

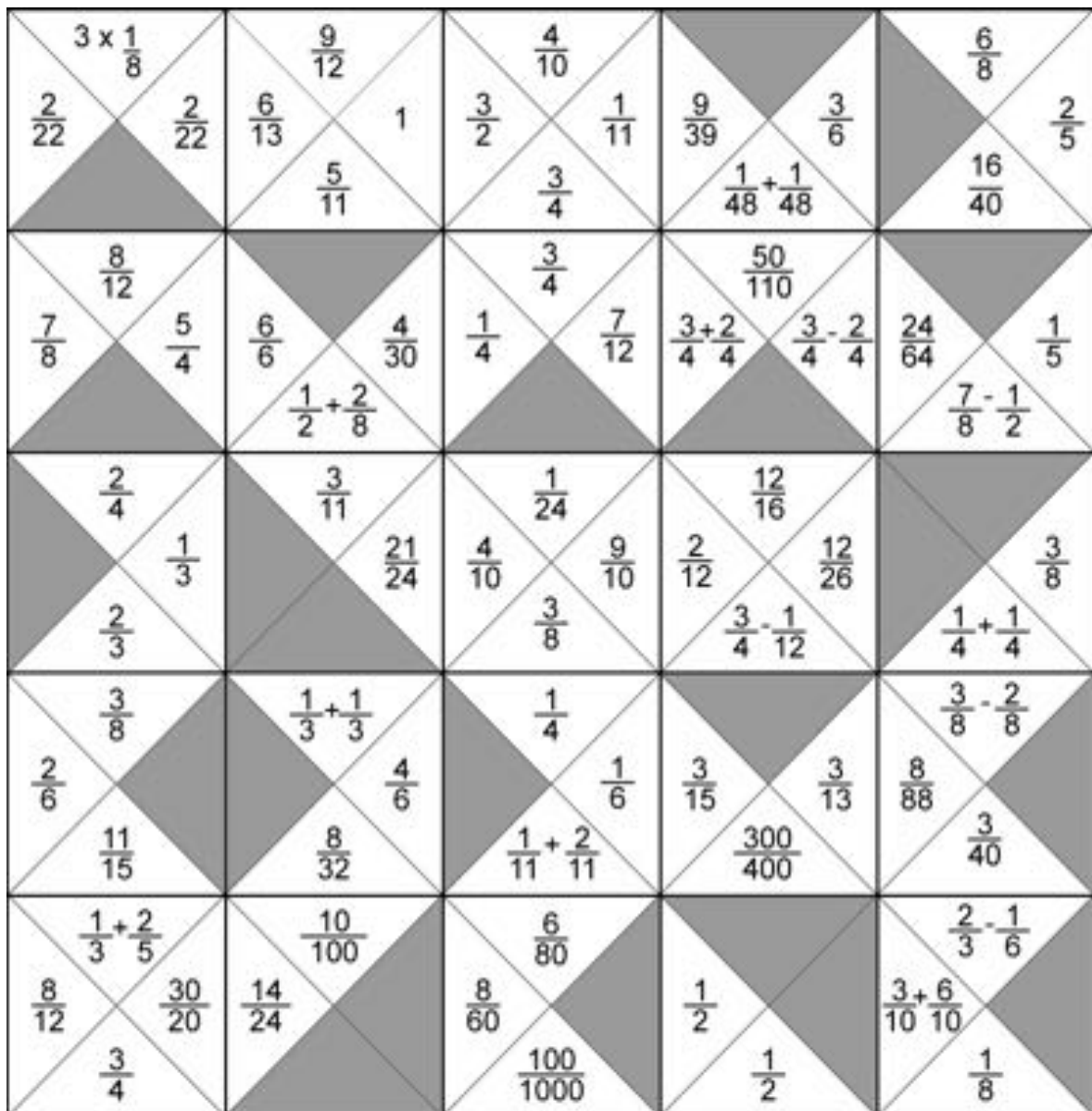
FRACTION JIGSAW

Cut up the jigsaw into squares (don't cut along the diagonal lines!).



Put the pieces together without rotating any of them so that, in the finished jig-saw, all the numbers are the right way up.

Two pieces may only go next to each other if the edges that touch contain fractions that are equivalent, for example the matching fractions in the picture are both equivalent to $\frac{2}{3}$.



