

Fire Quotient

A little play. A little division practice.



Read. Think. Answer. Reflect.

Practice familiar division skills with a pretend fire crew.
Use alongside teaching, discussion, and learning on paper.
A few thoughtful questions can be a complete session.

Find your way

Start with the player pages. Adults can turn to Advanced mode, worksheets, and the guidance section when needed.

01 Welcome / 3

02 Quick start / 4

03 Read the equation / 5

04 Controls / 6

05 Answers & reflection / 8

06 The eight levels / 10

07 The summary / 12

08 Advanced mode / 13

09 Worksheets / 15

10 For adults & educators / 16

11 Help & troubleshooting / 18

A supporting role in learning



The game reinforces previously taught skills. It does not replace instruction, textbooks, or a curriculum.

01 / THE GUIDE

Welcome



Your fire chief guides the questions and feedback.

Welcome to Fire Quotient! A fire crew needs your help to put out fires around town by correctly answering division questions. Read the fire chief's question, enter an answer, and watch the crew respond to, then put the fires out maybe rescue a cat or two along the way.

You do not have to finish the whole game. A few thoughtful questions can be a complete practice session. Mistakes are an opportunity to look again, and stopping is always allowed. These are pretend emergencies; you are not responsible for keeping real people or animals safe.

For adults

Fire Quotient is a supplementary drill-and-practice resource for division that a learner has already been taught. It is not a course, a tutor, an assessment instrument, or a substitute for instruction. Use it alongside teaching, textbooks, your curriculum, discussion, practical activities, and non-digital practice. Its feedback supplies the correct answer after a mistake; it does not explain a complete solution method.

The intention is mild engagement: enough animation and variety to make some repetition enjoyable, without making continued play the purpose of learning. Completing every level, replaying immediately, or using Advanced mode is not necessary. Agree on a stopping point before starting and make room for paper, conversation, and other activities.

ADVISORY NOTICE: The illustrations include fire-damaged buildings, fleeing characters, and a cartoon marshmallow catching fire. Preview them if a child may find this uncomfortable. The game is not fire-safety instruction. Real fires are for trained adults to handle; children should stay away and tell an adult. The marshmallow scene is pretend and is not an activity to copy.

02 / THE GUIDE

Quick start



Actual game-rendered scene: the chief asks the question; the truck display holds your answer.

1. Open FireQuotient.exe from the game's folder.
2. Wait for the opening picture and the fire crew's arrival.
3. Read the division question in the chief's speech bubble.
4. Type your answer, or click the number buttons at the upper right.
5. Press Space or Enter. The keypad's Enter button works too.
6. Watch what happens. Wait for the next question before answering again.

If your answer is incorrect, the chief shows the correct equation. Take time to think about it. Press Space or Enter when you are ready to go on.

Press Escape whenever you want to close the game.

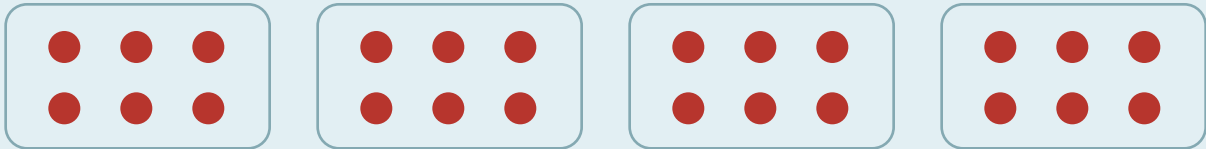
The opening splash screen displays while resources load. Normal play starts automatically. There is no mode-selection menu. The optional startup keys for worksheets and Advanced mode are explained later for adults. The small documentation picture on the splash screen is a clickable button that opens this manual.

03 / THE GUIDE

Read the equation

$$24 \div 6 = 4$$

24 objects / 6 in each group / 4 groups



A visual reminder of equal grouping, to connect with a method already taught.

The symbol $\div$ means division. For example:

$$24 \div 6 = 4$$

24 is the dividend: the number being divided. 6 is the divisor: the number you divide by. 4 is the quotient: the answer.

As a reminder of a previously learned idea, 24 objects arranged into equal groups of 6 make 4 groups. You can check the answer using multiplication: $6 \times 4 = 24$. Use the division approach your teacher has taught you.

Enter only the answer. Do not type the whole equation or an equals sign. Your answer appears in the display gauge on the side of the fire engine: ones on the right wheel, tens on the middle wheel, and hundreds on the left wheel when Advanced mode needs them. A one-digit answer uses only the right wheel.

