


In2steam Lesson Plan (Activity) Template

1. Name of the lesson	<i>Mondrian Fractions</i>
2. Target group	Students aged 8-11 years old
3. Duration	2 hours
4. STEAM Skills/ 21st Century Skills	<p>Critical thinking Creative thinking Problem solving</p> 
5. Expected outcomes	<p>By the end of this unit, students will be able to:</p> <ul style="list-style-type: none"> ● understand the concept of mathematical fractions and how they can be graphically visualised and represented in a more intuitive way, using different colors and using different rectangles and squares of a sheet as a measure ● use visual fraction models to explain equivalent fractions, with attention to the differences in the number and size of the parts even when the two fractions are the same size ● enrich understanding on fraction equivalence and ordering through art
6. Subjects and topics covered	Math (fractions); arts (harmony of colors and learning how to attribute colors not in a casuistic but thoughtful way). This activity
7. Methodologies	Problem based learning
8. Integration of the Arts	Arts are integrated during the entire exercise, as students have to draw, choose and combine colors, and thus they will develop a visual sensitivity and a sense for aesthetics through the harmony of colors and their combinations. The activity also allows teachers to educate students on primary colors and their complementarities
9. Learning Environment	Classroom
10. Required resources	<ul style="list-style-type: none"> ● Paper ● Coloring materials ● Black marker ● Piet Mondrian artwork examples
11. Prior knowledge a. teacher b. students	<p>In order to deliver this lesson, the teacher will need to have the following knowledge and skills set:</p> <ul style="list-style-type: none"> -be familiar with fractions - be familiar with the Mondrian artworks - good communication and coordination skills - ability to explore how the use of black lines (using a black marker) can highlight the similarities and differences in different sizes <p>To be able to participate and contribute to this lesson, the students will need to have achieved the following standards:</p>

	<p>-basic knowledge of fractions</p> <p>-introduction to Mondrian artworks</p>
<p>12. Detailed description of the step-by-step sequences of the unit, incl. specific activities to support the learning experience</p>	<p>STEP 1: ensuring prior necessary knowledge:</p> <ul style="list-style-type: none"> ● Explain to the students the work of Mondrian, who studied the relationships of lines and colors (originally using only the 3 primary colors) to achieve harmony and balance <p>STEP 2:</p> <ul style="list-style-type: none"> ● Ask students to think about fractions and how they can be represented. Students can start from 2 different fractions <p>STEP 3:</p> <ul style="list-style-type: none"> ● Ask students if the two fractions take up the same amount of space. If fractions that take up the same amount of space are called equivalent fractions. <p>STEP 4:</p> <ul style="list-style-type: none"> ● Give students materials to create a real-live Mondrian, starting from the equivalent fractions they selected before <p>STEP 5:</p> <ul style="list-style-type: none"> ● Give your students a blank sheet of paper or draw an empty square on a blank sheet then draw other small squares. The child will decide independently how to make his/her own Mondrian-style painting and complete it with black rows and columns to identifies the different areas <p>STEP 6:</p> <ul style="list-style-type: none"> ● Students will draw equivalent fraction bars of their chosen fractions. <p>STEP 7:</p> <ul style="list-style-type: none"> ● To help students, you can choose 2 different colors (one for the fractions having the smaller denominators and one for the fractions having the larger denominators) <p>NB. the activity can also be performed online using spreadsheets with different squares such as Excel</p>
<p>13. Gender-inclusive strategies and activities planned</p>	<p>During assessment, make sure everyone gets to use the same materials, avoid gender stereotypes such as pink colours to be used by girls and blue by boys etc.</p>
<p>14. Assessment & Evaluation</p>	<p>Students can check other’s artwork and verify if the fraction representation are right or wrong. Include activities to check for understanding, opportunities for self-assessment and reflection; make allowances to evaluate the work during the lesson, so that necessary adjustments can be made and findings can be used for further planning</p> <p>How to do that?</p> <ul style="list-style-type: none"> -Have students peer-review each other’s artwork to check that equivalent fraction representation is correct. -Students can also review each other’s work for the use of primary colors and patterns to show the fractions in relationship with each other.

<p>15. Intellectual property rights (IPR) / Origin of the activity</p>	<p>Lesson planned adapted from: Education closet and learn it by art</p> <p>For other information, you can also visit Mondrian project in the arts classroom</p> <p>https://www.youtube.com/watch?v=RhTf6iaccYA&ab_channel=ChristinaConnell</p>
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