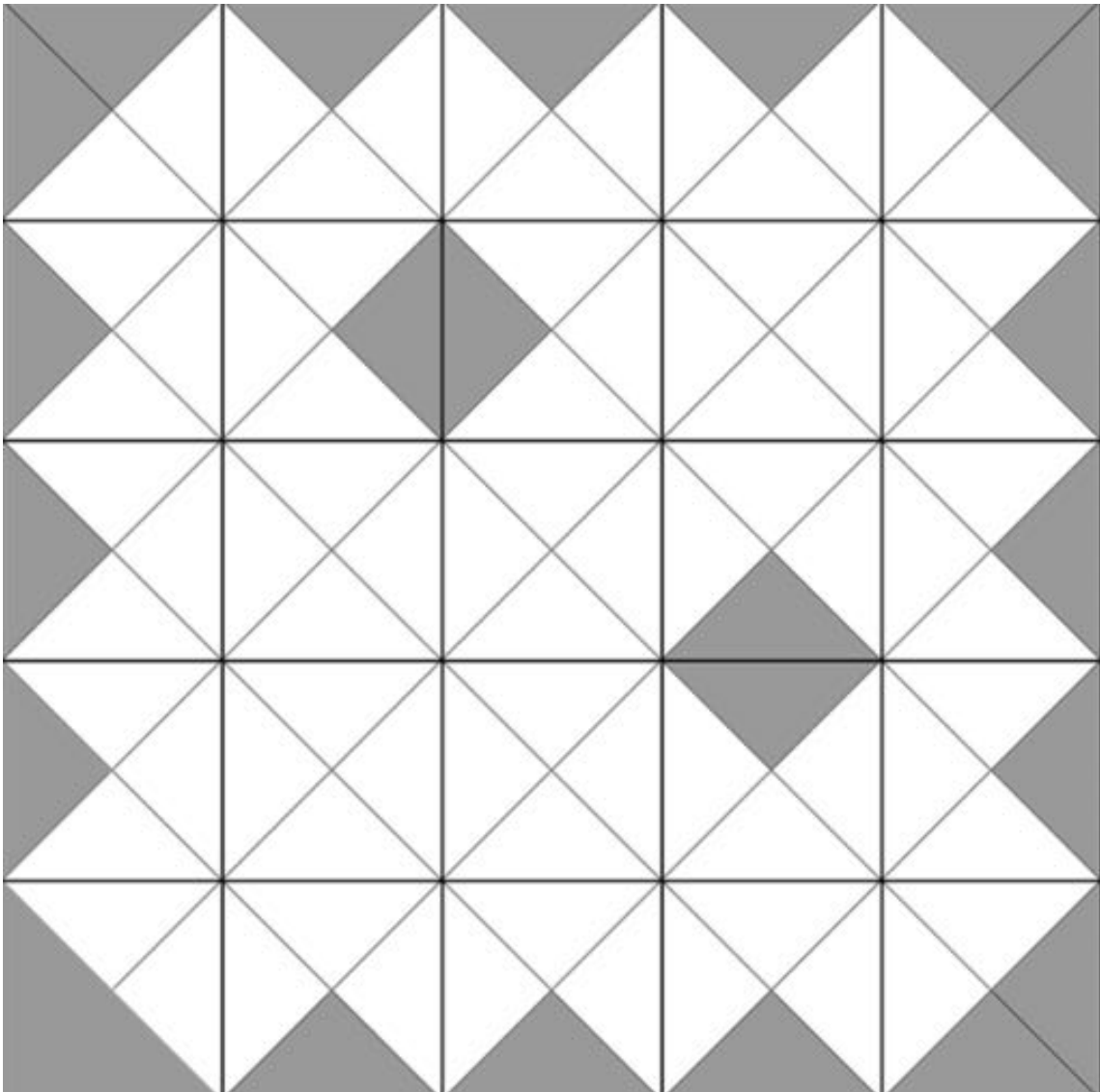
HELP



This piece is at the top left hand corner. The other corner pieces are also half grey and have two sections to be matched. You could start with the corners and work along the edges and then towards the centre.

