter check. Two things never get cut: the two lessons on common denominators (EX14) and the mastery checks.

Ahead. If most students pass first time, use the buffer lesson to start Chapter 3, Linear Equations. A class that is clearly fast can run MX05 as half a lesson and spend the other half on the practice sets.

Individual students. Nobody waits for the class and nobody is dragged along with it. A student who is behind practises and retakes with new questions; one who is ahead does the extra exercises and the practice sets. If a student is two or more lessons behind, pair them with a classmate during practice.

Materials status for the pilot

This plan describes the full chapter online. All content is a draft waiting for review by the maths expert.

Material	Status
Skill graph for the chapter, with the mandatory and advanced routes	Ready
Expressions week 1 to week 4 pages: every lesson of this plan, each with warm-up, lesson, practice and its mastery check or exit question, one progress record across the four pages, and a class view	Ready (prototype)
15 lesson videos, each with captions, a storyboard and a teacher script	Ready (draft)
Practice sets for EX07, EX09, EX10 and EX14, and four exercise exemplars	Ready (draft)
Advanced skill EX15 (expression denominators)	Not written yet
Catch-up practice set automatically as homework, with the retake opening once it is done	Designed, not built yet
Sign-in for a whole class through the school	Part of the production platform