All game questions have positive whole-number answers. There are no remainders, fractions, decimal answers, or questions dividing by zero. The game avoids giving exactly the same equation twice in succession, although an equation can return later.

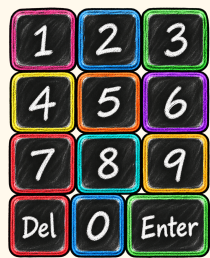
You cannot choose a particular question, fire, or window. The game chooses the question and directs the firefighter's spray automatically.



04 / THE GUIDE

Controls

TYPE	CLEAR	SUBMIT
0-9	Backspace / Delete	Space / Enter



The game keypad is available only while an answer is being accepted.

While a question is waiting for an answer:

Number keys	Enter digits using the keyboard's number row or numeric keypad.
Space or Enter/Return	Submit the answer you entered.
Backspace or Delete	Clear the ENTIRE answer, not just one digit.
Mouse number button	Enter that digit.
Mouse Del button	Clear the entire answer.
Mouse Enter button	Submit the answer, just like Space.

Pressing Submit with an empty answer does not submit a response; the question's time allowance continues to run.

In normal Level 1, entering another digit replaces the previous digit. In normal Levels 2-8, you can enter up to two digits. Advanced mode allows up to three digits. To replace a multi-digit entry, clear it first and then enter the new answer.

The on-screen keypad appears in the upper right only when the game is waiting for an answer. It disappears during feedback, animations, review, and the summary. It does not move the crew or aim the hose.

At an incorrect-answer review:

Space or Enter/Return	Leave the review and continue.
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Continue, restart, or stop



Review pauses until you press Space or Enter. The mouse keypad is hidden here.

At the summary:

Space or Enter/Return

Start a fresh game in the same mode.

Other controls:

R during gameplay

Restart at Level 1, clearing this game's totals. The selected normal or Advanced mode is kept.

Escape

Close the application.

Switch to another

Pause gameplay and question timing. Return to

application/minimize

the game to resume.

There is no dedicated pause-key toggle. Mouse input alone cannot dismiss an incorrect-answer review or the summary: use Space or Enter on the keyboard at those screens. An adult may assist with these controls.

05 / THE GUIDE

Answers & reflection



Correct-answer water animation. Only the fire being sprayed shrinks.

A correct answer

The equation disappears, the firefighter sprays water, and the fire being sprayed becomes smaller. The chief gives a short encouraging message. Wait until a new equation and the keypad appear before entering another answer; answer entry is unavailable during these transitions.

There are five visible fire sizes, including the final engulfing stage. An initial fire starts at the middle size. Three correct answers directed at that fire, without an intervening increase, extinguish it.

With several fires, the spray cycles between fires that are still burning. Only the fire being sprayed shrinks after a correct answer. You do not need to aim or click on a flame.

An incorrect answer

The hose drips instead of spraying a stream. A single fire grows one size. On a level with several introduced window fires, all of those fires are set to one size above the largest current fire. This can relight a window that you had already extinguished.

After the animation, the correct equation appears in the speech bubble. The game waits for you to press Space or Enter. There is no time limit on this review. You might read the equation aloud, check its multiplication fact, or work it out with paper or objects before continuing.

Time to look again



Read the correct equation, take time to reflect, then continue.

Pressing Continue clears the reviewed equation immediately. A new question follows unless the game has ended. The keypad is not displayed during the review, so use the keyboard to continue.

The last chance

At the largest fire stage, the building appears burned and the flames engulf it. There is still a chance to answer correctly and reduce the fire. The building can remain visibly damaged even after flames shrink.

An incorrect answer at this final stage ends the game. You first see the correct-answer review; continuing then takes you to the summary. The flames disappear because the scene has ended, not because that answer extinguished the fire. There is no single fixed allowance of mistakes for a whole game: the current fire sizes determine what happens.

The 40-second allowance

Each new question allows 40 seconds of active question time. If you have not submitted an answer by then, it counts as incorrect. Even a correct number that has been typed but not submitted will time out. Typing does not reset the allowance, and no countdown is displayed.

Question time does not run during crew animations, feedback, rescues, or incorrect-answer review. Switching away from the application or minimizing it pauses gameplay and timing; returning resumes them. Resizing the window also pauses gameplay during the resize operation.

