

Diagrams and fractions - lesson 2.1 - Adding up to 1

Summary

This lesson introduces addition of fractions. This is done by asking the students to obtain sums that add up to 1. Note that, at this point, they do not have to actually do the adding, because the final result is fixed and can be achieved by “cutting” the original square (unit).

Material: video, worksheets, notebook with the diagrams and one pack of grids for each student.

Outline of the lesson

Video

The goal is to introduce addition of fractions visually while, at the same time, reinforce the idea of unit.

You may start the lesson with a regular starter and then play the video. It could be interesting to play it more than once.

After watching the video, ask the students to solve the next task without further explanations.

Introduction

This is an introductory task to check if the students understood what they saw on the video.

The students should use their notebooks with the diagrams and the blank grids available.

After giving some time for them to solve, check the answers and discuss eventual errors.

The issue of using unitary fractions several times ($1/8+1/8+1/8$) instead of one single fraction ($3/8$) may appear. It would be interesting to mention that both ways are correct, but the second is more economic.

Main task

The goal is to see if the students can create sums dividing the diagram successively.

It is important to emphasize that they should use the diagrams in their notebooks.

Check if the students are only creating simple solutions, such as $8/8$. If yes, ask them to create more complicated solutions using 2 or 3 different fractions.

They should be encouraged to try out with the blank grids.

Challenge

A similar but more challenging question to push them towards unfamiliar combinations of fractions.

It is important to check if the students are being systematic when combining fractions from different pages (dividing half square into 3 equal parts gives you sixths) or just combining pieces visually ($1/3+1/5$ looks like $1/2$, but it is not).

An interesting question to pose when a student solve this question is: How have you chosen the fractions? Numerical strategies may arise at this point.

Extension

The final questions can be directed by forcing certain combinations: try to find a sum with one fraction from the “third page” and one from the “fifth page”.