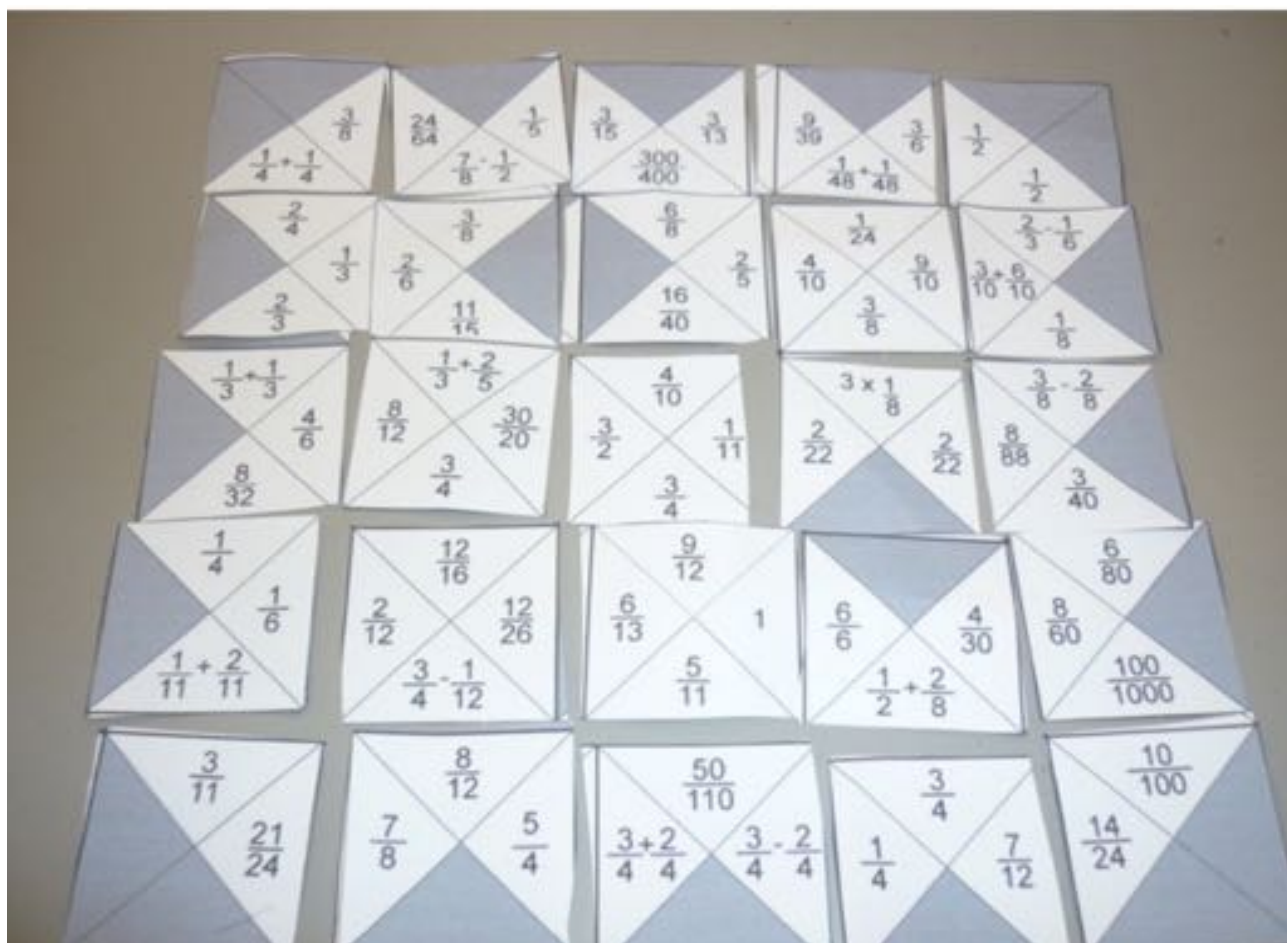
NEXT

When you finish you could make up your own similar puzzle, perhaps with 9 squares or filling in the blank version below. You could then exchange your puzzle with other learners and solve each other's puzzles. You could include multiplication and division of fractions.



Notes for teachers

Solution



You can create, print out, save and exchange customised jigsaws, domino activities and a variety of rectangular card sort activities using "Formulator Tarsia", free software available from the [Hermitech Laboratory website](http://www.hermitech.com).

Why do this activity?

Learners will enjoy solving this puzzle and at the same time they will get practice in working with fractions and in mental arithmetic. The activity is good for learners of all attainment levels provided that you give them time to finish the puzzle.

Encourage the learners that if they persevere they will all succeed.

Learning objectives

In doing this activity students will have an opportunity to develop a better understanding of equivalent fractions.

Generic competences

In doing this activity students will have an opportunity to:

- persevere and work systematically to solve a problem;
- work in a team and collaborate and work with a partner or group.