This timing rule is a game mechanic, not a measure of intelligence or a diagnostic test of fluency. If it rushes a learner, pause for discussion or use an untimed worksheet. There is no in-game setting to lengthen the question allowance.

06 / THE GUIDE

The eight levels



Level 8 with additional window fires. Planned spread can follow a correct answer.

Normal mode uses the following answer ranges. Every divisor is from 1 to 9. On Level 7, eight questions in each shuffled group of ten use a divisor from 1 to 4; the other two use a divisor from 5 to 9.

LEVEL	SCENE	ANSWERS
1	Barrel	1-3
2	Brush pile	1-8
3	Trailer	1-10
4	Shed	1-12
5	Small house	1-12
6	Large house	1-12
7	Office	1-12
8	Large office building	1-14

Later scenes add more fires and events; their answer ranges do not always increase. All questions still divide exactly.

Level 1: Barrel

A single fire burns above the barrel. Practice entering and submitting one-digit answers, then reviewing any mistakes.

Level 2: Brush pile

There is one fire on a pile of brush. Practice entering one-digit answers, then reviewing any mistakes.

Level 3: Trailer

The initial fire comes from the trailer window. Practice entering answers, then reviewing any mistakes.

Level 4: Shed

The fire comes from the window. Practice entering answers, then reviewing any mistakes.

Level 5: Small house

Both windows have fires. Correct answers shrink one target at a time; incorrect answers raise both to one size above the current largest fire.

Level 6: Large house

Fires start in the two downstairs windows and one randomly selected upstairs window.

Level 7: Office

Two randomly selected windows start burning. After the fourth correct answer in this level, fires appear in the other two windows. The chief says, "Oh No! the fire has spread!" and briefly pauses before continuing.

Level 8: Large office building

There are 22 windows. Normal mode starts with four randomly placed fires. After the fourth correct answer, three new windows catch fire. Each later correct answer introduces one more window fire until 11 window locations have been introduced. After that, no more new window locations are added.

The 11-window limit counts locations introduced during the level, not only flames currently visible. An incorrect answer can still relight previously extinguished locations.

About the extra fires and animations

The planned new fires in Levels 7 and 8 are scene events, not a sign that your correct answer was wrong. Your correct answer still reduces the sprayed fire. Milestones count correct answers within that level; they do not require a streak of consecutive correct answers.

Evacuations, rescues, and the marshmallow scene require no player input. They are short breaks between questions, not separate puzzles to solve.

When all fires are extinguished, the chief congratulates you. The chief and firefighter walk off to the right, followed by the fire engine. The next scene appears and waits about two seconds before its opening action. Any evacuation happens before the engine enters. Extinguishing the fires in all eight normal levels completes the game.

07 / THE GUIDE

The summary



Example summary. The figures shown here are illustrative, not a target or a grade.

A summary appears after you complete normal mode or the game ends at the last-chance fire stage. It includes an affirmation, a division fact, and two counts:

Successfully Completed Levels The number of levels fully finished in this game. An unfinished current level does not count as completed.

Correctly Equations This is the current screen label for the number of correctly answered equations. It includes correct answers in an unfinished final level.

The summary does not provide an accuracy percentage, total attempts, response-time analysis, a skill diagnosis, or a curriculum grade. Read the counts in context rather than comparing children or treating them as a measure of ability. Animation, timing, familiarity with controls, and mistakes can all affect how far a player gets.

You can leave the summary open to read it together. Space or Enter starts a fresh game in the same mode; Escape closes the application. There is no requirement to play again.

Progress and totals are not saved between games. R restarts and clears them. Closing with Escape does not first create a summary or save a game to resume. There are no student profiles or saved progress reports.

08 / FOR ADULTS

Advanced mode



Advanced mode is identified at the top of the game window.

Press A during the startup splash screen to select Advanced mode. There is no on-screen instruction for this shortcut. During gameplay, large "ADVANCED MODE" lettering identifies the selection. If normal gameplay has already begun, close and reopen the application to use the shortcut.

Advanced mode is optional practice for a learner ready for larger exact division questions. It is not a reward that every child needs to reach.

The starting dividend ceiling is 99 and the starting divisor ceiling is 9. After every eight correct answers across the game, the dividend ceiling increases by 50, up to 999, and the divisor ceiling increases by 2, up to 50. These are upper limits: smaller questions can still appear. Answers remain positive whole numbers, and up to three answer digits are allowed. The normal Level 7 preference for small divisors does not apply here.

