

Graphics Lesson Plan Essay

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The concept of teaching fractions to students is typically met with some apprehension by teachers. Historically, fractions have been a very difficult concept to master simply because it uses and relies upon a system of symbols that is foreign to the student. Compounding the problem, the symbol system represents quantities that are unfamiliar - parts of a whole. We, as teachers, need to be reminded of the fact that our goal is not the rote manipulation of Math symbols, but an understanding of the concepts involved with dealing in fractions. In their book, Teaching with Technology, Norton & Wiburg wrote, "Human thought is marshaled by cultural symbol systems." Should we not recognize that children respond better to graphical representations of information when we are attempting to teach these concepts? This lesson plan is designed to reinforce the concept of fractions using graphical representations for the amounts. It draws upon the inherent superiority of graphical symbols when used to represent quantities.

Once the initial phase of the activity, research on the types of crops grown in the various regions of Virginia, is complete, groups of students are to create a garden of crops. Drawing upon the information they obtained in research, the group will create this garden on paper divided into sixteen squares. Rather than numerically represent the fractional portion of the garden that is to be planted with each crop, the students will represent those divisions using a graphic of their own design. This allows the students to both create the fractional parts of each garden and represent the parts of that garden using symbols that are more familiar to them. The pictorial

representation of the fractions will be more meaningful to the students and allow them to manipulate the data better. Donald Norman, in Things That Make Us Smart, writes, "...graphs are useful because they can translate the abstract, difficult-to-interpret numerical relationships into perceptual, readily visible pictorial ones." Those students that have difficulty in grasping the basic concept of fractions will likely be more successful if the symbols used are more meaningful.

Another benefit of incorporating graphics into the lesson is that the students will be better able to see the relationships of the parts to the whole. One of the more difficult aspects of teaching fractions is that, while a student might become adept at manipulating the symbols (reducing, or finding equivalent fractions), they are still not able to understand the relationship of the fraction to the whole. This type of activity allows the student to view a graphical representation of this relationship. This will foster a greater understanding of the concepts.

In a larger sense, and perhaps most importantly, this type of activity will help develop a type of literacy within each student. In his book, Cognition and Curriculum Reconsidered, Elliot Eisner discusses this type of literacy. He states, "...the ability to 'encode' and 'decode' the meanings construed from different forms of representation requires a form of literacy." In the course of this lesson, the students will have the opportunity both to encode, or construct meaning using graphical symbols for crops, as well as decode information to derive meaning. Eisner encourages the use of various media, appealing to different senses, in the development of cognition. He uses the term "forms of representation" when discussing how we represent information. He stresses that, "Education ought to help the young learn how to create their own meanings through these forms." This lesson provides the opportunity for students to utilize various 'forms of representation' in the design of their gardens and the representation of the

fractions.

Technology gives teachers the tools with which they can explore and encourage a new type of literacy within their students. The use of computer graphics programs allow students to develop new forms of representations for concepts in a variety of content areas. Students will respond better to the experientially rooted graphical symbols than to the more reflective numerical representations. This type of exploration can only strengthen the reinforcement of a lesson through a deeper understanding of the underlying concepts while providing the students with opportunities to develop a new kind of literacy.

Bibliography

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