Diagnostic Assessment

This should take about 5–10 minutes.

1. Write the question on the board, say to the class:
“Put up 1 finger if you think the answer is A, 2 fingers for B, 3 fingers for C and 4 fingers for D”.
2. Notice how the learners responded. Ask a learner who gave answer A to explain why he or she gave that answer and DO NOT say whether it is right or wrong but simply thank the learner for giving the answer.
3. Then do the same for answers B, C and D. Try to make sure that learners listen to these reasons and try to decide if their own answer was right or wrong.

Which of the following fractions is not equivalent to $\frac{3}{4}$



a: $\frac{6}{8}$

b: $\frac{9}{12}$

c: $\frac{12}{15}$

d: $\frac{15}{20}$

4. Ask the class again to vote for the right answer by putting up 1, 2, 3 or 4 fingers. Notice if there is a change and who gave right and wrong answers. It is important for learners to explain the reason for their answer otherwise many learners will just make a guess.

5. If the concept is needed for the lesson to follow, explain the right answer or give a remedial task.

The correct answer is C (which is $\frac{4}{5}$ not $\frac{3}{4}$)

<https://diagnosticquestions.com>

Suggestions for teaching

Cut out 25 very large squares for demonstration purposes and to finish the lesson. Divide the squares into quarters copying the original pieces, write in the fractions exactly like the small version and make the writing large enough for learners to read from the back of the classroom if possible. You will need some putty-like adhesive, for example Prestik, to stick the large squares up on the board.

You may ask learners to work in pairs or in groups of 3 or 4. Give out the worksheet with a small envelope or small bag so that the learners can cut out the pieces and save them for future use. Tell the learners that they must find the matching numbers and place them edge to edge working out the expressions involving adding and subtracting fractions.

It is worth preserving the pieces so that the learners can do this puzzle several times as they will get quicker and get more number work practice each time. At the end of the lesson ask the learners to put the pieces in the envelope so you can collect them to use another time. Finally you may want the learners to stick the pieces into their workbooks to record the solution.

You could help the learners to get started by pointing out that there are 4 corner pieces that are half grey and that they can build from them. Tell them that they can match the pieces so that they get several small areas of the solution and then join these smaller parts as they see matches.

It is important to give the slower learners time to finish this activity so you may like to give the learners who finish early the challenge of creating their own similar puzzles. (See NEXT box on page 2).

To finish the lesson, spread the big demonstration squares on a table at the front or stick them up on one side of the board in a random order. Then invite learners to come up to the front and to stick the pieces in the right places on the board to solve the puzzle. You could start by sticking the central piece on the board in a suitable position so that there will be enough space for the rest of the pieces.

Key questions


- Can you simplify that fraction?
- Have you checked your pieces are correctly matched? (If you spot a mistake)

Follow up

You could use the template on page 2 to make another jigsaw involving multiplication of fractions.

Tangram Fractions <https://aiminghigh.aimssec.ac.za/tangram-fractions/>

FDP Loops <https://aiminghigh.aimssec.ac.za/fdp-loops/>



Go to the **AIMSSEC AIMING HIGH** website for lesson ideas, solutions and curriculum links: <http://aiminghigh.aimssec.ac.za>

Subscribe to the **MATHS TOYS YouTube Channel**
<https://www.youtube.com/c/MathsToys/videos>

Download the whole AIMSSEC collection of resources to use offline with the **AIMSSEC App** see <https://aimssec.app> or find it on Google Play.

Note: The Grades or School Years specified on the AIMING HIGH Website correspond to Grades 4 to 12 in South Africa and the USA, to Years 4 to 12 in the UK and school years up to Secondary 5 in East Africa.

New material will be added for Secondary 6.

For resources for teaching A level mathematics (Years 12 and 13) see <https://nrich.maths.org/12339>

Mathematics taught in Year 13 (UK) & Secondary 6 (East Africa) is beyond the SA CAPS curriculum for Grade 12

	Lower Primary Approx. Age 5 to 8	Upper Primary Age 8 to 11	Lower Secondary Age 11 to 15	Upper Secondary Age 15+
South Africa	Grades R and 1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
East Africa	Nursery and Primary 1 to 3	Primary 4 to 6	Secondary 1 to 3	Secondary 4 to 6
USA	Kindergarten and G1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
UK	Reception and Years 1 to 3	Years 4 to 6	Years 7 to 9	Years 10 to 13