The first seven scenes retain their fire and event patterns. Level 8 is intentionally endless and CANNOT be successfully completed:

- It starts with four window fires.
- Every eight answers in Level 8 introduce another fire. Both correct and incorrect answers, including timeouts, count for this interval.
- Every two incorrect answers in Level 8 add another fire as well. Both intervals can be reached on the same answer.
- All 22 window locations can eventually be introduced.
- After all locations have been introduced, additions can relight an extinguished window. If all windows are already burning, there is no extra location to add.
- If all current fires go out, another fire is started or relit.

Choose a stopping point



Crew animations are automatic. They are not separate tasks to complete.

These rules replace normal Level 8's fourth-correct-answer spread and 11-window cap. Cat rescues can still occur when a suitable blank window is available. An incorrect answer at the last-chance stage can still end the game; the endless setting does not prevent a loss.

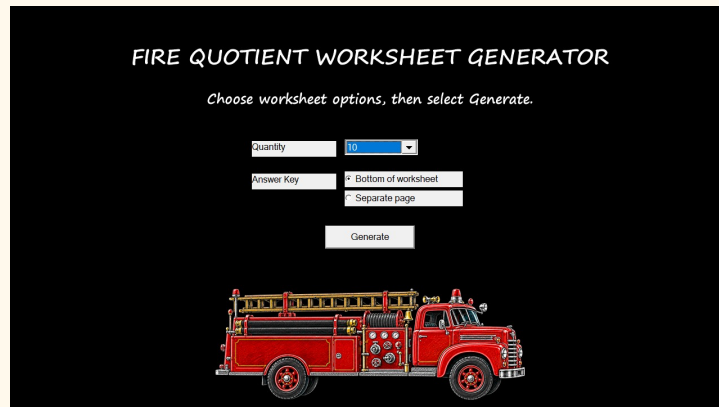
There is no hidden way to win Advanced Level 8. Decide on a limited practice period or question goal with the learner and stop deliberately. Do not use finishing it as an assignment. The maximum successfully completed level count in Advanced mode is seven.

Restarting keeps Advanced mode. To return to normal mode, close the game, reopen it, and let the splash finish without pressing A or W.



09 / FOR ADULTS

Worksheets



Worksheet generator: choose quantity and answer-key placement.

Worksheets provide a way to practice on paper without the game's timer.

1. Open the application and press W during the splash screen.
2. Choose 10, 15, 20, 25, or 30 questions.
3. Choose whether the answer key goes at the bottom or on a separate page.
4. Select Generate and choose where to save the PDF.
5. Open the saved PDF yourself to view or print it.

The suggested filename is Fire-Quotient-Worksheet.pdf. A successful save closes the application. Reopen it and press W to make another worksheet. Canceling the save dialog returns to the generator. There is no button to switch directly from the generator into gameplay; close and reopen for a normal game. If A and W are both pressed during startup, the last choice selects the destination.

Pages use US Letter size (8.5 by 11 inches) and include name and date spaces. With the answer key at the bottom, answers appear on the same page as the questions. With a separate key, the first page contains the worksheet and the second contains answers. Print only the first page if you want to keep the answers for an adult or for later checking.

Worksheet questions are sampled from normal-mode question ranges across all eight levels: divisors 1-9 and answers within 1-14, with exact division. Questions are not repeated within one worksheet. The generator does not have a level selector or an Advanced setting, does not arrange a teaching sequence, and does not use a child's previous game mistakes or results. Check the questions before assigning them and select an appropriate subset if some facts have not yet been taught.

Fire-themed decoration includes burning and burned buildings, fleeing people, fire engines, and cats. These pictures are decoration, not extra questions or clues. The PDF is intended for printing and writing on paper; it is not an interactive answer form. Allow space or separate paper for working, and use the answer key for thoughtful checking rather than speed.

10 / FOR ADULTS

For adults & educators

A supporting role in learning



Before play

Choose the activity by readiness rather than assuming a particular age or grade. Check that the learner has been taught the division facts or methods involved and understands what the division symbol asks them to do. Demonstrate entering, clearing, submitting, and continuing once.

Agree on a modest stopping point: for example, a few questions, one level, or a brief period you choose together. There is no built-in session-length limit. A session can end before a level is finished, and an unsuccessful scene does not require an immediate replay.

During play

Ask occasional questions that reveal thinking without turning every response into a test:

"Which multiplication fact could help you check that?" "How would you show those equal groups on paper?" "Was that a division mistake, or did the controls get in the way?" "Would you like to pause and work through one together?"

