

Story: [Fractions in Disguise](#)

Author: [Edward Einhorn](#)

Illustrator: David Clark

Teacher: [Bonnie McClure](#)

Setting of the class / school: An elementary school in Richardson, Texas

Age group: 9-10 year olds (Grade 4)

Number of children in the class: 22

Learning intention: To practise reducing and simplifying fractions

Key mathematical vocabularies: reduce, simplify, numerator, denominator, fraction, equivalent

Resources needed: A copy of 'Fractions in Disguise', pictures of different fractions that are not simplified, table cloths, iPads, journal books, and paper and clipbooks

### Synopsis by the publisher:

When a valuable fraction goes missing, George Cornelius Factor (a.k.a. GCF) vows to track it down. Knowing that the villainous Dr. Brok likes to disguise his ill-begotten fractions, GCF invents a Reducer - a tool that strips away the disguise, reducing the fraction and revealing its true form. Equal parts of action and humor add up to a wholly entertaining introduction to simplifying fractions.

### Starter / Teaching input (5 minutes):

While most of the story took place in Dr. Brok's mansion, I adapted the setting and turned my classroom into an 'art museum' instead. I did this by hanging black table cloths from the ceiling toward the ground all around my classroom ahead of the lesson. (All of the desks and chairs were behind the 'walls' and we did not use them during the lesson.) To create 'fraction paintings', I painted some of the fractions (i.e. a grid with cells coloured in two different colours) on cardboard and others I made from construction paper (see Figure 1). On my door, I had a sign that read, "Welcome to the Fraction Museum.  $\frac{1}{2}$  price admission day" (see Figure 2). In order for students to gain access to the museum, they had to tell me a fraction equivalent to  $\frac{1}{2}$ . Once students were inside the museum, I read aloud *Fractions in Disguise*. As we were reading, students were simplifying the fractions found throughout the story in their journal (exercise book).

### Main activity (45 minutes):

After reading the whole book, I told students that, just like George Cornelius Factor, they were on a mission today to find, in this case, the mysterious  $\frac{7}{9}$  fraction painting. The idea is for the students to work with a partner to visit each of the 15 fraction paintings displayed around the 'museum', write down the fraction exhibited (e.g.  $\frac{8}{10}$ ,  $\frac{8}{24}$ ,  $\frac{24}{27}$ ) and simplify it where possible. Students recorded their work in their journal or on a piece of paper on a clipboard (see Figure 3). While students were working, I went around the room asking questions to check for their understanding. Once students found the mysterious  $\frac{7}{9}$ , they had to come tell me, but keep it a secret so they do not spoil it for those students who are still working, then they continued simplifying the other fraction paintings.

Next to each fraction painting was a brief description of what the artist was trying to portray in their painting (e.g. 'When a chameleon loses his tail, there is no need to worry since it will grow back on its own. This artist is showing the fraction of the tail the chameleon lost'). In addition to the description, I also included a Quick Response (QR) code (see Figure 1), which made it easy for students to use an iPad to check their work after they have simplified the fraction, and try again - if needed. Since this lesson was a review of strategies used for reducing fractions which I have previously taught, my students were fairly successful completing this activity.

For the fun role-play effect, I found an old keyboard and a whisk, and I made a replica of the Fraction Reducer - similar to the one used by the main character in the story (see Figure 4), so that my students could use it to pretend that the machine helped them simplify the fractions.



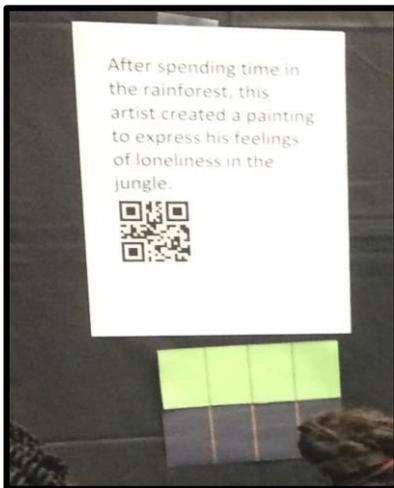
**Plenary (10 minutes):**

To conclude the lesson, we all sat on the floor and discussed which fraction we thought was the mysterious  $\frac{7}{9}$  and why. Then, we quickly went over each of the fraction paintings, and I picked a few students to simplify them using a white board to model for the other students how to simplify each problem.

**Reflection:**

This story picture book helped me transform my classroom into an unforgettable experience for my students. At the end of the academic year, I received so many cards and letters from my students saying the Fraction Museum was their favorite day. This was our review before our simplifying fractions test, and it had my students so engaged. They worked nicely together, and they were able to master the concepts throughout the whole day from providing me with an equivalent fraction to  $\frac{1}{2}$ ; solving the simplified fractions within the *Fractions in Disguise* book, and going around my fraction museum.

**Figures:**



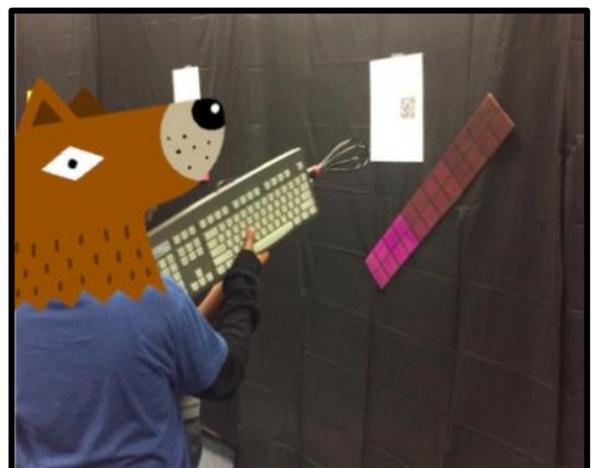
**Figure 1:** An example of the 'fraction paintings' with a label that says 'After spending time in the rainforest, this artist created a painting to express his feelings of loneliness in the jungle'.



**Figure 2:** This was the sign hanging on my door.



**Figure 3:** These girls are simplifying the fraction painting hanging on the wall.



**Figure 4:** Students are using the Fraction Reducer to check their work.