



(ENG) The perfect fit

Introduction

Step 1 - Motivational Stage

Step 2 - Investigational Stage

Step 3 - Consolidation Stage

Introduction



#In-class activity #Experiential learning #Gamified learning
#Teamwork

Tarsia activity is aimed at getting pupils to practise an interlocking game. Collaboration between everyone is essential to be able to reconstruct the hexagonal or triangular shape thanks to the small cut-out triangles they will be given. To do this, it is essential that your pupils have some familiarity with calculations with fractions and decimal numbers. In the first phase, pupils will learn more about inlays from an architectural-theoretical point of view and how great works of art were created using this method. Then they will delve into the world of algebraic calculations.

Among the downloadable materials, you will already find the tiles to cut out, but you can access this link for free to create your own exercise: <https://www.tarsiamaker.co.uk/>

Learning Objectives



Solve first degree equations

ACTIVITY DETAILS

Activity Details

Connection of the activity with Art —

Collage, cutting and sticking



Link to local, national School Curriculum —

Accounting operations and their properties / Calculating with fractions, decimals, integers



Equipment required —

- Scissors
- Notebook
- Calculator (if you think it is appropriate)
- Internet connection
- Computer



Duration of activity —

45 minutes



Sources

Resource #1

www.tarsiamaker.co.uk

Owner: PeterGrahamJersey

Copyright status/source: Copyright 2021 Peter Graham - MIT licence (free of charge)

Resource #2

Unknown author, forty artists contributed to it (the cathedral floor was built between the 14th and 16th centuries.)

The architecture of Siena, (floor detail)

Material: marble

Cathedral of Siena

Source: adobe stock (public domain)

Step 1 - Motivational Stage



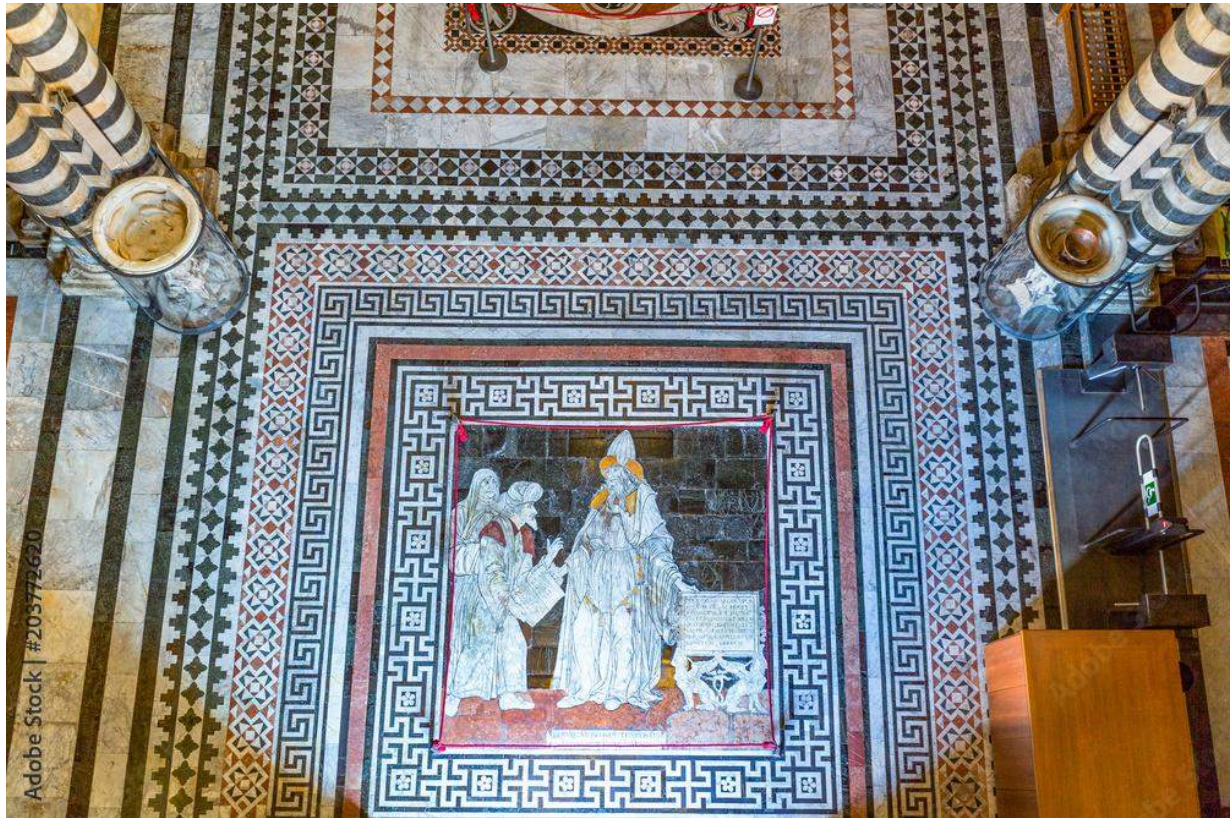
Time: 10 minutes

Start the lesson with a simple question:



“How would you describe a puzzle? What is it? Have you ever seen artwork that looks like a large puzzle?”

Listen to their answers and then introduce the concept of **tarsia**. Using the interactive whiteboard, show them images related to the intarsia architecture, like the floor of the Cathedral of Siena.



The architectures and the art of Siena

Then talk about Tarsia as a decorative floor or wall covering technique in which the tiles that make up the design are quite large and are cut out according to a precise pattern and then fitted together.

Step 2 - Investigational Stage



STUDENTS' TASKS

30 minutes

Now divide the class into small groups of 2 or 3, and give them their "algebraic tarsias" tiles, which you will find below.

i There are three levels of difficulty to choose from depending on the time available and the level of the class (for a 45-minute activity, the easy template is recommended).

To make the exercise more fun, print out the tiles in a different colour for each group of pupils created and run an intarsia challenge.

Pupils will find in each tile two or three operations to perform, which can be:

- Calculation with fractions
- Calculation with fractions and whole numbers
- Conversion of fractions to decimal numbers and vice versa

The activity involves solving the operations to find the right tiles to put side by side.

(Suggest to your pupils to start with the calculating operations to arrive at the solution in order to simplify the numbers).

Set a sound background and let the activity of the master craftsmen begin.



**Calculating with fractions, decimals and integers_ Worksheet
EASY.pdf**

44.7 KB





**Calculating with fractions, decimals and integers_ Worksheet
MEDIUM.pdf**

54.1 KB



**Calculating with fractions, decimals and integers_ Worksheet
DIFFICULT.pdf**

68.2 KB



Step 3 - Consolidation Stage



5 minutes

At the end of the half-hour, stop their activity even if they have not finished it. You can always give them extra copies to do at home.

Reflect with them on the importance of having a partner in this endeavour. Four eyes are always better than two, especially if you have to arrange the tarsias to create the most difficult shapes.

Ask them if there were any operations that were more difficult than the others and if you have time to do them together with them, you can eventually annotate the most critical points to come back to in the next lesson.

Piecing together a picture from small, messy pieces requires a lot of patience and time, the ability to correct mistakes without getting down on yourself, and the ability to see beyond but without rushing.

Leave them with one last thought about how a whole number can be simultaneously written in decimal and/or fractional form, how this exercise allowed them to look at their goal through the **glasses of fragmentation**, as pieces to be combined and messed up, as one big set of fractions!

End of the activity

EXIT