Use the unlimited incorrect-answer review for reflection. A displayed answer alone may not resolve a misunderstanding; return to instruction or a practical example when needed. Avoid requiring speed at the expense of explaining a method. If the timer or fire imagery becomes frustrating, stop or move to paper instead of insisting on another attempt.

After play and away from the screen

Pick one equation to discuss, rather than reviewing an entire game as a score report. A familiar fact family can connect the practice to lessons:

$$3 \times 6 = 18 \quad 6 \times 3 = 18 \quad 18 \div 3 = 6 \quad 18 \div 6 = 3$$

A learner might draw equal groups, use counters with an adult, describe a sharing situation, or solve a few related questions from a textbook. These activities reconnect a quick answer with its meaning. Continue to use your established teaching sequence and non-digital resources.

For classroom and professional use

The game can be a short, supervised practice activity after instruction. It does not specify curriculum alignment, provide a complete progression of division skills, or establish mastery. Later levels increase scene complexity without consistently increasing the answer range.

Observe strategies, explanations, and independence alongside answers. Distinguish mathematical difficulty from reading, motor input, time pressure, or unfamiliarity with the game. If recording observations, note the mode and support provided; the summary alone cannot distinguish these factors. Avoid ranking learners by levels or correct-answer totals.

For shared practice, an adult or partner may read the equation or operate the controls while the learner reasons. Make this assistance explicit when interpreting results. The mouse keypad can offer an alternative to digit typing, but a keyboard is still needed to continue review screens.

Visual feedback accompanies sound effects, so listening is not required to determine whether an answer was accepted. However, the game uses custom-drawn text and images and should not be assumed to provide screen reader access or meet every learner's access needs. Preview both the game and its image-based worksheet PDFs. Provide an accessible alternative when the presentation or controls are unsuitable.

A successful session is useful practice followed by a comfortable stop, not necessarily a completed building or a larger score. The design intent of mild engagement is not a guarantee that every child will respond the same way. Adjust or discontinue the activity when it stops serving the learner.



11 / THE GUIDE

Help & troubleshooting

Keep the game files together

Run the supplied FireQuotient.exe with its accompanying image, sound, music, and text files in the game folder. Moving only the executable can leave required resources behind. The game uses local files and requires no player account. It does not maintain a student progress history.

Window size

The game maintains a 16:9 picture. Maximizing can add black bars so the picture is not stretched. Mouse keypad positions follow the displayed picture when the window changes size.

Music and sound

Background music begins when gameplay starts after the splash. The game uses a MIDI loop of Handel's Arrival of the Queen of Sheba. Sound effects accompany the engine, water, people leaving, and cat rescue.

Music pauses when the application is inactive or minimized and at the summary. It resumes when appropriate on return or restart. A short sound effect interrupted by leaving the game does not need to replay from its interruption point; later effects play normally. There is no in-game volume slider or mute button. Adjust application sound through Windows if needed. Worksheet generation does not start the gameplay music.

Common questions

"My number is on the truck, but nothing happens." Press Space or Enter, or click the keypad's Enter button, to submit it. Typing alone does not submit. Submission must happen before 40 seconds.

"I typed the wrong number." Backspace, Delete, or the keypad's Del button clears the whole entry. Then enter the intended answer. Check Num Lock if numeric keypad digits do not work.

"The mouse keypad disappeared." It appears only while a question is accepting an answer. Wait through an animation, or use Space/Enter to leave an incorrect-answer review.

"I answered correctly, but new fires appeared." Levels 7 and 8 have planned spread events. Advanced Level 8 also has ongoing fire additions. These do not change a correct answer into a wrong one. See the level descriptions.

"The game stopped when I switched windows." This is intentional. Activate the game again to resume. Review and summary screens wait for Space or Enter rather than continuing automatically.

"I cannot open worksheets or Advanced mode during play." W and A work only during startup. Close and reopen the application, then press the desired key while the splash screen is visible.

"Where is the worksheet I generated?" It is at the location chosen in the save dialog. The application closes after saving successfully and does not automatically open the PDF.

"Can I continue my previous game after closing it?" No. A new launch starts a new session. Plan short sessions with that in mind; saving or finishing is not required before stopping.

"The final Advanced level will not finish." That is intentional. It has no winning completion state. End your planned practice with Escape; do not keep playing in search of a hidden ending.